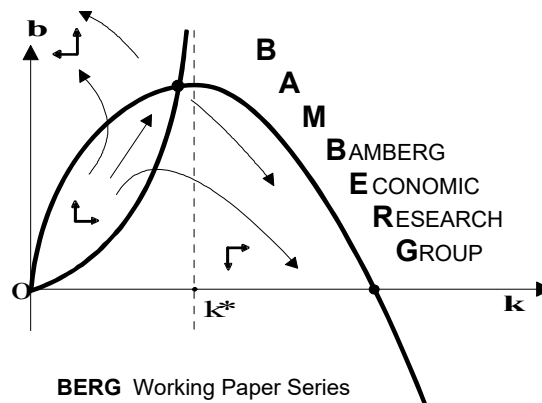


# Are Some People More Equal than Others? Experimental Evidence on Group Identity and Income Inequality

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# Are Some People More Equal than Others?

## Experimental Evidence on Group Identity and Income Inequality

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### Abstract

We investigate the effects of group identity and income inequality on social preferences and polarization by means of a laboratory experiment. We split our subjects into two populations: in-group (representing “natives”) and out-group (“migrants”). In-group subjects repeatedly vote whether an unemployment insurance should cover *all*, *some*, or *no* members of their group. By means of a two-by-two design we disentangle the effect of group identity from those of income inequality. Among others, our experiment yields the following findings: (1) subjects tend to vote for *less inclusive* insurance schemes when they sample a higher chance of employment; however, (2) in-group subjects with an ex ante more beneficial distribution of employment chances – relative to the out-group – are less selfish and vote for *more inclusive* insurance schemes; (3) ex ante more beneficial relative employment chances of in-group subjects also leads to less polarization; and (4) revelation and priming of group identity does not lead to discrimination against out-group “migrants” but, on the contrary, can lead to more compassionate and inclusive attitudes.

**Keywords:** Income Inequality, Political Polarization, Migration, Economic Voting Behavior, Group Identity

**JEL classifications:** C92, D72, J15.

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# 1 Introduction

The dramatic increase in economic inequality around the world over the last decades has become a central issue in the current political debate. At the same time, structural geopolitical and economic shifts have led to even more pronounced migratory movements not only to the European Union and the United States, but also in other parts of the world. It has been argued that both developments have contributed to the increasing polarization of politics and rise of extreme parties (see e.g. Inglehart and Norris, 2016 and Alesina et al., 2019), but it is difficult to disentangle their individual effects. This is because both phenomena have often influenced each other and have appeared simultaneously. On the one hand, the legal and illegal movement of people across borders has increased over the last decades not only due to events such as the creation of the NAFTA and the expansion of the common labor market in the EU, but also due to the Syrian War, the Venezuelan economic collapse, and others. On the other hand, the 2008 Great Recession exacerbated the already increasing income and wealth inequality around the world (Atkinson et al., 2011, Stiglitz, 2012, Piketty, 2014).

An important example of the influence of both developments is the Brexit. After the 2004 expansion of the EU, there was a significant increase of immigration of citizens of the new member countries that settled in the UK in search of jobs (Sumption and Vargas-Silva, 2020). This caused a political backlash in the British politics, which, after the 2008 economic crisis and the following recession, culminated with the Brexit referendum that was ultimately won by the “Leave” camp with a narrow margin. A further consequence of this political melee and the narrow victory margin in the referendum was an increased polarization, in terms of political distance, between pro- and anti-EU voters, as well as between Scotland and other British constituent countries. The polls showed that the immigration was the most important argument for Leavers (Fisher and Renwick, 2018), but their specific motivation remains unclear: was it a straightforward dislike of the “foreigners”, or rather an economic anxiety that these “aliens” will take over jobs from the native population, and put pressure on the already strained social safety programs, as discussed by Fetzer (2019). A similar question can be raised regarding Trump voters and their attitudes with respect to Latin-American migrants in the 2016 US presidential election or regarding some EU citizens who vocally opposed the influx of refugees primarily from the Syrian War in 2015.

In the current debate about the perception and acceptance of immigrants, not only the changes in society and social identity play an important role, but also the shifts in the distribution of income that arise because of the arrival of immigrants. In this paper, we design a laboratory experiment to separate the effects on the participants’ social preferences of group identity from those of relative economic status and thus from economic inequality reasons. Moreover, we try to find out which of the two plays a larger role in the minds of the laboratory subjects. Further, we are interested in how attitudes may become more polarized due to these factors. To the best of our knowledge, no experimental study has been conducted that addresses the question whether political polarization and

an unwillingness for redistribution are mainly driven by factors related to relative economic status, or rather by social identity and group formation.

In our laboratory experiment we elicit opinions and preferences for different political schemes in a controlled environment. We focus on a setting of labor market and unemployment insurance, which is both politically relevant and familiar for our subjects. In each treatment we study a pool of 28 subjects who are assigned to two different types which we interpret as “natives” (20 subjects) and “migrants” (8 subjects), respectively. However, we do not use these politically charged terms towards the subjects in the experiment and instead rely on the more neutral **Green** and **Purple** color framing. The most important difference between these two groups is that the natives (besides their obvious majority) enjoy political privilege by having exclusive voting rights on the type of social safety net that is implemented.

In particular, each treatment runs for 20 or 25 periods. At the beginning of each period, subjects are randomly split into four groups, each consisting of 5 natives and 2 migrants. Every subject then randomly draws a chance of being employed (which we treat as a representation of the relative economic position in the society), and the native subjects vote whether they want to impose in their group: a) no unemployment insurance, b) unemployment insurance for the whole group, or c) a “partial insurance” (only for some group members, which depends on the treatment).

We use a two-by-two experimental design involving four treatments that allows us to disentangle the two dimensions of our research problem: income inequality between native and immigrant populations on the one hand, and group identity on the other. In the first dimension, native subjects sample employment chances from the same distribution as the migrants (Equality treatments) or are guaranteed to sample better chances than the migrants (Inequality treatments). In the second dimension, native subjects are unaware of the division of the group into two types with different political representation (Grey treatments) – or to the contrary, are explicitly told about the existence of the “migrants” subjects (who were framed as **Purple**) and group identity is induced by a simple group exercise for the **Green** subjects (the “natives”) before the start of the experiment (**Colorful** treatments). Furthermore, in the two **Colorful** treatments “partial insurance” is framed as covering only the **Green** subjects, while in the two **Gray** treatments it is framed as covering only those with an high enough employment chance. This gives us the unique opportunity to isolate the effects of group identity from that of income inequality on political polarization and willingness for social sharing.

We are interested in several research questions. First, do people care about income inequality or about their relative economic status when they decide upon an insurance system that also affects their peers? Second, are people motivated by the pure like or dislike of the “other” even if it has no discernible impact on their income? Third, is there a potential feedback between these two dimensions?

Our experimental results can be summarized by the following four findings. First, subjects in all treatments were at least to some extent motivated by the prospect of a higher expected personal

net income: the higher the employment chance, the less likely they were to vote for a full or partial insurance scheme. At the same time, subjects with low employment chances were more likely to choose partial insurance (rather than full) if this insurance scheme would imply being covered with higher benefits at a lower taxation level. Secondly, subjects from the Inequality treatments (with a more beneficial ex ante distribution of employment chances) tended to behave, on average, in a less selfish fashion. Combining the first and the second finding, the most selfish behavior was exhibited by subjects who faced ex ante worse income distribution, but were lucky to sample the best employment chance. Thirdly – and contrary to popular political discourse – color revelation resulted in the native subjects reacting with *compassion* towards the migrants, which can be seen in higher voting rates for the full insurance scheme. Fourthly, the voting heterogeneity (i.e. voting polarization) was higher both when group identities were revealed (in a way that *benefited* the migrants) and when the native income distribution was equalized with that of the migrants (in a way that was to the detriment of the latter population).

To sum up, our experiment suggests a complex relationship between voting, income distribution and group identity, and by extension, migration. It seems that relative economic status has contradictory “average” and “marginal” effects: subjects tend to be more inclusive when they enjoy an ex ante more privileged relative income position (in terms of the range of employment chances that they sample from), but once they achieve an ex post position which is better *given* their ex ante distribution, they become more selfish. Group identity, on the other hand, tends to lead to more polarization, but in a way that can make the migrants better off.

The remainder of the paper proceeds as follows. We review the existing related literature in Section 2. Section 3 describes the design of the experiment. In Section 4 we discuss our testable hypotheses and experimental procedures, while the results are discussed in Section 5. Finally, Section 6 summarizes our findings.

## 2 Related literature

This paper is based on two strands of literature. The first strand is focused on a large body of research that investigates how monetary incentives influence people’s decisions. Many of these studies have focused on how monetary incentives can be used as an instrument to increase individual’s performance. On the one hand, a number of authors have reported the positive effects of monetary incentives in individual actions.<sup>1</sup> For example, Schröder et al. (2013), Börsch-Supan et al. (2013) and Singer et al. (1999) demonstrate the positive impact of monetary incentives on response rates in surveys. Similarly, Caselli and Morelli (2004) and Ferraz and Finan (2009) show how monetary incentives improve the

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<sup>1</sup>Since a full discussion of the effect of monetary incentives on individual’s performance lies beyond the scope of this study, we limit this part providing some empirical evidence in selected fields. See for instance Bonner and Sprinkle (2002) for a thorough literature review.

quality of the government. On the other hand, Bonner et al. (2000) and Camerer and Hogarth (1999) find no evidence that monetary incentives increase performance in management accounting and in an experiment with mixtures of incentives schemes, respectively. Taken together, empirical evidence suggests that the effect of monetary incentives on decision making at the individual level cannot be easily generalized across different settings.

The second strand of research is related to the link between immigration/ethnic diversity and preferences for redistribution. A large and growing body of literature has suggested a negative relationship between immigration or ethnic diversity and the preferences of individuals for redistribution.<sup>2</sup> Much of the previous research has been conducted using observational data from surveys, see for instance Alesina and Ferrara (2005) and Stichnoth and Van der Straeten (2013) for an overview. The first contributions related to these questions are provided by Alesina et al. (2001), Luttmer (2001) and Lind (2007) for the United States using the General Social Survey. They find that the support for redistribution differs by racial preferences as African Americans tend to be much more supportive of welfare spending compared to White Americans. Furthermore, Alesina and Glaeser (2004) argue that ethnic heterogeneity is one of the explaining factors why United States and European countries share different welfare systems. They state that higher social heterogeneity, that results from relatively higher immigration rate, tends to hinder the scope of redistribution policies.

More recently, Alesina et al. (2019) assess native's perceptions and attitudes towards immigrants and how these characteristics influence their preferences over redistribution. They conduct a large-scale survey as well as an online experiment in six developed countries (France, Germany, Italy, Sweden, the United Kingdom, and the United States). From the survey results, they find that natives, on average, overestimated the factual share of immigrants in all countries and furthermore believed that immigrants had lower levels of education and also lower income levels. Most natives also wrongly estimated the composition of immigrants, thinking that most of them came from the Middle East and North Africa and Muslim regions. Stronger negative misperceptions towards immigrants were found among those individuals, who possessed low levels of education or who worked together with immigrants. The experiment was based on three different treatments. The first treatment (priming treatment) provided no information on immigration. The second treatment (informational treatment) provided factual information on the size and origin of immigrants. Finally, the third treatment (anecdotal treatment) provided a (non-factual) narrative story about a hard-working immigrant. The authors find no impact of these treatments on the connection between immigration perceptions and support for redistributive policies. In an earlier paper, Senik et al. (2009) draw similar conclusions. They use data from the European Social Survey from 2002/2003 to explore the link between immigration and support for a welfare state and find a strong association between negative attitudes towards immigrants and less support for welfare programs.

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<sup>2</sup>Redistribution policy in the literature, as well as in this paper is meant to describe the relationship between taxation payments and expenditures related to social benefits and public services.

Natural experiments have also been used to study this phenomenon. For instance, Dahlberg et al. (2012) investigate the impact of the refugee placement program in Swedish municipalities from 1985 to 1994 and demonstrate that a larger share of immigrants coming from non-OECD countries reduced support for redistribution (social benefits) policies. Moreover, the support for welfare programs depends on the degree to which immigrants are allowed to participate in democratic processes?. While natives have the right to vote and take decisions based on their own preferences, immigrants, in general, do not share the same rights and cannot express themselves in elections. This approach is explored by Chevalier et al. (2018) who found a positive link between the presence of immigrants with voting rights and redistribution. They investigate the arrival of around eight million forced migrants in West Germany after World War II who in fact were Germans themselves – they were refugees from the territories that Germany lost to USSR, Poland and Czechoslovakia after 1945, and they had full voting rights. The authors show how this inflow of immigrants had a positive effects on welfare state and preferences for more redistribution.

The literature has also examined how high levels of inequality may affect individual preferences for redistribution via other-regarding preferences. Alesina and Giuliano (2011, p. 94) state that an altruistic behavior, i.e. a “situation in which one agent cares also about the utility of somebody else”, may emerge among some individuals when the level of income inequality is high. Using the General Social Survey for United States and the World Value Survey for international cross-country evidence, the authors show that individual socioeconomic status, perception of fairness are among the important determinants of preferences for redistribution. Moreover, Giuliano and Spilimbergo (2009) show that macroeconomic historical experiences affect preferences for redistribution. Macroeconomic shocks may render some individuals more risk-averse, support more redistribution policies, and adopt a left-wing political orientation.<sup>3</sup>

Another important issue is how immigration may affect political preferences. Dustmann et al. (2019) highlight the effect of refugee migration on voting outcomes in municipal elections in Denmark from 1986 to 1998. They find that larger shares of refugees in the overall population? increased electoral support for right-center and anti-immigration parties at the expense of left-leaning parties. Tabellini (2020) analyzes the effects of European immigration to the United States between 1910 and 1930. The author demonstrates that the higher cultural distance between the established population and new European immigrants, the more likely a backlash against immigrants. As a consequence, the political discontent of the already established population was expressed by the choice of lower redistribution policies through voting in favor of more conservative legislators.

