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ABSTRACT

In an online experiment, we examine how ingroup bias and fairness concerns shape the redistributive preferences of UK resident natives and immigrants. Natives and immigrants were paired in a series of distributive situations. They chose how to divide a pie created from either party's previous contributions and stated what they believed to be their fair share from the vantage point of UK residents acting as unbiased spectators. In a complementary survey, we obtained these spectator divisions. We found that natives' and immigrants' distributive choices were absent ingroup bias. Their choices were, however, selfishly biased, as they invoked the fact that the pie was created solely from their own contributions. This behavior was eliminated when it disproportionately harmed the partner. Their fairness beliefs showed evidence of egocentric norm adoption: they favored equity as contributors and equality as noncontributors. They also believed that spectators would negatively discriminate against immigrants in favor of natives, but this perception was unfounded in light of spectators' divisions. We discuss the implications of our results for immigration research and integration policies.

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Abstract

In an online experiment, we examine how *ingroup bias* and *fairness concerns* shape the redistributive preferences of UK resident natives and immigrants. Natives and immigrants were paired in a series of distributive situations. They chose how to divide a pie created from either party's previous contributions and stated what they believed to be their fair share from the vantage point of UK residents acting as unbiased spectators. In a complementary survey, we obtained these spectator divisions. We found that natives' and immigrants' distributive choices were absent ingroup bias. Their choices were, however, selfishly biased, as they invoked the fact that the pie was created solely from their own contributions. This behavior was eliminated when it disproportionately harmed the partner. Their fairness beliefs showed evidence of egocentric norm adoption: they favored equity as contributors and equality as noncontributors. They also believed that spectators would negatively discriminate against immigrants in favor of natives, but this perception was unfounded in light of spectators' divisions. We discuss the implications of our results for immigration research and integration policies.

Keywords: redistribution; equity; equality; United Kingdom; contributions; ingroup bias; self-serving behavior; egocentric norms; fairness; natives; immigrants

JEL codes: C99; D69; D91; J15

1 Introduction

What shapes natives' positions in granting immigrants welfare entitlements is still unclear. The question is important however, as anti-immigrant sentiments can be employed to attract voters by questioning immigrants' welfare entitlements (Andersen & Bjørklund, 1990; Kitschelt & McGann, 1995) or by ascribing to immigrants the ignominious intent to milk the welfare state at natives' expense (e.g., Bjørklund, 1988; Burgoon, 2014). Natives' views on immigrants' welfare entitlements may also shape their voting preferences (Rueda, 2018) and even moderate political parties' agendas have made concessions to natives' demands for preferential welfare access (e.g., Bale et al., 2010; Han, 2015; Schumacher & Van Kersbergen, 2016).

One strand of research attributes natives' reluctance to include newcomers in redistributive social policies to *ingroup-bias* (Alesina & Stantcheva, 2020). The *parochial altruism* thesis builds on ingroup-biased preferences and argues that natives' generosity is restricted to fellow natives (i.e., "us") and does not extend to immigrants (i.e., "them") (Bernhard et al., 2006; Choi & Bowles, 2007). The other camp emphasizes natives' *fairness concerns* in explaining their demand for preferential welfare provisioning. In particular, the demand is seen as a manifestation of natives' preference for *equity* over *equality*, such that shares in redistribution are proportional to contributions — a dimension in which natives have the upper hand over immigrants (e.g., Ennser-Jedenastik, 2018; Fong, 2001).¹ This position

¹We adhere to the common usage of these terms in social sciences. By equality, we mean strict egalitarianism, where outcomes disregard inputs (i.e., contributions), leading to equal outcomes (i.e., payouts) among parties. By equity, we mean the proportionality of outcomes to inputs (e.g., Homans, 1958; Konow et al., 2020). We also acknowledge that *need* is a third principle, but this is not covered in our research.

may have a normative appeal, since the contribution principle is a key guiding rule of social insurance systems in welfare states (Vrooman, 2009). Empirical results on anti-immigrant sentiments in general — and welfare-chauvinistic attitudes in particular — are, however, mixed on the role and weight of these drivers. Therefore, a mapping of the microfoundations of redistributive preferences is required both from theoretical and practical perspectives (Cavaille & Van der Straeten, 2023).