More recent attention has focused on the social identity theory as a key determinant of people’s preferences over distribution. This theory was developed by Tajfel and Turner (1979) to explore the psychological basis for intergroup behavior and intergroup conflict. According to the social identity

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<sup>3</sup>For a general review of the literature, see Dimick et al. (2018).



theory, the nature of the intergroup relations is based on social categorizations with which people identify themselves and others. Thoughts, values, beliefs or whatever that may play an important role for categorization will develop a feeling of membership in a group. As a result, this categorization draws the borderline between in-groups and out-groups where “intergroup categorization leads to in-group favoritism and discrimination against the out-group” (Tajfel and Turner, 1986, p. 282). Given the relevance of this psychological factor, a considerable amount of recent theoretical and experimental studies has incorporated the social identity theory into economic analysis as a key determinant of redistributive preferences.<sup>4</sup>

Several lines of research confirm the in-group favoritism and out-group discrimination. Among the experimental evidence, Hargreaves Heap and Zizzo (2009) examine how group membership affects individuals’ behavior in an experimental trust game and find that insiders show not only a positive discrimination (more charity) towards themselves, but also a negative discrimination (less charity) towards outsiders. Similarly, Chen and Li (2009) find a positive effect of group identity on social preferences. They point out that participants show more charity and less envy when they are matched with in-group members compared to the out-group. Eckel and Grossman (2005) designed a repeated-play public good game based on a team production problem to examine the effect of identity on team production. They find that “just being identified with a team is, alone, insufficient to overcome self-interest”. Nonetheless, activities created to improve team identity contribute to higher levels of team cooperation. Haile et al. (2008) conduct a series of trust game experiments in South Africa to explore the effects of racial and income inequality on cooperativeness in society. Although they do not find evidence that either race nor income by itself can lead to discrimination, they observe that “the low income individuals of both races invest little in partnerships with a high income partner from the other race” (Haile et al., 2008, p. 3). They define this behavior as cross-racial envy.

Finally, competition for limited resources is another important characteristic that may heighten inter-group relations. Campbell (1965) proposed the “realistic group conflict theory” which states that intergroup conflict is based on conflicts of interests between groups, and it thus intensifies due to rivalry over scarce resources as jobs, power, wealth or status differences (changes in the perceived prestige). Some studies have investigated discrimination towards immigrants by analyzing labor market competition as a main determinant, in particular how economic shocks have affected only individual’s political opinions, as well as how societies have been becoming more polarized. Majlesi et al. (2020) illustrate that U.S. counties with greater trade exposure have become more polarized by the election of more conservative legislators in the United States. Similar conclusions are obtained by Colantone and

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<sup>4</sup>Akerlof and Kranton (2000) was the seminal study that introduced the social identity theory into economic analysis using a model of behavior based on a set of social categories. The authors propose the inclusion of social identity or self-perception in a utility function as the main motivation for individual behavior. This framework is used to understand gender discrimination, the economics of poverty and social exclusion. See also Costa-Font and Cowell (2015) for an overview on how social identity has been measured in the literature and its effect on redistribution attitudes.

Stanig (2018) and Anelli et al. (2019) for Western European countries. Colantone and Stanig (2018) highlight how political beliefs of individuals who live in regions more exposed to trade competition shifted towards more right-leaning political parties. Anelli et al. (2019) find that areas with more exposure to automation support more nationalist parties. Similarly, Gennaioli and Tabellini (2019) provide a theoretical model where group identity is introduced in a political economy that is described by the nature of in-group vs out-group. They investigate how group formation is based on voter’s belief and how this distances leads to more polarization. Similarly, we are interested in which voting behavior and political polarization may be affected by increasing competition in the domestic labor market.

### 3 Experimental Design

#### 3.1 Setup

We consider a simple  $2 \times 2$  design involving 4 treatments, as illustrated in Table 1. For each treatment, we ran one session with 28 subjects (optimized to the size of our laboratory). In all treatments, participants are permanently assigned one of two different types: **Green** and **Purple**. The 20 **Green** participants are meant to represent the native part of the population, while the 8 **Purple** participants represent the non-native (or migrant) part. In order not to bias the experimental results, we do not frame to the subjects the two groups as native versus immigrant populations, but use a more politically neutral color framing.

The experiment was run for 20 periods for the one (**GI**, see below Table 1) treatment and for 25 periods for the three other treatments. In each period  $t$ , the 28 subjects were randomly split into groups of 7, which are always composed of 5 **Green** participants and 2 **Purple** participants. There were thus always 4 groups of seven participants, however, their composition changed in every period  $t$ .

The subjects were informed that the group size was fixed at 7, and additionally, in the two **Colorful** treatments the subjects knew that their group always consisted of 5 **Green** and 2 **Purple** participants (including themselves). Subjects knew about the group randomization, but were not informed which other participants are members of their group at any time. This allows our design to exclude group-specific lock-in dynamics, an issue that could be studied in future experiments.

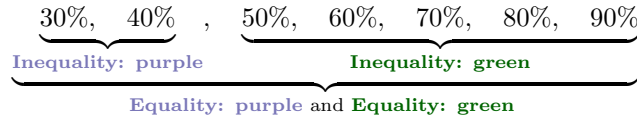
In the two treatments denoted as **Gray** treatments (**G**), the existence of the two color types is not revealed to the subjects. In the two other treatments, denoted as **Colorful** treatments (**C**), the subjects are informed about the division into two color types are further primed to be consciously aware of this division during the experiment. Firstly, at the beginning of the session, **Green** subjects participated in a quick group formation game, which will be described later. Secondly, the presence

of the small **Purple** minority of the subjects was highlighted by purple pieces of paper on the wall over the desks of these subjects, which were visible for all participants throughout the game.

**Table 1:** Treatments

	Gray (G)	Colorful (C)
Equality (E)	GE	CE
Inequality (I)	GI	CI

In each period  $t$ , all participants had a random chance of being employed and thus receiving a high income. The second treatment dimension relates these random employment chances to the two color types, as illustrated in Figure 1. In the Inequality (I) treatments the two **Purple** participants (the “migrants”) always draw their employment chances randomly and independently<sup>5</sup> from the  $\{30\%, 40\%\}$  set, while the five **Green** participants (the “natives”) always draw their chances randomly and independently from the  $\{50\%, 60\%, 70\%, 80\%, 90\%\}$  set. This implies that in the I treatments the **Green** subjects can expect ex ante a visibly higher income than the **Purple** ones. In the Equality treatments (E), it is also the case that in each period two participants draw from  $\{30\%, 40\%\}$  and five participants draw from  $\{50\%, 60\%, 70\%, 80\%, 90\%\}$ . However the two ‘unlucky’ participants are now randomly chosen from the whole group of seven subjects and could be **Purple** as well as **Green** participants. Hence, the ex-ante expected employment chance of **Purple** participants is the same as that of **Green** participants in the E treatments and there is no inherent income inequality between the two types.<sup>6</sup>



**Figure 1:** Employment probabilities

The task of all subjects in every period  $t$  is to vote on an **unemployment insurance scheme** that can introduce a social security program in their group in the current period (the groups vote independently from each other). Subjects observe their accumulated payoff, the results from the last voting round that they had participated in, and their last payoff, as well as the employment chances of their current group members. The game has the following timing in each period  $t$ :

<sup>5</sup>The independence means both across the subjects and the periods. All draws are taken from a uniform multinomial distribution.

<sup>6</sup>Notice that the in the two Inequality treatments, the **Green** subjects are in fact more equal between themselves, since they sample employment chances from a “better” and narrower distribution. The distinction between equality and inequality in this paper always refers to the between-group income differences.

1. if the period is  $t \geq 2$ , subjects are informed about the results of the voting from their former group, their payoff from period  $t - 1$  and their accumulated payoff;
2. subjects are notified about their own employment chances for the current period  $t$ , as well as employment chances of other members of their current group;<sup>7</sup>
3. subjects vote individually on the insurance scheme, which is then selected based on the votes of the **Green** participants only (see Section 3.3);
4. the employment status of the subjects is realized based on their individual employment chances;
5. subject payoffs are realized based on their employment status and unemployment insurance.

We discuss the possible unemployment insurance schemes in Section 3.2 and then the voting mechanism in Section 3.3. In Section 3.4 we summarize the four treatments and highlight how these can be used to disentangle the effects of group identity from those of income equality. Payoffs are discussed in Sections 3.5. Finally, in Section 3.6, we discuss the short group formation game that we let **Green** subjects play to prime group identity in the **Colorful** treatments.

## 3.2 Unemployment Insurance Scheme

As previously mentioned, all the subjects observe their employment chance, as well as the employment chances of the other members of their current group at the beginning of each period  $t$ . Participants are then asked to vote for their first and second most preferred unemployment insurance scheme. The three possible choices are:

- **Full insurance** where the government provides a universal safety net for all 7 group members.
- **Partial insurance** where the government provides a safety net, but only for a specific part of the group (to be specified in detail below).
- **No insurance** where the government does nothing and no group member is insured.

Notice that with three options, eliciting the first and second choices yields the full ranking of preferences.

In the case that the **Full** insurance scheme is implemented in a given group, there is an active intervention of the government: all employed group participant (**Green** and **Purple**) pay a tax, while all unemployed group participants (**Green** and **Purple**) receive unemployment benefits. This happens irrespective of the treatment.

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<sup>7</sup>Recall that groups are reshuffled in every period and that subjects are not informed about the identity of the members of their group. This also implies that they don't know the history of employment chances or of voting patterns of their current group peers.

In the case that the **No** insurance scheme is implemented, there is no intervention of the government, irrespective of the treatment. As a result, there are neither tax payments nor unemployment benefits in this group.

Unlike for the other two options, the implementation of the **Partial** insurance scheme depends on the treatment. Under the **Colorful** (C) treatments, only **Green** subjects take part in the **Partial** insurance scheme, meaning that only the employed **Green** subjects pay the tax and only the unemployed **Green** participants receive the benefit. On the other hand, the **Purple** subjects are excluded. Note that under the **Colorful** inequality (CI) treatment, the **Green** participants have a monetary incentive to exclude the **Purple** ones, since these always have substantially lower employment chances. On the other hand, under the **Colorful** equality (CE) treatment there is no such incentive ex ante, and there is only  $1/42 \approx 2.38\%$  probability that the two **Purple** group members are both selected to receive the low  $\{30\%, 40\%$  employment chances.

Under the two **Gray** (G) treatments, the five subjects insured under the **Partial** scheme are those who enjoy the high employment chance of at least 50%, i.e. have employment chances in the  $\{50\%, \dots, 90\%$  set. Notice that under the **Gray** Inequality (GI) treatment, the unequal distribution of employment chances implies that all the **Green** participants are automatically included in the **Partial** insurance, even though the participants are not explicitly informed about this and are unaware of the existence of the two color types.<sup>8</sup> On the other hand, under the **Gray** Equality (GE) treatment the **Partial** insurance may include both **Green** and **Purple** participants, since both types can draw a low employment chance. Finally, in both **Gray** treatments there is a monetary incentive for the subjects with at least 50% employment chance to vote for **Partial** insurance and thus to exclude the ‘unlucky’ participants with lower employment chances.

### 3.3 Voting Mechanism

An interesting aspect of immigration in modern countries is that typically only the native population is allowed to vote, but that its electoral choices directly influence the welfare of non-voting immigrants. In our study this is represented by the following voting scheme: the choice of insurance scheme in a particular period in a particular group is based on the votes of the five **Green** subjects from that group, while the two **Purple** participants only indicate their preferences and have no effect on the final outcome of the elections. In other words, only the **Green** participants decide on the inclusivity of the insurance, even though **Purple** participants are potential contributors and beneficiaries.

The specific voting procedure is as follows. First, all participants are asked for their most preferred choice from the three options above. Next, all participants are asked to select their second preferred choice from the two remaining options, in case their most preferred choice is not implemented.

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<sup>8</sup>However, all subjects do know their own set of possible employment chances and are thus aware whether they themselves will always be included in, or always be excluded from, the partial insurance scheme.

For the **Purple** subjects, the voting decision is framed as a preference questionnaire. These subjects however are informed that their payoff depends on their group’s insurance scheme.<sup>9</sup>

For the **Green** subjects, the choice is framed explicitly as a voting decision. Regardless of the treatment, these participants are told that the “most popular” option will be implemented. Under the two **Gray** treatments, the **Green** voters do not realize that only five out of seven members of their group vote and that the two **Purple** ones are irrelevant.<sup>10</sup> On the other hand, in the two **Colorful** treatments the **Green** subjects are informed that only their five votes matter and that **Purple** subjects do not possess any voting rights.

The choice of the insurance scheme is based on the standard ranked voting mechanism. Once the votes are cast, the choice with majority of **Green** votes (i.e. with three, four or five votes) wins. In the case that the most preferred choices of the **Green** subjects in a group do not provide a clear victory and two choices tie with two votes each,<sup>11</sup> the tie is broken based on the second preferred choice of the fifth **Green** voter who cast their vote for the least popular option. For example, if **Green** subjects 1 and 2 voted for **Full**, subjects 3 and 4 for **Partial**, and the fifth subject was the only one to vote for **No**, their second preference will break the tie.

### 3.4 Income inequality and group identity: Treatment Summary

Our experiment is designed to disentangle the effect of income inequality from group identity, in the context of the labor market and unemployment insurance schemes. We highlight this by the following summary of the treatments.

- **Gray Equality (GE)** treatment:

In this treatment, all participants have the same expected employment chances and are unaware of the split into two groups. Moreover, the **Partial** insurance scheme covers all lucky participants with an employment chance of at least 50%. This is the only treatment where **Purple** participants may also benefit from the **Partial** insurance scheme and do not have any disadvantage other than not being able to vote.

- **Gray Inequality (GI)** treatment:

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<sup>9</sup>We decided to assign the role of **Purple** group members to actual subjects, who are visible to the **Green** subjects, instead of computerized bots, in order to ensure that we elicit actual other-regarding preferences.

<sup>10</sup>Note that we are careful not to deceive subjects. We *do* tell **Green** subjects that they themselves are always allowed to vote and that this is not the case for all members of their group. However, they are not told how many – and which – group members are not allowed to vote. Furthermore, they are not told whether some subjects are always excluded from voting. Hence, **Green** subjects are unaware of a presence of an “immigrant” minority that is never allowed to vote, which is the main purpose of having this treatment dimension.

<sup>11</sup>Note that with three options and five voters, the only possible results are 5:0:0, 4:1:0, 3:2:0, 3:1:1 and 2:2:1, where only the last one is a tie without a clear majority.

There now is an unequal distribution of skills or labor market discrimination, expressed as uneven employment chances. Each individual **Green** participant knows that they always have an employment chance of at least 50% and is better-off than some others. Moreover, participants know that the **Partial** insurance scheme will only cover those with employment chances of at least 50%. The **Green** participants hence know that they always will be covered by this insurance scheme. However, since participants are not told that subjects are divided into two color types, the group identity does not play a role in the **Green** subjects' decisions.

- **Colorful** Equality (CE) treatment:

Subjects are informed about the existence of the two color types and know that the **Partial** insurance only covers the **Green** subjects, while excluding the **Purple** participants. However, in this treatment, both color types have the same ex-ante employment probabilities. The **Partial** and **Full** insurance schemes, hence, result in exactly the same expected payoffs for **Green** participants. Therefore, a preference for the **Partial** over the **Full** insurance scheme would be driven solely by group identity and other-regarding preferences.

- **Colorful** Inequality (CI) treatment: The final treatment combines group identity as in the CE treatment with inequality as in the GI Treatment.

### 3.5 Payoffs

Subject payoffs are based on the implemented insurance scheme, their employment status and their type: either **Green** or **Purple**. Detailed tables of the payoffs for all treatments and for the **Green** and **Purple** participants can be found in Appendix A.

The baseline payment for an employed subject in any period is 400 points, while it is 80 points for an unemployed participant. Notice that these payments are the same for the **Green** and the **Purple** subjects, and thus that, in the absence of insurance, an ex-ante potential income inequality in the two Inequality treatments is caused only by the uneven distribution of the employment chances. The above payoffs are the final payoffs in the case that **No** insurance scheme is implemented, and also for all participants that are not covered by the **Partial** insurance in the case that scheme is implemented.

If there is an insurance scheme in place, unemployed and covered subjects receive an unemployment benefit which is added to the baseline unemployed payment of 80. Employed and covered participants, on the other hand, need to pay a tax, which is subtracted from their baseline payment of 400. This tax is chosen such that the implemented insurance scheme is ex ante self-financing in expected terms, i.e. the ex ante expected sum of the benefits is equal to that of the contributions.<sup>12</sup>

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<sup>12</sup>In a repeated setting, this implies that the insurance scheme is self-financing in the dynamic sense, i.e. a period of high unemployment will be almost surely offset by a period of low unemployment.

In the case of **Full** insurance in all treatments, as well as in the case of **Partial** insurance under the CE treatment, the unemployment benefits are equal to 150, so that the payoff of a covered unemployed subject becomes 230 points. This is financed by taxes equal to 100 points per covered employed participant, whose payoff becomes 300 points.

In the GI, GE and CI treatments, only subjects with a high employment chance of 50% or more are covered by **Partial** insurance scheme. The unemployment benefits under **Partial** insurance hence are a bit higher here (175 points), while taxes needed to finance them are lower (75 points). Final payoffs of covered employed (unemployed) subjects hence become 325 (225) points.

### 3.6 Group formation game

As mentioned above, the **Green** subjects under the two **Gray** treatments were unaware that they are divided into two color types. However, in the two **Colorful** treatments subjects were informed about the **Purple** participants, who cannot vote but can still be part of the insurance scheme. We wanted to guarantee a possibility of the **Green** players to form a group identity without resorting to politically charged framing about immigrants, and therefore asked them to play a simple game at the very start of their two sessions.

Our Bamberg lab consist of two adjoined rooms. At the very beginning of both the CI and CE treatment sessions, once the laboratory was closed and participant list was checked, we asked the 20 **Green** subjects to stay in the first, rather cramped, room and the 8 **Purple** participants to move into and wait in the second room. Then, the **Green** players were given 2 minutes to sort themselves alphabetically based on their first names, which we then checked with the list by asking them to shout their name aloud. Interestingly, both groups performed this task quickly and without a single mistake, and were rewarded with the promised 1 EURO additional reward at the end of the session. Once the game finished, all subjects were seated next to their computer stations, where the **Purple** players were visibly marked with purple sheets of paper above their computers.

## 4 Testable Hypotheses and Experimental Procedures

Below we will present and motivate our testable hypotheses in Section 4.2. Before we do that, we introduce the way in which we will operationalize the concept of polarization which plays an important role in our hypotheses (Section 4.1). We will end this section with an overview of the experimental procedures (Section 4.3).



## 4.1 Polarization

As explained in the introduction, a major theme of our paper is political polarization. We will operationalize this phenomenon in its simplest form: as a substantial heterogeneity of votes. A particularly interesting version of such a polarization would be a scenario where our subjects would increasingly split between **Full** and **No**. In three out of four treatments, the **Partial** insurance is at least as beneficial as **Full** for the **Green** subjects, thus it seems reasonable that subjects with some degree of risk aversion would be naturally attracted to it. If, however, we find that in any of these treatments the **Full** and the **No** scheme gain in popularity, this would suggest that voters react in a heterogeneous fashion: some become more inclusive towards the **Purple** participants, while others more exclusive towards all participants. Such a reaction is likely to be driven by different forms of other-regarding preferences. In practice, the native population tends to be much larger than the migrant one, hence such a polarization has a potentially much greater impact on the labor market as a whole.

We also want to emphasize that none of these schemes on its own has to be interpreted as “radical”, hence our definition of polarization pertains less to extreme ideologies (which is what that term points to in natural language) and more towards extreme differences between the voters.

## 4.2 Testable Hypotheses

The difference between Equality (E) and Inequality (I) treatments highlights the effect of ex-ante inequality of opportunities and ex-post income inequality in a society. In particular, the **Gray** Equality (GE) serves as a benchmark to study the underlying preferences of our subjects on unemployment insurance. The **Gray** Inequality (GI) treatment will reveal the pure effect of income inequality on willingness for redistribution. At the same time, the two **Colorful** (C) treatments will reveal the effect of the division between the native **Green** population and the **Purple** immigrant one, i.e. the effect of group identity on social welfare choices.

We will therefore focus on the following three hypotheses:

**Hypothesis 1:** Voting decisions respond to incentives regarding individual (expected) payoffs:

- (a) ***Green** subjects with relatively high employment chances will be less willing to support more redistributive insurance schemes, regardless of the treatment;*
- (b) *Participants that would be covered by both the **Full** and the **Partial** insurance schemes have a preference for **Partial** when this insurance scheme gives them a strictly higher payoff than **Full**.*

This Hypothesis is the least controversial from the point of view of mainstream economic literature. Hypothesis H1(a) implies that, regardless of the treatment, **Green subjects** will more

likely switch away from **Full** and **Partial** towards **No** when they draw higher individual employment chances. Regarding Hypothesis H1(b), recall that the **Partial** scheme gives a strictly higher payoff than **Full** (for those that are covered by it) in treatments GE, GI and CI, but not in CE. This Hypothesis therefore predicts a clear preference for **Partial** insurance over **Full** insurance in the former 3 treatments, but not in the latter.

**Hypothesis 2:** *The **Green** subjects' support for redistributive insurance schemes depends ceteris paribus:*

- (a) **negatively** on having more equal ex-ante employment and thus income chances (**Full** and **Partial** being less popular relative to **No** in CE vs. CI and GE vs. GI);
- (b) **negatively** on the revelation of the group identities when redistribution towards **Purple** subjects is concerned (**Full** being less popular than **Partial** and **No** in CE vs. GE and CI vs. GI).

This is our main Hypothesis. It implies the existence of two important factors in subjects' preferences. Firstly (H2a), under the two income inequality treatments CI and GI, the **Green** subjects enjoy a visibly better economic status compared to the **Purple** subjects (even if they do not observe the colors under the GI treatment), which may result in them having a higher degree of acceptance of the economic and political hierarchies preordained by these treatments, and thus be more willing to exhibit a pro-social behavior (i.e. voting for either **Full** or **Partial** insurance with higher frequency). Secondly (H2b), the **Green** subjects framed with in-group identity may react negatively towards the **Purple** out-group, which would entail lower voting frequency for the **Full** insurance under the two **Colorful** treatments.

**Hypothesis 3:** *The polarization of the **Green** subjects' attitudes towards redistributive insurance schemes will depend:*

- (a) **positively** on having more equal ex-ante employment and thus income chances;
- (b) **positively** on the revelation of the group identities.

This Hypothesis predicts that both (a) the two Equality treatments as opposed to the Inequality ones, as well as (b) the two **Colorful** treatments in comparison with the **Gray** ones, should have a higher dispersion of votes. In particular, GI and CE should be the least and the most polarized treatments respectively.

The three Hypotheses are closely related to the literature which we discussed in detail in Section 2. In sum, **Hypothesis 1** refers to the vast body of research that investigates how monetary incentives influence performance, or – as in our case – preferences over redistribution. Even though, as pointed out by Awasthi and Pratt (1990, p. 798) “the effects of monetary incentives on performance cannot be generalized across different settings”, we nonetheless support the idea that our **Green** subjects

will, at least to some extent, try to optimize their expected payoff balanced with some risk aversion penalty. This motivates the two parts of this Hypothesis, as described above.

**Hypotheses 2 and Hypotheses 3** are related to the link between immigration/ethnic diversity, preferences for redistribution and other-regarding preferences in general. While **Hypothesis 2** illustrates two possible channels that may affect the **Green** subjects' acceptance of redistributive policies, **Hypothesis 3** highlights the possibility that immigration combined with loss of the relative economic position by the native population may lead to an additional political backlash and polarization. In particular, hypotheses H2(a) and H3(a) are based on the main contribution by Campbell (1965) where competition for real resources (or – as in our case – competition in the labor market due to changes in the perceived economic prestige from **Green** subjects) may intensify intergroup conflicts. Hypothesis H2(a) postulates that changes in the economic perceived prestige of **Green** subjects may reduce their acceptance for more supportive redistribution policies (by switching towards **No**). Hypothesis H3(a) points to the possibility that changes in the economic perceived status of **Green** subjects may polarize their voting behavior, resulting in more heterogeneous voting patterns. Hypotheses H2(b) and H3(b) focus on the groups identity theory, proposed by Tajfel and Turner (1979), as a source of discrimination. Hypotheses H2(b) pertains to the direction in which the **Green** subjects' acceptance for more redistributive policies is affected by the revelation of the two different groups, the effect which we expect to be negative. Moreover, Hypothesis H3(b) illustrates how voting behavior of the **Green** subjects is affected by the presence of **Purple** migrant population, which again we expect to result in more polarization society. As pointed out by Alesina et al. (2019), Senik et al. (2009) and among other, there is a negative association between immigration and more support for redistribution from the native population (in our case **Green** subjects) towards immigrants (in our case **Purple** subjects). Similarly, as indicated by Majlesi et al. (2020) and Colantone and Stanig (2018), polarization increases when foreign competition increases in local labor markets.

### 4.3 Experimental procedures

Our experiment was conducted in the Bamberg Laboratory for Experimental Research (BLER) at the University of Bamberg throughout the summer term 2019. We used the software oTree (Chen et al., 2016) to program the experimental GUI for the subjects. Most of the participants were students from the University of Bamberg. We run one session of 28 subjects per each treatment, with four sessions and 112 participants in total. The experiment was conducted in German language (including instructions, GUI and oversight). The experimental instructions for all treatments (translated to English) can be found in Appendix B .

All subjects were allowed to participate in one session only. Each treatment session lasted approximately one hour and 15 minutes. The exchange rate was set to 750 tokens (experimental points) for 1 Euro. Moreover, in the **Colorful** treatments, **Green** participants had the possibility to earn €1

with their initial group formation game mentioned above. If they succeeded in that game, €1 was added to the final payments of all participants in the session. Furthermore, each participant was paid a €4 show-up fee. Table 2 shows the number of sessions and treatments, and the number of **Green** and **Purple** subjects and periods in each treatment. Notice that the GI treatment session lasted for 20 periods, while all the remaining for 25.<sup>13</sup> In total, we collected 2660 observations, which consists of 1900 observations for the **Green** subjects and 760 observations for the **Purple** subjects.

**Table 2:** Features of experimental sessions

Treatment	Sessions	Subjects	Periods	Total Observations
<b>GI</b>	1	<b>20</b>	20	400
	1	8	20	160
<b>GE</b>	1	<b>20</b>	25	500
	1	8	25	200
<b>CE</b>	1	<b>20</b>	25	500
	1	8	25	200
<b>CI</b>	1	<b>20</b>	25	500
	1	8	25	200
<b>Total</b>				2660

Each session had the following timing. Firstly, in the CI and CE sessions we ran the group formation game as discussed in Section 3.6. Next, subjects were seated at their computer stations and given time to read the instructions and answer control questions (see Appendix C). Once we made sure that the game setup was clear, the proper part of the experiment started. It usually lasted around 50 minutes, after which the subjects answered a post-experiment survey which contained questions about demographical characteristics, risk attitudes, and strategies used during the experiment. Information about the payoffs, experimental instructions, and survey are included in Appendices A, B and C.

## 5 Experimental Results

In our analysis we will focus on the **Green** subjects, since as the “native” population they had a monopoly on voting and thus a clear incentive to vote as to secure the implementation of their desired election results. As we mentioned before, the **Purple** participants, who represent the immigrants, do not enjoy the voting rights, but only indicate their preferences without any influence on the voting outcome. As is standard in the economic experimental literature, we will not analyze in detail these

<sup>13</sup>The first session served as a successful pilot, after which we realized that the experiment can run for 25 periods and still fit in the allocated time.

unincentivized choices.<sup>14</sup>

In Section 5.1 we first present the aggregate experimental data and consider how the behavior of our subjects generally differed across treatments and across sampled employment chances. We will also shed some light on the validity of Hypotheses 1 and 2. Next, we turn to a more in-depth analysis of the individual decisions in Section 5.2, where we confirm these initial results. In Section 5.3, we will move the discussion to the issue of polarization and explicitly address Hypothesis 3. Following this, in Sections 5.4 we gather our findings on the attitudes of in-group **Greens** towards out-group **Purples** and provide an interpretation. Finally, we present the results related to our post-experimental survey in Section 5.5.

## 5.1 Overview

Table 3 shows the frequencies of winning regimes, as well as the frequencies of votes, for the four treatments. Table 4 reports the results for pairwise *t*-tests for whether these frequencies are significantly different for each strategy and each pair of treatments. The **Partial** insurance is by far the most preferred policy choice under the GI treatment with 83% of groups and 61% of subjects voting for it over the other two options. This result is not surprising, since under this treatment the **Green** subjects have a clear monetary incentive to chose the **Partial** insurance over the **Full** one. This is because both schemes cover them, but the **Partial** one is cheaper and provides higher benefits. We can therefore conclude that in the absence of group identity, participants seem to clearly respond to the individual monetary incentive and prefer an insurance scheme that is better for them. This is in line with Hypothesis 1(b).

An interesting additional observation is the clearly lower frequency of the actual votes on the **Partial** compared to times this scheme has won a majority. The second most popular choice was **No** with 23%, and as will be explained later, this represents **Green** subjects who had high enough employment chances to risk having no insurance at all. This requires some luck, however, and in practice such subjects tended to be a minority within any given group, and thus they rarely could impose their preferred choice.

### 5.1.1 Employment chances

Next, we consider how the voting decisions depended on the employment chances that participants were facing. In Figure 2, we plot, for each treatment, how the the fractions of votes for **Full** (blue squares), **Partial** (red circles) and **No** (green triangles) vary with the employment chances (horizontal axis). The four panels correspond to the four different treatments.

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<sup>14</sup>We leave for further research whether there exists a systematic difference between these unincentivized choices and the incentivized subjects' voting decisions.

**Table 3:** Frequencies of winning strategies and overall votes (only **Green** participants' decisions).

Treatment	% of regimes			% of votes		
	Full	Partial	No	Full	Partial	No
<b>GI</b>	7	83	10	16	61	23
<b>GE</b>	17	52	31	28	39	33
<b>CI</b>	38	52	10	39	40	21
<b>CE</b>	40	30	30	35	29	36

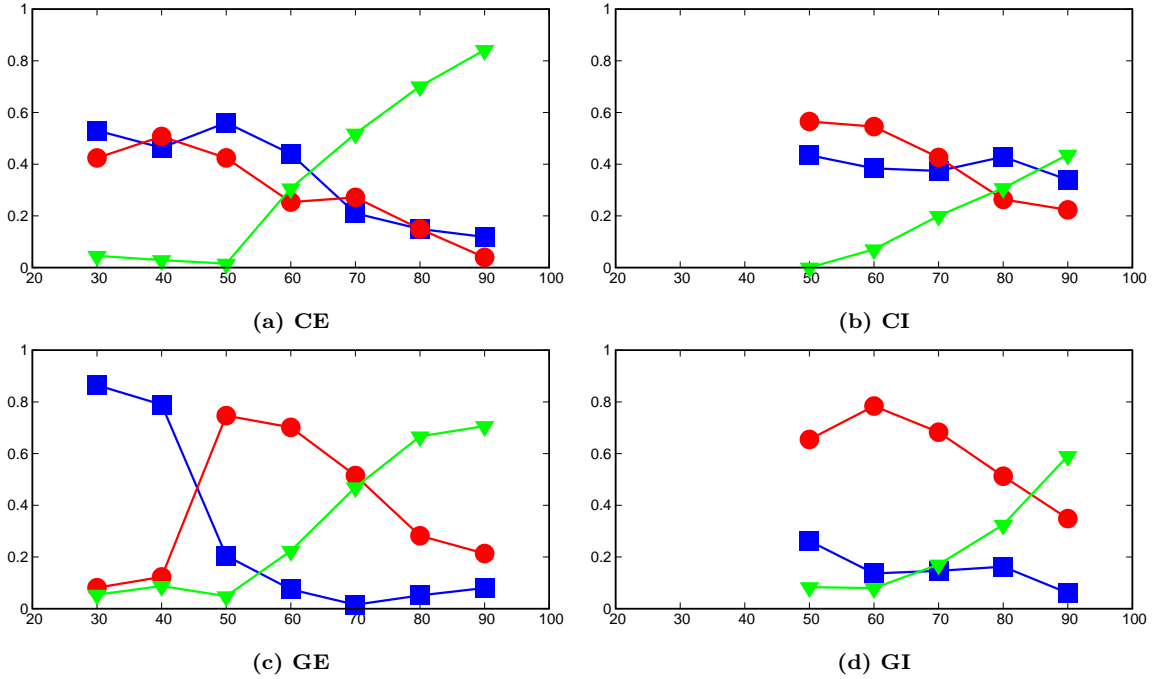
**Table 4:** T-test statistics for differences in regimes and votes between each pair of treatments. \*, \*\* and \*\*\* denote 10%, 5% and 1% significance level respectively.

Treatments	Regimes			Votes		
	Full	Partial	No	Full	Partial	No
<b>GI vs. GE</b>	-1.9794**	4.6251***	-3.6557***	-4.65***	6.7801***	-3.2031***
<b>GI vs. CE</b>	-5.6555***	8.3547***	-3.5026***	-6.7234***	10.075***	-4.3564***
<b>GI vs. CI</b>	-5.3435***	4.6251***	0	-8.1727***	6.2719***	0.9519
<b>GE vs. CE</b>	-3.707***	3.2289***	0.15282	-2.113**	3.2878***	-1.1963
<b>GE vs. CI</b>	-3.4044***	0	3.7903***	-3.5646***	-0.51683	4.398***
<b>CE vs. CI</b>	0.28855	-3.2289***	3.6332***	-1.4426	-3.8103***	5.6153***

In all treatments, the green curves (frequencies of **No** votes) are clearly upward sloping for higher employment chances and close to zero for low employment chances. The other two curves (frequencies of **Full** and **Partial** votes) are generally downward sloping along the employment chances axis. The clear exception is the red curve (frequency of **Partial** votes) in panel 2c, which shows a very low frequency of **Partial** votes for subjects that had employment chances of 30% and 40% in the GE treatment. This is not surprising, as, in that treatment, **Green** subjects with employment chances below 50% are not covered by the **Partial** insurance scheme and hence prefer the **Full** scheme.

Generally, we can conclude that a participant, when confronted with a low employment chance, preferred to have an insurance scheme in place (either **Full** or **Partial**) over having no insurance at all. However, the higher the employment chance, the more participants decided that they did not need any insurance and voted accordingly in that round (for **No**). This is a clear indication that participants, at least to some extent, were in each round acting in a manner that maximized their expected payoff. Moreover, this finding is a first indication of support for Hypothesis 1(a).

For comparison, we present the risk neutral expected payoff maximizing choices for each treatment and for all employment chances in Table 5. If participants were risk neutral and only cared about their own payoffs, they should chose an insurance scheme for lower employment chances and then switch



**Figure 2:** Realized voting frequencies for **Full** (blue squares), **Partial** (red circles) and **No** (green triangles) insurance schemes, as a function of employment chance  $\{30, \dots, 90\}$ , in each treatment.

to **No** insurance when they have employment chances above 0.7 or 0.8. The increases in the fraction of **No** votes from employment chances of 0.6 onward is qualitatively in line with this theoretical prediction. On the other hand, the fact that green curve is gradually upward sloping and does not jump from 0 to 1 indicates that there might be heterogeneity in risk aversion and other-regarding preferences among the pool of our participants.

Another observation that can be made from Figure 2 is that subjects with at least 50% employment chance clearly preferred **Partial** insurance over **Full** insurance, just as in the GI treatment. This is a clear indication that in the **Gray** treatments subjects that are covered by partial insurance prefer this option over **Full** insurance. Since **Partial** insurance gives a strictly higher individual payoff than **Full** in these two treatments, this confirms Hypothesis 1(b) as far as the **Gray** treatments are concerned. On the other hand, in the CI treatment, the revelation of color seems to considerably affect subjects' preference regarding **Partial** vs. **Full** insurance, so that no direct confirmation of Hypothesis 1(b) can be found here. We will turn to this group identity effect below in Section 5.1.3.

### 5.1.2 Income equality effect

What is the effect of income equality on the above results? Comparing the two **Gray** treatments in Tables 3 and 4, we observe a statistically significant shift of votes away from **Partial** towards both

**Table 5:** Risk neutral payoff maximizing choices for each treatment for different employment chances. Two choices in the same entry indicates indifference.

Employment chance	GI	GE	CI	CE
30%	-	Full	-	Partial/Full
40%	-	Full	-	Partial/Full
50%	Partial	Partial	Partial	Partial/Full
60%	Partial	Partial	Partial	Partial/Full/No
70%	Partial/No	Partial/No	Partial/No	No
80%	No	No	No	No
90%	No	No	No	No

**Full** and **No** alternatives when moving from GI to GE. **Partial** insurance was still implemented in half of the groups in GE. However, majority voting for the **Full** and **No** insurances were now more than twice and thrice as likely, respectively. Comparing the blue curves (votes for **Full** scheme) in panels 2c and 2d of Figure 2, it can be seen that the higher overall popularity of **Full** in GE compared to GI is purely driven by votes of participants with low employment chances. As discussed above, in the GE treatment, the only way in which **Green** participants can be insured when they have low employment chances is when **Full** insurance is implemented. For votes of participants with employment chances of 50% and higher, **Full** insurance, if anything, is less popular under GE than under GI.

The relative popularity of the **No** insurance, on the other hand, is at a first glance more difficult to understand. Under the GI treatment, many **Green** individuals with high enough employment chances decided that the insurance against unlikely unemployment is not worth the fixed cost. Under the GE treatment, sampling a high employment chance is in fact less likely, hence one would expect a lower frequency of votes for **No**. The fact that we observe the opposite suggests that, for a given employment chance, participants are less willing to contribute to redistribution in the Equality treatment than in the treatment where they are more privileged by their belonging to the in-group. A similar picture arises in Figure 2, where the green curve in panel 2d lies strictly lower than the green curve in panel 2c.

Next we turn our attention to the role of inequality in the **Colorful** treatments. The effect of Inequality and Equality on the popularity of the **No** insurance is also evident when the two **Colorful** treatments are inspected in detail. Comparing CI and CE, income equality again resulted in votes shifting away from the **Partial** insurance towards the **No** insurance, which became the most popular choice. This did not translate however into the **No** option being the most frequent electoral outcome (in fact **Full** was), suggesting much more polarized voting pattern than in the three other treatments, where **Partial** was both the most popular choice and the most frequent electoral outcome. Moreover, in Figure 2 the green line (frequency of **No** votes) for the CI treatment is again strictly lower than in



the CE treatment. Furthermore, the difference seems to be even more pronounced than for the **Gray** treatments. We discuss a possible explanation for this in Section 5.4, which points towards a certain form of polarization. All in all, the increased popularity of **No** in both Equality treatments relative to their Inequality counterparts points towards a decrease in **Green** subject’s support for redistributive insurance schemes, in line with Hypothesis 2(a).

On the other hand, the additional shift from **Partial** to **Full** that we observed in the **Gray** treatments does not arise when moving from CI to CE. This is because in both CE and CI, **Green** participants are always covered by the **Partial** insurance. They, therefore, never have an incentive, from the perspective of their own payoffs, to prefer **Full** insurance over **Partial** insurance, as they had in the GE treatment.

### 5.1.3 Group identity effect

Next, we consider the effects of group identity in more detail. Let us focus firstly on the difference between the GI and CI treatments. To our surprise, we do not observe the **Partial** scheme to become relatively more popular under the CI treatment. In fact the opposite happens: there is a significant shift of votes from **Partial** towards **Full** insurance, which also makes the latter strategy a much more likely electoral outcome (38% in contrast to 7%, see Table 3). On the other hand, in these two treatments there are no significant differences in popularity of the **No** insurance.

It seems that once the subjects were made aware of the relative economic and voting disadvantage of the **Purple** population, some **Green** participants took pity on these underprivileged subjects and chose the **Full** insurance instead of the **Partial** scheme. This suggests some “positive” other-regarding preferences, since **Partial** insurance is still individually more profitable for the **Green** subjects than the **Full** scheme. This contradicts Hypothesis 2(b).

Similar changes can be observed when comparing the GE and CE treatments. When looking at the aggregate votes in Table 3, the shift from **Partial** to **Full** is less pronounced here. However, as can be seen in Figure 2, this is driven by low employment probabilities only, where **Green** participants are not covered by the **Partial** insurance. When one considers only votes by **Green** participants with employment chances of 50% and higher in these two treatments, there is a clear shift from **Partial** (red) to **Full** (blue). This again suggests that Hypothesis 2(b) is false.

### 5.1.4 Summary of aggregate results

To sum up, the aggregate results of our experiment suggest the following mechanisms behind the decisions of our subjects:

- Participants that faced low employment chances favored an insurance scheme (**Full** or **Partial**) in all treatments, whereas participants facing higher employment chances increasingly voted for

**No** insurance.

- In treatments where the **Partial** insurance scheme was cheaper and provided higher unemployment benefits than the **Full** one, the majority preferred the **Partial** insurance scheme. In the treatment where this was not the case (CE), they did not.
- If **Green** participants with low employment chances are not covered by partial insurance (as in the GE treatment), they prefer **Full** over **Partial** when sampling low employment chances.
- Equalizing employment chances and thus ex ante income results in an increased popularity for **No** insurance.<sup>15</sup>
- Participants reacted to type revelation mostly with compassion and voted more often for the **Full** scheme.

In other words, subjects seem to have composite preferences, where they consider their expected monetary outcome, but also their relative ex ante income level. They react kindly to the out-group subjects, but mostly if they still enjoy a higher economic status (expressed by the income inequality treatment). All in all, this provides empirical support for Hypotheses 1(a), 1(b), and 2(a). Hypothesis 2(b) seems not to be corroborated by the aggregate results.

## 5.2 Individual unemployment insurance preferences

To formally examine how the group identity and income inequality affect subjects' preferences, we use a standard multinomial logistic regression model with individual random effects for all choices taken by all **Green** subjects, across all the groups and periods. As explained earlier, our subjects had in fact a choice of six possible voting strategies: firstly, they had to pick one out of three insurance scheme as their most preferred one, and then one out of the two remaining as their second most preferred one. We will use the following notation: when a **Green** subjects chooses for instance Full\_Partial strategy, they pick **Full** as their most preferred outcome and **Partial** as the second one, which leaves **No** being the least preferred outcome – and similarly for the five other possible strategies.<sup>16</sup>

In our estimations we consider the treatments (fixed per subject) and employment chances (which change from subject to subject and from period to period). We use the latter as a categorical variable, which we split into four categories and which potentially has a non-linear relationship with the preferences. The four considered categories are employment chances in four following subsets: {30%, 40%},

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<sup>15</sup>The implications of this result for the issue of polarization will be discussed in Section 5.3.

<sup>16</sup>We also re-estimated the model with only the first choice as the explained variable, see the results in Appendix F. These estimations generally yield similar results to those that are described in this Section, however, they are based on a smaller information set and thus less reliable.

**Table 6:** First and second decisions with non-linear employment probabilities. No\_Partial insurance, CE treatment and Ch5060 as base outcome

Variables	1.Full_No	2.Full_Partial	3.No_Full	5.Partial_Full	6.Partial_No
Ch3040	0.377	2.020***	-19.93	1.641***	-1.603
Ch7080	-2.687***	-4.037***	-0.590	-3.386***	-1.471***
Ch90	-4.171***	-6.078***	-1.568***	-5.301***	-2.951***
CI	2.158	2.162	-1.234	3.145***	1.971***
GE	-1.977	-2.012	-2.830**	0.0442	0.141
GI	-1.507	-0.519	-4.023***	1.104	1.282**
poorGE	2.826***	0.638	21.42	-2.701***	-0.636
employed_Freq	0.396	-1.447	0.532	-1.169	-0.477
insured_Freq	-1.715	-0.214	-0.166	-0.561	-0.699
full_Freq	1.844	0.673	-0.640	0.148	1.712
partial_Freq	0.749	0.255	-0.0535	0.445	1.214
employed_insured_Freq	-0.906	0.367	-1.099	1.086	0.237
ind. RE	1	1.167***	0.745***	0.633***	0.303***
Constant	1.529	3.183**	1.661*	2.829***	0.444
Observations	1900				

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

{50%,60%}, {70%,80%} and {90%}.<sup>17</sup> We also include an interaction dummy for **Green** subjects who under the GE treatment sampled “poor” employment chance (30% or 40%) in a given period  $t$ . This category captures the only possible scenario where the **Green** subjects are excluded from the **Partial** insurance scheme.

Finally, we control the results with additional five experiential factors. For each subject  $i$  at each period  $t$ , we compute how many times they experienced: being employed (employed\_Freq), insured (insured\_Freq), being both employed and insured (employed\_insured\_Freq), being in a group that chose the **Full** scheme (full\_Freq), and the **Partial** scheme (partial\_Freq). For obvious reasons, these variables are transformed into frequencies. For instance, full\_Freq $_{i,6} = 0.6$  implies up to the beginning of period 6, subject  $i$  has participated in 5 previous elections, in which the **Full** scheme won 3 times (ie. 60% of times).

The estimations (coefficients for the logistic map, together with their significance levels) are presented in Table 6. The benchmark case is a subject who chose No\_Partial (what we consider the most

<sup>17</sup>See Appendix F for estimations with the employment chance treated as a continuous variable. These estimations predicate a linear relationship with the strategy choices of our subjects and we felt this to be a potentially limiting assumption.

exclusionary strategy), had an employment chance of either 50% or 60% (the lowest possible under the two inequality treatments) and participated in the CE treatment.

The following results are consistent and thus support the findings at the aggregate level discussed in Section 5.1. Firstly, the individual employment chances have a strong negative effect on how much the subjects are willing to support more inclusive insurance schemes. For instance, for the **Green** subjects with 90% employment chance, the typical preference ordering is given by No\_Partial, No\_Full, Partial\_No, Full\_No, Partial\_Full and Full\_Partial. On the other extreme, subjects with the lowest chances prefer Full\_Partial and Partial\_Full over the four other strategies. This further confirms Hypothesis 1(a).

Secondly, the treatments have the following direct effects on the subjects' decisions (see also Table 21 in Appendix E for the same estimation, but with GI as the benchmark treatment, for explicit significance tests):

- The two Inequality treatments push the subjects towards the Partial\_No decision and away from the benchmark No\_Partial. In addition, the CI treatment pushes the subjects towards the Partial\_Full strategy in comparison with the CE treatment. This confirms Hypothesis 2(a).
- The two **Gray** treatments push the subjects away from the No\_Full strategy towards the benchmark No\_Partial. In addition the GI treatment pushes the subjects away from the Partial\_Full and Full\_No strategies in comparison with the CI treatment. As our earlier findings, this contradicts Hypothesis 2(b), which we therefore reject.<sup>18</sup>
- When moving from CE to GE treatment, “poor” **Green** subjects with employment chances of 30% and 40% (dummy variable PoorGE) switch away from Partial\_Full and towards Full\_No in almost an equal rate, which confirms that our subjects understood the available insurance schemes.

It should be noted that, again, Hypothesis 2(b) was not only rejected, in fact its opposite was confirmed: the revelation of group identity seems to *increase* the propensity of **Green** subjects to vote for inclusive insurance schemes. We will come back to this result in detail in Section 5.4, but first we want to discuss the issue of polarization in Section 5.3.

Finally, one needs to emphasize that none of the experiential variable had a significant effect on the choices of our subjects. This result is consistent with the experimental design and proves that the subjects understood that their groups are re-sampled in every period, and thus that their previous experience is unlikely to be good predictor of the present. In other words, our experiment reveals, so to say, benchmark preferences of our subjects, without reputation effects, which we leave

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<sup>18</sup>The differences between CI and GI treatments are significant at 5% level. In addition, the CI increases propensity towards the Full\_Partial strategy at 10% significance level, which we leave out from the discussion.

for future studies. To test the robustness of our estimations, we also re-estimate the same model without experiential variables, see Table 17 in Appendix D.

### 5.3 Polarization

To keep the discussion structured, we have so far focused on Hypotheses 1 and 2, while only occasionally referring to what the results imply for polarization. We now turn to the latter issue in detail and explicitly consider what we find regarding Hypothesis 3. In a nutshell, our results show that polarization depends on the interplay between three factors: income distribution, group identity, and also the realized employment chance in a particular period.

Recall from Section 4.1 that the generally most popular first choice of the **Green** subjects was the **Partial** insurance scheme. This implies that a treatment will reduce polarization, if it shifts the subjects – holding their employment chances constant – to the `Partial_Full` or `Partial_No` strategies. This is exactly what the estimated individual preferences point to for the case of the two Inequality treatments against their counterpart Equality treatments. This confirms Hypothesis 3(a).

The effect of the **Colorful** treatments is more complex, however. The CI treatment induces more of the `Partial_Full` strategy compared to the the GI treatment, but also more of the `Full_No` strategy. These two effects have opposite implications for the level of polarization and – judging from Table 3 and Figure 2 – the former effect is more relevant, so that the CI treatment is in fact more polarized. What is surprising about this polarization is that in fact it is *beneficial* for the migrant population. Apparently, **Green** subjects reacted with compassion to the presence of **Purple** ones and voted for more inclusive insurance **Full** scheme, compared to their baseline behavior.<sup>19</sup>

No such clear outcome can be observed between the CE and GE treatments, where the only baseline treatment effect is a shift between the `No_Partial` and `No_Full` strategies. However, the “poor” subjects under the GE treatment have in fact shifted from `Partial_Full` to `Full_No`. Given their employment chances, it is clear that these “poor” subjects prefer an unemployment insurance, and since only the **Full** scheme covers them, they vote for it over the **Partial** one. Their second choice indicates an “include me or include no one” attitude: if they cannot be insured, they prefer nobody else to be insured either.

Furthermore; under the GE treatments, the “middle class” subjects with 50% and 60% employment chances voted mostly for the **Partial** scheme and only the lucky “upper class” subjects with the highest chances of 80% and 90% prefer **No** insurance, as clearly observable in Figure 2c. This polarization on the income lines indicates focus on maximizing individual utility.

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<sup>19</sup>It would be interesting to study whether this result would also hold in a dynamic setting with reputation effects. Another issue is that our subject pool was mostly consisting of German students (as also confirmed by the survey data) who may be influenced by the particular German history. A cross-country study planned for future research will hopefully shed some light on the latter issue.

Moving to the CE treatment, we observe that the “poor” and “middle class” subjects vote in a more homogeneous fashion, compared to the GE treatment (see Figure 2a). What is interesting is that if we were to pool these two groups, the average vote would in fact look very similar in the GE and CE treatments, with the “poor” and “middle” population splitting their votes roughly equally between the **Full** and **Partial** schemes, while the “rich” subjects switching to the **No** insurance. The difference between these two treatments lies therefore not in the average support for any insurance scheme, but in whether the **Partial** insurance is supported (CE treatment) or rejected (GE treatment) by the “poor” **Green** subjects, which is exactly the reason why in the estimated model reported in Table 6, the “PoorGE” variable is significant, while there are no significant overall treatment differences between the CE and GE treatments. In other words, an interesting difference between the CE and GE treatments lies in the structure, instead of the magnitude of polarization. Future studies should focus on studying this issue in detail, but our results suggest that it is at least possible that the presence of group identity encourages pro-social behavior at least among some of our subjects.

#### 5.4 Summary of the experimental findings on the attitude towards the migrant population

Our experimental design focuses on two dimensions of how people vote for unemployment insurance: the group identity and income inequality. Our experimental results suggest that the former has a clear-cut (albeit counterintuitive) effect: when the **Green** subjects learn about the out-group **Purple** subjects, they in fact often vote for more inclusive insurance schemes to cover them. This effect is particularly clear in the two Inequality treatments, where the group identity causes a major shift of votes towards the **Full** insurance, despite it being more expensive for the **Green** subjects. However, the effect of income inequality is less clear and very much conditional on the employment chance that a **Green** subject has drawn. In particular, for low employment chances (30% and 40%), participants are trying to improve their situation through insurance schemes by which they are covered (**Full** in GE and **Partial** or **Full** in CE). Participants in the Equality treatments that face higher employment chances, on the other hand, voted less for **Partial** and more for **No** than in the Inequality treatments. How to interpret these results? We propose the following explanation: It is likely that the subjects in the experiment were considering two things: their (expected) income level, but also their relative economic and political position (Alesina and Giuliano, 2011). In the two Inequality treatments, **Green** participants have an ex-ante privileged position and enjoy a visible economic as well as a political advantage over **Purple** subjects. This might have made some of them feel obliged to engage in more pro-social behavior and vote for a redistributive scheme, even in periods when they had relatively high employment chances and did not need an insurance scheme for themselves. This led to polarization of attitudes towards the immigrants.

On the other hand, in the Equality treatments, **Green** subjects did not enjoy such an economic

advantage. They reacted to this with more selfish behavior. In particular, their votes reflected mostly their individual employment chances, and they were quicker to forgo any insurance in periods when they did not need one for themselves. Since, in any period, subjects in a group were likely to have heterogeneous employment chances, polarization based on income emerged as a natural byproduct of this process.

A further effect of the income equality comes through the difference between CE and GE treatments. In particular, even the relatively poor **Green** subjects in the CE treatment enjoyed an additional visible political advantage over the **Purple** ones, since they were able to vote to discriminate against that group, whereas the **Partial** scheme would not exclude them. We believe that this might have, to some extent, compensated them subjectively for their lower relative income under the CE treatment and thus might have induced a relatively more pro-social behavior. On the other hand, under the GE treatment, **Green** subjects do not enjoy this additional political advantage – in fact they understood that now they themselves could have been excluded from the **Partial** insurance scheme, which induced even more selfish behavior and polarization. In sum, polarization and discrimination seem to be thus driven by lower perceived economic and political status over the out-group population.

## 5.5 Survey

At the end of each experimental session, we asked the subjects to fill out a thorough questionnaire. The first part of the questions covered their demographic characteristics: gender, age, field of study, as well as nationality and whether they were second generation migrants. In the second part, the subjects had to assess the degree to which they agree or disagree with four statements about immigrants, such as “Germany has a problem with immigrants who do not integrate well”. Finally, we tested the subjects’ risk attitude with a hypothetical lottery game and asked them to elicit the degree to which they used current and previous employment chances in their decision making.

**Table 7:** Survey (**Full** Frequency)

	Model 1	Model 2	Model 3	Model 4
study3Dummy	-0.116 (-1.65)	-0.0896 (-1.32)	-0.0711 (-0.96)	-0.0913 (-1.26)
countryDummy	0.0732 (0.46)	0.0827 (0.54)	0.0491 (0.31)	0.0503 (0.34)
country_bornDummy	-0.00716 (-0.06)	-0.0464 (-0.36)	-0.0369 (-0.28)	0.0113 (0.09)
immigrant_bornDummy	-0.0191 (-0.22)	-0.0530 (-0.62)	-0.0733 (-0.82)	-0.0421 (-0.50)
gender	-0.142** (-2.11)	-0.138** (-2.06)	-0.153** (-2.20)	-0.120* (-1.81)
age	0.00266 (0.65)	0.00350 (0.87)	0.00459 (1.09)	0.00416 (1.06)
own_prob		-0.0318*** (-2.87)	-0.0287** (-2.40)	-0.0390*** (-3.33)
other_prob		-0.00569 (-0.52)	-0.00839 (-0.73)	-0.00886 (-0.80)
past_prob		-0.00913 (-0.68)	-0.00724 (-0.52)	-0.00138 (-0.10)
risk_ind		-0.00103 (-0.54)	-0.000896 (-0.46)	0.00000239 (0.00)
money1			-0.0190 (-0.74)	-0.0217 (-0.90)
money2			0.0128 (0.61)	0.0109 (0.55)
imm1			0.00689 (0.30)	0.0120 (0.56)
imm2			0.0101 (0.43)	0.00645 (0.29)
int1			-0.0137 (-0.65)	-0.0201 (-1.01)
int2			0.00276 (0.15)	-0.000165 (-0.01)
CE				0.0538 (0.58)
CI				0.0297 (0.32)
GI				-0.253** (-2.55)
Observations	83	83	83	83

*t* statistics in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

We regressed all these variables on the frequency with which each subject voted for **Full** (as their



first decision). Table 7 presents the results of this estimation for four different subsets of variables, including the treatment dummies. As can be observed, the majority of these variables have an insignificant effect. The only two clear regularities that we found is that (i) women tend to vote more often for **Full** than men and (ii) subjects who reported to consider their current employment chances voted slightly less often for **Full**. The latter observation reflects the findings from the previous part of this section, and suggest some degree of heterogeneity in other-regarding preferences among our subjects. On the other hand, since the demographic and political variables do not seem to play a large role in our experiment, we conclude that the labor market structure was much more important for our subjects than their preconceived attitudes towards migration, which is an important factor to consider for policy makers.

## 6 Conclusions

The relationship between migration, income inequality and political polarization has been one of the main topics in the political discourse of the last years. Brexit, as well as popularity of nativist movements across Europe and in the USA are just some examples of a political backlash against recent waves of migration, related to the globalization and political instability in some regions of the world. It is important to study the reasons behind these backlashes, and two popular theories point towards (a) xenophobic attitudes towards culturally “other” migrants and (b) economic anxiety based on fears that relatively poorer migrants might become a burden on the already strained social security systems. Unfortunately, it is difficult to disentangle these two effects in the real world.

We studied this issue with a simple laboratory experiment. Subjects were split into two types, “natives” and “migrants”, framed with colors as green and purple subjects. Each subject was repeatedly assigned at random to a group consisting of five green and two purple subjects, and sampled an employment chance. The green subjects were tasked with voting on alternative unemployment insurance schemes: they could choose one that covers nobody, everybody or only part of the population. We studied four treatments in a two-by-two design. In the first dimension, subjects were either unaware or aware of the distinction between the green and the purple players. In the second dimension, the native subjects had the same or a visibly more beneficial ex ante distribution of the employment chances.

Our results confirm some popular beliefs about the attitude towards social insurances and migration, but contradict other. Personal expected income was an important driving factor for our subjects, who tended to be the more selfish the higher the ex ante employment chance they sampled. The revelation of the group identities, contrary to a popular assumption (Dahlberg et al., 2012 and Tabellini, 2020), has in fact induced *compassion* of the native population towards the migrants, in line with Alesina and Giuliano (2011). However, subjects with a worse ex ante income distribution

(meaning the employment chance distribution) were also more selfish regardless of the actual employment chance. These two effects caused more polarization as well, but with contradictory effects on the well-being of the migrant subjects. A cynical interpretation of these results is that, in contrast to what many nativist politicians claim, many of our subjects were in fact ready to accept immigrants and include them in social safety net, but only if the latter group would remain visibly poorer.

Further research should study this issue in detail, in particular the extent to which our results depend on the subject pool and Germany (with its peculiar recent history) being their country of residence. Another important issue, which was beyond the scope of interest of our research is the role of reputation and “lock-in” dynamics in groups with constant subject composition. We believe that further research on these issues may lead to further important insights.

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# Appendix

## A Payoffs Tables

### Gray Equality for Green and Purple participants

Table 8: Payoff for Green and Purple participants in the GE treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Net</b>	<b>300</b>	<b>Net</b>	<b>230</b>
<b>Partial Insurance with high employment probabilities</b>	Points	400	Points	80
	Tax	-75	Subside	+175
	<b>Net</b>	<b>325</b>	<b>Net</b>	<b>255</b>
<b>Partial Insurance with low employment probabilities</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Net</b>	<b>400</b>	<b>Net</b>	<b>80</b>
<b>No insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Net</b>	<b>400</b>	<b>Net</b>	<b>80</b>

Gray Inequality for Green participants

Table 9: Payoffs for Green participants in the GI treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Net</b>	300	<b>Net</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	-75	Subside	+175
	<b>Net</b>	325	<b>Net</b>	255
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Net</b>	400	<b>Net</b>	80

Gray Inequality for Purple participants

Table 10: Payoffs for Purple participants in the GI treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Nett</b>	300	<b>Nett</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	0	Subside	80
	<b>Nett</b>	400	<b>Nett</b>	80
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Nett</b>	400	<b>Nett</b>	80



## Colorful Inequality for Green participants

Table 11: Payoffs for Green participants in the CI treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Nett</b>	300	<b>Nett</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	-75	Subside	+175
	<b>Nett</b>	325	<b>Nett</b>	255
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Nett</b>	400	<b>Nett</b>	80

## Colorful Inequality for Purple participants

Table 12: Payoffs for Purple participants in the CI treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Netto</b>	300	<b>Netto</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Netto</b>	400	<b>Netto</b>	80
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Netto</b>	400	<b>Netto</b>	80

## Colorful Equality for Green participants

Table 13: Payoffs for Green participants in the CE treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Netto</b>	300	<b>Netto</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Netto</b>	300	<b>Netto</b>	230
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Netto</b>	400	<b>Netto</b>	80

## Colorful Equality for Purple participants

Table 14: Payoffs for Purple participants in the CE treatment

	Employment		Unemployment	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Netto</b>	300	<b>Netto</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Netto</b>	400	<b>Netto</b>	80
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Netto</b>	400	<b>Netto</b>	80

## B Experimental Instructions

### B.1 Gray Equality for Green and Purple participants

This treatment does not inform about the existence of the two color types. All participants are unaware of the split into two groups. Moreover, **Green** and **Purple** participants always draw from the same probability employment distribution. The only difference between the instructions provided to **Green** and **Purple** participants in this and all following treatments is based on the *rights* to vote. While **Green** participants are asked to *vote* their most preferred choice (as indicated below in the instructions for **Green** participants), **Purple** participants are asked to *indicate* their most preferred outcome.

#### Experimental instructions and general information

Welcome to this experiment at the University of Bamberg! The experiment is anonymous, the data from your decisions will only be linked to your station ID, not to your name. You will be paid privately at the end, after all participants have finished the experiment. After the main part of the experiment and before the payment, you will be asked to fill out a short questionnaire.

During the experiment you are not allowed to use your mobile phone or any other communication devices. You are also not allowed to communicate with other participants. If you have a question at any time, please raise your hand and someone will come to your desk.

#### Experimental economy

The experiment will last for 25 periods. In each period, you and all other participants of your group (see below) will participate in a labor market as workers. Each of you will become employed or unemployed at random, independently of each other. Your main task is to **vote** on an **unemployment insurance scheme**, which can provide unemployment benefits to (1) all, (2) some or (3) no unemployed members of your group. The most popular choice will be implemented. Your payments will be made based on the implemented insurance scheme and your employment status. The important variables, that you should consider, are: **chances of being employed**, **voting decisions** and **payments**.

**Group composition:** At the beginning of every period, all 28 participants will be randomly allocated into groups of seven people. The **composition** of your group of seven participants **will change** during the experiment, but its size will remain fixed.

**Chances of being employed:** In each period, all members of your group, including yourself, will be assigned a chance of being employed, at random and independently of each other. In general, the chances of being employed will, in each period, for all participants be one of the following numbers:

30%, 40%, 50%, 60%, 70%, 80%, 90%.

Remark that your employment chances will change from period to period. However, it will always be the case that two group members have an employment chance of either 30% or 40%, and the remaining five group members have an employment chance of at least 50%. **In any period, you could either be one of the two group members that have a low employment chance, or one of the five group members that have a high employment chance.**

At the beginning of each period, you will be informed about your employment chance and the employment chances of the other members of your group. These chances will be presented in a list and on a graph on your computer screen, in descending order. Your own employment chances will be depicted by **blue** fonts and bars, while the employment chances of all other group members will be depicted by **gray** fonts and bars (see also screenshots of the experimental software at the end of this document).

**Insurance scheme:** After you learn about employment chances **but before you know whether you and the other members of your group are employed** in the current period, you will be asked to vote on an insurance scheme. You will always have the following three possible choices:

1. **Full Insurance.** The government provides a universal safety net. If this option is implemented, all unemployed group members receive unemployment benefits and all employed group members pay a tax.
2. **Partial Insurance.** The government provides a safety net, but only for those group members with at least 50% chance of being employed. If this option is implemented, all unemployed group members with an employment chance of at least 50% receive unemployment benefit and all employed group members with an employment chance of at least 50% pay a tax. On the other hand, those group

members with employment chances of 30% and 40% neither receive benefits nor pay a tax. Remember that, in any period, you could either belong to the five group members that are covered by this insurance scheme, or not. However, you will always **know** whether you would be covered by the Partial Insurance scheme **before** you make your choice.

3. **No Insurance.** If this option is implemented, the government does nothing and there is no insurance policy for unemployed group members.

You will first be asked to state your **most preferred choice** from the three options above. Next, you will be asked about your **second preferred choice**: which of the two remaining options do you prefer over the other, in case when your most preferred choice is not implemented (see also screenshots of the experimental software at the end of this document).

You are always allowed to vote. **However, this is not the case for all members of your group.** After all group members that can vote have made their choice, the most popular policy will be implemented. However, if no option gains majority of the votes, the votes on the second preferred options will be considered. You will then be informed about (1) the implemented policy, (2) whether you were actually employed/unemployed and (3) what is your payoff for that period.

**Payments:** In the experiment you will collect points where 750 points correspond to 1€. The baseline payments in every period are 400 points for employed group members, and 80 points for unemployed group members. This payoff can be modified by taxes for employed, and insurance payments for unemployed group members, depending on the implemented insurance policy.

1. **Full Insurance.** If this policy choice is implemented, all employed group members pay taxes and all unemployed group members receive unemployment benefits. If you are employed, you will then receive 400 points and pay 100 points for taxes, so that you are left with **300 points**. If you are unemployed you receive, on top of the baseline 80 points, an additional 150 points as unemployment benefits from the government, so that you end up with **230 points** (see Table). This also holds for all other members of your group.
2. **Partial Insurance.** If this policy choice is implemented, the insurance policy will only cover all group members with high employment chances. If you belong to the group members with an employment chance of at least 50%, you will therefore only have to pay a tax of 75 points if you are employed, so that your

payoff in this case becomes **325 points**. Moreover, the insurance benefits are 175 points under the partial insurance policy, so that your payoff in case you are unemployed becomes **255 points** when you have an employment chance of at least 50% (see Table 1). This also holds for the other members of your group with high employment chances.

However, if you have an employment chance of either 30% or 40% you will not be covered by this insurance scheme and will obtain the baseline payoffs for being employed and unemployed (see Table 1). This also holds for the other group member(s) with low employment chances.

3. **No Insurance.** If this policy choice is implemented, there is no governmental intervention, no tax payments and no unemployment benefits, so that you and all other members of your group receive the baseline payoffs for being employed and unemployed (see Table 1).

**Table 1: Your Payoffs**

	<b>Employment</b>		<b>Unemployment</b>	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Net</b>	<b>300</b>	<b>Net</b>	<b>230</b>
<b>Partial Insurance with high employment chances</b>	Points	400	Points	80
	Tax	-75	Subside	+175
	<b>Net</b>	<b>325</b>	<b>Net</b>	<b>255</b>
<b>Partial Insurance with low employment chances</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Net</b>	<b>400</b>	<b>Net</b>	<b>80</b>
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Net</b>	<b>400</b>	<b>Net</b>	<b>80</b>

## Screenshots of the computer software

### Vorherige Runde

Das Versicherungssystem, das in der letzten Runde implementiert wurde, war **'Keine Versicherung,'** was bedeutet, dass Sie **nicht versichert** waren.

Ihre Beschäftigungschancen waren 60%.

Es stellte sich heraus, dass Sie in der vergangenen Runde **erwerbstätig** waren. Daher beträgt Ihre Auszahlung **400** Punkte.

Die Gesamtzahl der Punkte, die Sie bisher im Experiment gesammelt haben, beträgt jetzt **400** Punkte.

### Aktuelle Runde (2/25)

#### Beschäftigungschancen

In dieser Runde beträgt Ihre Beschäftigungschance **80%**.

Darüber hinaus sind die Beschäftigungschancen für alle Mitglieder Ihrer aktuellen Gruppe (einschließlich Ihnen):

**[80,80,60,50,50,30,30]%**.

#### Am meisten bevorzugte Wahl

Welche der folgenden Alternativen ist Ihre **am meisten** bevorzugte Auswahlmöglichkeit in dieser Runde?  
( Beachten Sie, dass Sie - da Ihre Beschäftigungschancen ausreichend hoch sind - **versichert** sind, wenn eine Teil-Versicherung umgesetzt wird. )

- Voll-Versicherung
- Teil-Versicherung
- Keine Versicherung

Weiter

Beschäftigungschancen aller Teilnehmer in Ihrer Gruppe

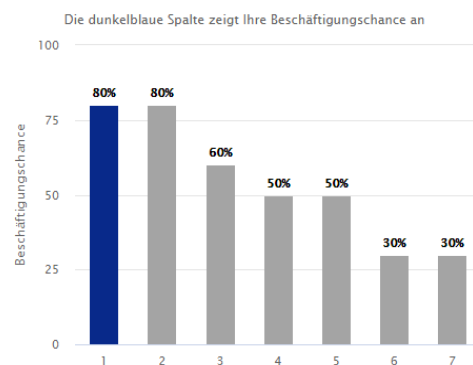


Figure1: Example on computer

## B.2 Gray Inequality for Green and Purple participants

The instructions provided to **Green** and **Purple** participants in this treatment are similar to the **Gray** Equality treatment. All participants are unaware of the split into two groups. Nonetheless, the main difference between **Green** and **Purple** participants relies on the chances of being employed in every period. While **Green** participants are always the lucky participants who enjoy chances of being employed of at least 50%, **Purple** participants are always the unlucky participants who enjoy chances of being employed of either 30% or 40%.

### B.3 Colorful Inequality for Green and Purple participants

This treatment informs about the existence of the two color types. All participants are aware of the split into two groups. The main difference between the instructions provided to **Green** and **Purple** participants is based on the chances of being employed in every period. While **Green** participants are always those who enjoy chances of being employed of at least 50% because of the color type (as indicated below in the instructions for **Green** participants), **Purple** participants are always those who enjoy chances of being employed of either 30% or 40% because of the color type.

#### Experimental instructions and general information

Welcome to this experiment at the University of Bamberg! The experiment is anonymous, the data from your decisions will only be linked to your station ID, not to your name. You will be paid privately at the end, after all participants have finished the experiment. After the main part of the experiment and before the payment, you will be asked to fill out a short questionnaire.

During the experiment you are not allowed to use your mobile phone or any other communication devices. You are also not allowed to communicate with other participants. If you have a question at any time, please raise your hand and someone will come to your desk.

#### Experimental economy

The experiment will last for 25 periods. In each period, you and all other participants of your group (see below) will participate in a labor market as workers. Each of you will become employed or unemployed at random, independently of each other. Your main task is to **vote** on an **unemployment insurance scheme**, which can provide unemployment benefits to (1) all, (2) some or (3) no unemployed members of your group. The most popular choice will be implemented. Your payments will be made based on the implemented insurance scheme and your employment status. The important variables, that you should consider, are: **chances of being employed**, **voting decisions** and **payments**.

**Group composition** At the beginning of every period, all 28 participants will be randomly allocated into groups of seven people. The **composition** of your group of



seven participants **will change** during the experiment, but its size will remain fixed. Furthermore, all participants are of one of two different types: **green** and **purple**. **You** belong to the **green** type. The random allocation to groups is such that, in every period, your group will consist of two participants of the **purple** type and five participants of the **green** type (including yourself).

**Chances of being employed** In each period, all members of your group, including yourself, will be assigned a chance of being employed, at random and independently of each other. In general, the chances of being employed will, in each period, for all participants be one of the following numbers:

30%, 40%, 50%, 60%, 70%, 80%, 90%.

Remark that your employment chances will change from period to period. **However, since you are of the green type, your chances of being employed are always at least 50%. The chances of being employed of participants of the purple type, on the other hand, will always be either 30% or 40%.**

At the beginning of each period, you will be informed about your employment chance and the employment chances of the other members of your group. These chances will be presented in a list and on a graph on your computer screen, in descending order. The employment chances of **green (purple)** group members will be depicted by **green (purple)** fonts and bars. Your own employment chances will be depicted by **dark green** fonts and bars (see also screenshots of the experimental software at the end of this document).

**Insurance scheme** After you learn about employment chances **but before you know whether you and the other members of your group are employed** in the current period, you will be asked to vote on an insurance scheme. You will always have the following three possible choices:

1. **Full Insurance.** The government provides a universal safety net. If this option is implemented, all unemployed group members receive unemployment benefits and all employed group members pay a tax.
2. **Partial Insurance.** The government provides a safety net, but only for **green** members of your group, **including yourself**. If this option is implemented, all **green** unemployed group members receive unemployment benefits and all **green** employed group members pay a tax. On the other hand, **purple** group members neither receive benefits nor pay a tax.

3. **No Insurance.** If this option is implemented, the government does nothing and there is no insurance policy for unemployed group members.

You will first be asked to state your **most preferred choice** from the three options above. Next, you will be asked about your **second preferred choice**: which of the two remaining options do you prefer over the other, in case when your most preferred choice is not implemented (see also screenshots of the experimental software at the end of this document).

Only **green** participants can vote; **purple** participants are not allowed to vote. After all **green** members of your group vote, the most popular policy will be implemented. However, if no option gains majority of the votes, the votes on the second preferred options will be considered. You will then be informed about (1) the implemented policy, (2) whether you were actually employed/unemployed and (3) what is your payoff for that period.

**Payments** In the experiment you will collect points where 750 points correspond to 1€. The baseline payments in every period are 400 points for employed group members, and 80 points for unemployed group members. This payoff can be modified by taxes for employed, and insurance payments for unemployed group members, depending on the implemented insurance policy.

1. **Full Insurance.** If this policy choice is implemented, all employed group members pay taxes and all unemployed group members receive unemployment benefits. If you are employed, you will then receive 400 points and pay 100 points for taxes, so that you are left with **300 points**. If you are unemployed you receive, on top of the baseline 80 points, an additional 150 points as unemployment benefits from the government, so that you end up with **230 points** (see Table 1). This also holds for all other members of your group.
2. **Partial Insurance.** If this policy choice is implemented, the insurance policy will only cover all **green** group members (**including yourself**), who have better chances of being employed than **purple** group members. Under this insurance policy, you will therefore only have to pay a tax of 75 points if you are employed, so that your payoff in this case becomes **325 points**. Moreover, the insurance benefits are 175 points under the partial insurance policy, so that your payoff in case you are unemployed becomes **255 points** (see Table 1). This also holds for the other green members of your group. **Purple** group members, however, will

not be covered by this insurance scheme and will obtain the baseline payoffs for being employed and unemployed.

3. **No Insurance.** If this policy choice is implemented, there is no governmental intervention, no tax payments and no unemployment benefits, so that you and all other members of your group receive the baseline payoffs for being employed and unemployed (see Table 1).

**Table1: Your Payoffs**

	<b>Employment</b>		<b>Unemployment</b>	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Nett</b>	300	<b>Nett</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	-75	Subside	+175
	<b>Nett</b>	325	<b>Nett</b>	255
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Nett</b>	400	<b>Nett</b>	80

## Screenshots of the computer software

### Vorherige Runde

Das Versicherungssystem, das in der letzten Runde implementiert wurde, war **'Keine Versicherung'**, was bedeutet, dass Sie **nicht versichert** waren.

Ihre Beschäftigungschancen waren 70%.

Es stellte sich heraus, dass Sie in der vergangenen Runde **erwerbstätig** waren. Daher beträgt Ihre Auszahlung **400 Punkte**.

Die Gesamtzahl der Punkte, die Sie bisher im Experiment gesammelt haben, beträgt jetzt **400 Punkte**.

### Aktuelle Runde (2/25)

#### Beschäftigungschancen

In dieser Runde beträgt Ihre Beschäftigungschance **60%**.

Darüber hinaus sind die Beschäftigungschancen für alle Mitglieder Ihrer aktuellen Gruppe (einschließlich Ihnen):

**[90,70,70,60,60,40,30]%**.

#### Am meisten bevorzugte Wahl

Welche der folgenden Alternativen ist Ihre **am meisten** bevorzugte Auswahlmöglichkeit in dieser Runde?

( Beachten Sie, dass Sie - da Sie ein grüner Spieler sind - **versichert** sind, wenn eine Teil-Versicherung umgesetzt wird. )

- Voll-Versicherung
- Teil-Versicherung
- Keine Versicherung

Weiter

Beschäftigungschancen aller Teilnehmer in Ihrer Gruppe

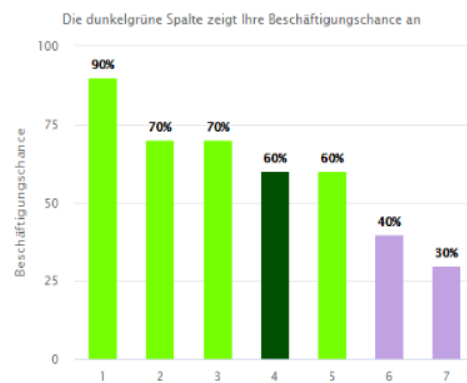


Figure1: Example on computer

## B.4 Colorful Equality for Green and Purple participants

This treatment informs about the existence of the two color types. All participants are aware of the split into two groups. Moreover, **Green** and **Purple** participants always draw from the same probability employment distribution. The main difference between the instructions provided to **Green** and **Purple** participants in this treatment is based on the expected payoffs for **Green** participants. While **Green** participants have the same expected payoffs by voting for either **Full** or **Partial** insurance in every period (as indicated below in the instructions for **Green** participants), **Purple** participants

have the identical expected payoff as in the other treatments.

## Experimental instructions and general information

Welcome to this experiment at the University of Bamberg! The experiment is anonymous, the data from your decisions will only be linked to your station ID, not to your name. You will be paid privately at the end, after all participants have finished the experiment. After the main part of the experiment and before the payment, you will be asked to fill out a short questionnaire.

During the experiment you are not allowed to use your mobile phone or any other communication devices. You are also not allowed to communicate with other participants. If you have a question at any time, please raise your hand and someone will come to your desk.

## Experimental economy

The experiment will last for 25 periods. In each period, you and all other participants of your group (see below) will participate in a labor market as workers. Each of you will become employed or unemployed at random, independently of each other. Your main task is to **vote** on an **unemployment insurance scheme**, which can provide unemployment benefits to (1) all, (2) some or (3) no unemployed members of your group. The most popular choice will be implemented. Your payments will be made based on the implemented insurance scheme and your employment status. The important variables, that you should consider, are: **chances of being employed**, **voting decisions** and **payments**.

**Group composition:** At the beginning of every period, all 28 participants will be randomly allocated into groups of seven people. The **composition** of your group of seven participants **will change** during the experiment, but its size will remain fixed. Furthermore, all participants belong to one of in total two types: **green** and **purple**. You belong to the **green** type. The random assignment to the groups is selected so that your group consists in every period of two participants of the **purple** type and five participants of the **green** type (including you).

**Chances of being employed:** In each period, all members of your group, including yourself, will be assigned a chance of being employed, at random and independently of each other. In general, the chances of being employed will, in each period, for all participants be one of the following numbers:

30%, 40%, 50%, 60%, 70%, 80%, 90%.

Remark that your employment chances will change from period to period. However, it will always be the case that two group members have an employment chance of either 30% or 40%, and the remaining five group members have an employment chance of at least 50%. This distribution is **independent** on whether the group members are **green** or **purple**. **Hence you can be *in every period* either one of the two group members that have a low employment chance, or one of the five group members that have a high employment chance.**

At the beginning of each period, you will be informed about your employment chance and the employment chances of the other members of your group. These chances will be presented in a list and on a graph on your computer screen, in descending order. The employment chances of the **green** (**purple**) group members are shown in **green** (**purple**) font and a **green** (**purple**) bar. Your own chances of employment will be shown in **dark green** font and **dark green** bar (see screenshots of the experimental software at the end of this document).

**Insurance scheme:** After you learn about employment chances **but before you know whether you and the other members of your group are employed** in the current period, you will be asked to vote on an insurance scheme. You will always have the following three possible choices:

1. **Full Insurance.** The government provides a universal safety net. If this option is implemented, all unemployed group members receive unemployment benefits and all employed group members pay a tax.
2. **Partial Insurance.** The government provides a safety net, but only for the **green** group members (**including yourself**). If this option is implemented, all **green** unemployed group members receive unemployment benefits and all **green** employed group members pay a tax. **Purple** group members, however, neither receive benefits nor pay a tax.
3. **No Insurance.** If this option is implemented, the government does nothing and there will be no insurance scheme for unemployed group members.

You will first be asked to state your **most preferred choice** from the three options above. Next, you will be asked about your **second preferred choice**: which of the two remaining options do you prefer over the other, in case when your most preferred choice is not implemented (see also screenshots of the experimental software at the end of this document).

**Only green** participants (including you) are allowed to **vote**; **purple** participants are *not* allowed to vote. After all **green** members of your group made their choice, the the most popular insurance scheme will be implemented. However, if no option gains majority of the votes, the votes on the second preferred options will be considered. You will then be informed about (1) the implemented scheme, (2) whether you were actually employed/unemployed and (3) what is your payoff for that period.

**Payments:** In the experiment you will collect points where 750 points correspond to 1€. In the experiment you will collect points, whereas 750 points equal 1 Euro. The baseline payments in every period are 400 points for employed group members, and 80 points for unemployed group members. This payoff can be modified by taxes for employed, and insurance payments for unemployed group members, depending on the implemented insurance scheme.

1. **Full Insurance.** If this choice is implemented, all employed group members pay taxes and all unemployed group members receive unemployment benefits. If you are employed, you will then receive 400 points and pay 100 points for taxes, so that you are left with **300 points**. If you are unemployed you receive, on top of the baseline 80 points, an additional 150 points as unemployment benefits from the government, so that you end up with **230 points** (see Table 1). This also holds for all other members of your group.
2. **Partial Insurance.** If this choice is implemented, the insurance scheme will only cover all **green** group members (**including yourself**). Under this insurance scheme, you will receive the same payoffs as under the full insurance. This means that in case you are employed you have to pay a tax of 100 points, so that your payoff in this case becomes **300 points**. Moreover, the insurance benefits are 150 points, so that your payoff in case you are unemployed becomes **230 points** (see Table 1). This also holds for the other **green** members of your group. However, **purple** group members will not be covered by this insurance scheme and will obtain the baseline payoffs for being employed and unemployed.
3. **No Insurance.** If this choice is implemented, there is no governmental inter-

vention, no tax payments and no unemployment benefits, so that you and all other members of your group receive the baseline payoffs for being employed (**400 points**) and unemployed (**80 points**). See Table 1.

**Table1: Your Payoffs**

	<b>Employment</b>		<b>Unemployment</b>	
<b>Full Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Netto</b>	300	<b>Netto</b>	230
<b>Partial Insurance</b>	Points	400	Points	80
	Tax	-100	Subside	+150
	<b>Netto</b>	300	<b>Netto</b>	230
<b>No Insurance</b>	Points	400	Points	80
	Tax	0	Subside	0
	<b>Netto</b>	400	<b>Netto</b>	80



## Screenshots of the computer software

### Vorherige Runde

Das Versicherungssystem, das in der letzten Runde implementiert wurde, war **'Keine Versicherung'**, was bedeutet, dass Sie **nicht versichert** waren.

Ihre Beschäftigungschancen waren 60%.

Es stellte sich heraus, dass Sie in der vergangenen Runde **erwerbstätig** waren. Daher beträgt Ihre Auszahlung **400 Punkte**.

Die Gesamtzahl der Punkte, die Sie bisher im Experiment gesammelt haben, beträgt jetzt **400 Punkte**.

### Aktuelle Runde (2/25)

#### Beschäftigungschancen

In dieser Runde beträgt Ihre Beschäftigungschance **30%**.

Darüber hinaus sind die Beschäftigungschancen für alle Mitglieder Ihrer aktuellen Gruppe (einschließlich Ihnen):

[90,90,80,70,60,30,30]%

#### Am meisten bevorzugte Wahl

Welche der folgenden Alternativen ist Ihre **am meisten** bevorzugte Auswahlmöglichkeit in dieser Runde?  
( Beachten Sie, dass Sie - da Sie ein grüner Spieler sind - **versichert** sind, wenn eine Teil-Versicherung umgesetzt wird. )

- Voll-Versicherung
- Teil-Versicherung
- Keine Versicherung

Weiter

Beschäftigungschancen aller Teilnehmer in Ihrer Gruppe

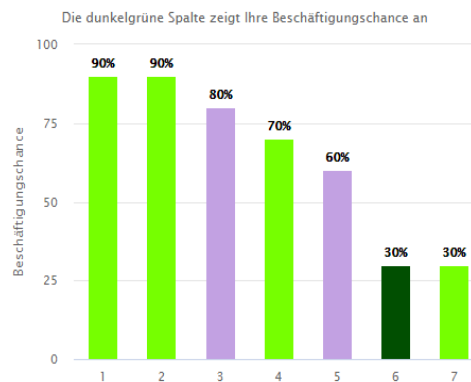


Figure 1: Example on computer

## C Survey

### C.1 General Information

For **green** and **purple** participants.

**Question 1:** How old are you?

**Question 2:** What is your gender?

**Question 3:** What is the highest degree you have achieved so far

**Question 4:** What degree are you currently aiming for

**Question 5:** What is your field of study

**Question 6:** What is your nationality

**Question 7:** In which country were you born?

**Question 8:** Were your parents born in the same country as you?

### C.2 Risk Aversion

For **green** and **purple** participants.

You can indicate your preferences below each time whether you would hypothetically participate in a lottery game or would like to obtain a safe outcome. In the case that you would like to participate in the lottery game, you have a 50% probability of winning 150 and a 50% probability of receiving nothing. For each of the following ten cases below, please indicate whether you would prefer to participate in the lottery game or you would like to receive a safe outcome. Please note that this is only a game and you will not receive any additional payment.

Option A (lottery game)	Option B (safe outcome)
150 (50% probability) or 0 (50% probability)	10
150 (50% probability) or 0 (50% probability)	20
150 (50% probability) or 0 (50% probability)	30
150 (50% probability) or 0 (50% probability)	40
150 (50% probability) or 0 (50% probability)	50
150 (50% probability) or 0 (50% probability)	60
150 (50% probability) or 0 (50% probability)	70
150 (50% probability) or 0 (50% probability)	80
150 (50% probability) or 0 (50% probability)	90
150 (50% probability) or 0 (50% probability)	100

**Table 15:** Risk Aversion

### C.3 Decisions

For **green participants**:

Please indicate, on a scale from 1 to 10, to what extent you agree with the following statements. While the number 1 indicates that you strongly disagree with the statement, the number 10 indicates that you strongly agree with the statement.

**Control 1:** The decisions I made depended on my own employment opportunities

**Control 2:** The decisions I made depended on the employment opportunities of the other members of my group

**Control 3:** The decisions I made were based on my employment opportunities in previous periods

**Control 4:** The decisions I made depended on the insurance systems implemented in previous periods

**Control 5:** My decisions were based on the knowledge that I was a **green person**?  
(only asked in the **Colorful** treatments, i.e. CE & CI)

For **purple participants**:

Please indicate, on a scale from 1 to 10, to what extent you agree with the following statements. While the number 1 indicates that you strongly disagree with the statement, the number 10 indicates that you strongly agree with the statement.

**Control 1:** My stated preferences depended on my own employment opportunities

**Control 2:** My stated preferences depended on the employment opportunities of the other members of my group

**Control 3:** My stated preferences were based on my employment opportunities in previous periods

**Control 4:** My stated preferences depended on the insurance systems implemented in previous periods

**Control 5:** My decisions were based on the knowledge that I was a **purple person**?  
(only asked in the **Colorful** treatments, i.e. CE & CI)

## C.4 Demographic controls

For **green** and **purple** participants.

Please indicate, on a scale from 1 to 10, to what extent you agree with the following statements. While the number 1 indicates that you strongly disagree with the statement, the number 10 indicates that you strongly agree with the statement.

**Control 1:** Germany spends too much money on immigrants

**Control 2:** Germany spends too little money on immigrants

**Control 3:** Germany has currently accepted too many immigrants

**Control 4:** Germany should accept more immigrants

**Control 5:** Immigrants have integrated well into German society

**Control 6:** Germany has a problem with immigrants who do not integrate into society

## D Preferences CE as a base outcome

**Table 16:** First and second decisions with linear employment probabilities. No\_Partial insurance and CE treatment as base outcome

Variables	1.Full_No	2.Full_Partial	3.No_Full	5.Partial_Full	6.Partial_No
probability	-17.23***	-18.95***	-4.630***	-13.90***	-6.621***
CI	2.184	3.184*	-0.816	3.403***	2.286***
GE	0.316	-1.397	-2.175*	-0.352	0.107
GI	-2.099	-0.836	-3.922***	1.055	1.295**
ind. RE	1	0.872***	0.515***	0.409***	0.206***
Constant	9.279***	12.76***	3.655***	9.798***	4.091***
Observations	1900				

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 17:** First and second decisions with non-linear employment probabilities. No\_Partial insurance, CE treatment and Ch5060 as base outcome

Variables	1.Full_No	2.Full_Partial	3.No_Full	5.Partial_Full	6.Partial_No
Ch3040	2.933***	2.249***	-0.459	0.478	-1.900**
Ch7080	-2.887***	-3.734***	-0.672*	-3.208***	-1.423***
Ch90	-4.255***	-5.604***	-1.613***	-4.965***	-2.824***
CI	1.822	2.833	-1.042	2.995***	2.072***
GE	0.222	-1.341	-2.259**	-0.435	-0.0321
GI	-1.820	-0.708	-4.056***	0.893	1.121**
ind. RE	1	0.853***	0.528***	0.385***	0.206***
Constant	-0.927	2.221*	1.018	2.517***	0.764*
Observations	1900				

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## E Preferences GI as the benchmark

**Table 18:** First decision with continuous employment chances. No insurance and GI treatment as base outcome

Variables	Full (1)	Full (2)	Partial(1)	Partial(2)
probability	-14.84***	-14.96***	-11.44***	-11.50***
CE	0.0966	-0.110	-2.172***	-2.115***
CI	2.274*	2.239	0.964*	0.941
GE	-1.053	-1.140	-1.266**	-1.126**
poorGE	-0.251	-0.297	-3.650***	-3.666***
M1[sub.id]	1	1	0.373***	0.367***
employed_Freq		-0.320		-0.734
insured_Freq		0.216		-0.138
full_Freq		0.239		0.644
partial_Freq		-0.0231		0.476
employed_insured_Freq		-0.553		0.548
Constant	9.463***	9.875***	9.770***	9.659***
Observations	1900			1900

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 19:** Employment chance + treatments

Variables	Full (1)	Full (2)	Partial(1)	Partial(2)
Ch3040	2.360***	2.656***	1.884***	1.825***
Ch7080	-3.260***	-2.614***	-2.388***	-2.024***
Ch90	-4.855***	-3.585***	-3.888***	-3.320***
CE	0.188	-0.0944	-2.091***	-2.987***
CI	2.262*	1.338*	0.978*	-1.129***
GE	-1.040	-0.196	-1.233**	-1.110***
poorGE	0.0564	0.0184	-3.438***	-3.343***
M1[sub.id]	1	1	0.373***	-0.350**
employed_Freq		-1.684**		-1.018
insured_Freq		0.713		-0.766
full_Freq		1.227		3.007***
partial_Freq		-0.423		0.374
employed_insured_Freq		0.881		0.836
Constant	1.369	0.450	3.446***	2.923***
Observations	1900			1900

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 20:** First and second decisions with linear employment probabilities. No.Partial insurance and GI treatment as base outcome

Variables	1.Full_No	2.Full_Partial	3.No_Full	5.Partial_Full	6.Partial_No
probability	-12.48***	-19.45***	-4.174***	-16.64***	-7.872***
CE	1.270	0.358	3.836***	-1.190	-1.511***
CI	3.757**	2.845*	2.727**	2.151**	0.661
GE	-0.481	-1.536	1.169	-1.093	-1.157**
employed_Freq	0.277	-1.407	0.518	-1.022	-0.297
insured_Freq	-1.558	0.0796	-0.387	-0.253	-0.514
full_Freq	1.803	0.362	-0.329	-0.206	1.629
partial_Freq	0.781	0.130	0.204	0.249	1.198
employed_insured_Freq	-0.934	0.0817	-1.128	0.773	-0.112
poorGE	0.958	-0.956	0.650	-4.171***	-3.722***
M1[sub.id]	1	1.222***	0.730***	0.682***	0.311***
Constant	6.942***	13.42***	0.0799	13.18***	6.090***
Observations	1900				

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 21:** First and second decisions with non-linear employment probabilities. No\_Partial insurance, GI treatment and Ch5060 as base outcome

Variables	1.Full_No	2.Full_Partial	3.No_Full	5.Partial_Full	6.Partial_No
Ch3040	2.933***	2.249***	-0.459	0.478	-1.900**
Ch7080	-2.887***	-3.734***	-0.672*	-3.208***	-1.423***
Ch90	-4.255***	-5.604***	-1.613***	-4.965***	-2.824***
CE	1.820	0.708	4.056***	-0.893	-1.121**
CI	3.642*	3.541*	3.014**	2.102**	0.951*
GE	2.042	-0.633	1.796	-1.328	-1.153**
M1[sub_id]	1	0.853***	0.528***	0.385***	0.206***
Constant	-2.747*	1.514	-3.038***	3.410***	1.885***
Observations	1900				

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 22:** First decision without employment chances. No insurance and CE treatment as base outcome

Variables	Full	Partial
CI	0.0753	0.657***
GE	-1.637**	0.551**
GI	-1.304*	1.297***
poorGE	4.443***	0.123
ind.RE	1	-0.291**
Constant	-0.243	-0.424**
Observations	1900	

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



**Table 23:** Frequency probability30\_40

pairwise decision and probability 30_40	treatment			
	CE	CI	GE	GI
probability30_40=0				
Full_No	20	34	8	4
Full_Partial	86	161	25	59
No_Full	69	4	15	2
No_Partial	108	99	140	91
Partial_Full	48	136	120	154
Partial_No	34	66	61	90
probability30_40=1				
Full_No	3		34	
Full_Partial	64		75	
No_Full			3	
No_Partial	5		6	
Partial_Full	62		12	
Partial_No	1		1	

## F Auxiliary estimations

**Table 24:** First decision with continuous employment chances. No insurance and CE treatment as base outcome

Variables	Full (1)	Full (2)	Partial(1)	Partial(2)
probability	-14.84***	-14.96***	-11.44***	-11.50***
CI	2.177	2.349*	3.136***	3.056***
GE	-1.149	-1.030	0.906*	0.990*
GI	-0.0966	0.110	2.172***	2.115***
poorGE	-0.251	-0.297	-3.650***	-3.666***
employed_Freq		-0.320		-0.734
insured_Freq		0.216		-0.138
full_Freq		0.239		0.644
partial_Freq		-0.0231		0.476
employed_insured_Freq		-0.553		0.548
ind. RE	1	1	0.308***	0.367***
Constant	9.560***	9.764***	7.597***	7.544***
Observations		1900		1900

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 25:** First decision with non-linear employment probabilities. CE treatment and Ch5060 as base outcome

Variables	Full (1)	Full (2)	Partial (1)	Partial (2)
Ch3040	2.360***	2.656***	1.884***	1.825***
Ch7080	-3.260***	-2.614***	-2.388***	-2.024***
Ch90	-4.855***	-3.585***	-3.888***	-3.320***
CI	2.074	1.433*	3.068*** *	1.858***
GE	-1.227	-0.101	0.858	1.877***
GI	-0.188	0.0945	2.091***	2.987***
poorGE	0.0564	0.0184	-3.438***	-3.343***
employed_Freq		-1.684**		-1.018
insured_Freq		0.714		-0.766
full_Freq		1.227		3.007***
partial_Freq		-0.423		0.374
employed_insured_Freq		0.881		0.836
ind. RE	1	0.314***		-0.350**
Constant	1.556*	0.356	1.356***	-0.0642
Observations	1900			1900

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 26:** First and second decisions with continuous employment probabilities. No\_Partial insurance and CE treatment as base outcome

Variables	1.Full_No	2.Full_Partial	3.No_Full	5.Partial_Full	6.Partial_No
probability	-12.48***	-19.45***	-4.174***	-16.64***	-7.872***
CI	2.487*	2.487	-1.109	3.341***	2.172***
GE	-1.751	-1.894	-2.667**	0.0963	0.354
GI	-1.270	-0.358	-3.836***	1.190	1.511***
poorGE	0.958	-0.956	0.650	-4.171***	-3.722***
employed_Freq	0.277	-1.407	0.518	-1.022	-0.297
insured_Freq	-1.558	0.0796	-0.387	-0.253	-0.514
full_Freq	1.803	0.362	-0.329	-0.206	1.629
partial_Freq	0.781	0.130	0.204	0.249	1.198
employed_insured_Freq	-0.934	0.0817	-1.128	0.773	-0.112
ind. RE	1	1.222***	0.730***	0.682***	0.311***
Constant	8.212***	13.78***	3.916***	11.99***	4.579***
Observations	1900				

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

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