This research examines the microfoundations of natives’ and immigrants’ redistributive preferences via an online experiment fielded on Prolific². In particular, we study the extent to which redistributive preferences of natives and immigrants in the UK are shaped by *ingroup bias* and *fairness concerns*. We investigate ingroup bias by systematically creating native-native/immigrant-immigrant or mixed pairs for distributive situations. This allows us to examine whether distributive choices and beliefs about one’s fair share depend on whether the partner is ingroup or outgroup of the decision-maker. We proxy fairness concerns by invoking one’s contribution (or lack thereof) to the to-be-divided proceeds, and propose that these appeals to fairness are opportunistically formed. We also conjecture that both components shaping distributive preferences are universal rather than unique to natives, which explains why we include immigrants in our studies. The assumption of universality of these drivers is suggested by empirical evidence showing that voters with an immigrant background tend to vote for restrictive immigration policies, even in cases where they share cultural, ethnic, or religious backgrounds with potential newcomers (Spies et al., 2022; Strijbis & Polavieja,

²<https://www.prolific.com/> and for a detailed description, see, Palan and Schitter (2018)

2018).

To investigate the opportunistic invocation of being the contributor in a distributive situation, we turn to research on *self-serving behavior* in distributive situations (e.g., Dezsó & Loewenstein, 2019; Konow, 2000, 2005; Lange et al., 2010; Messick & Sentis, 1979). Complex situations are often characterized by normative pluralism. The presence of multiple normative solutions allows the decision-maker to interpret the context in their own favor and cherry-pick the fairness rule that guarantees them the most beneficial share (e.g., Konow, 2001). The resulting choices are *selfishly biased* as they are driven by more than just plain selfishness and constructed according to the decision-maker's interpretation of the context, who uses any element to justify their claim. Applying this towards forming claims and entitlements from the welfare pie, having made greater contributions to the welfare state may be invoked to justify a higher share or privileged access to welfare services. These choices or demands may also be supplemented by egocentric beliefs about one's fair share. That is, believing that being favored in a redistributive social policy would be shared by bystanders who have no monetary stake in the outcomes. The resulting *self-serving beliefs* demonstrate that self-interest percolates into the decision-maker's perception about the relevant distributive justice principle in the situation.

We test our intuition that natives' demand for their exclusive (or more favorable) welfare access is not primarily due to their nativeness *per se*, but rather the fact that they have built up the welfare state. Given that redistributive social policies admit inherent normative pluralism, demanding equity (i.e., outcomes are proportional to inputs) rather than equality

(i.e., outcomes are equal, regardless of inputs) in redistributive social policies secures them a beneficial share, while the approach still holds a normative appeal. Consequently, we expect that when the table is turned and immigrants are the contributors, they will also behave self-servingly by demanding an input–output proportional outcome. At the same time, when natives and immigrants are noncontributors, our prediction is that they will believe that equality is the relevant fairness principle that should guide the distributive situation. In other words, the fairness argument evoked among natives is an opportunistic behavior which actually comes from their being contributors. It just happens that, on average, natives have a longer history of contributions to the welfare state than immigrants, and, since they are the ones who vote and whose voices are heard, their fairness concerns might be seen as genuine and mistakenly attributed to their nativeness.

To test our intuitions, we present the results of an experiment and a survey enrolling UK residents. The two studies used different but complementary types of subjects. In the experiment, we had implicated parties — called *workers* — who held monetary stakes in the distributive outcomes, and were either natives of or immigrants to the UK.

In the survey, which mirrored the experiment, we had a representative sample of UK residents acting as impartial *spectators* holding no monetary stakes in the outcomes of the distributive situations featured in the experiment. Spectators were fully informed about what happened to workers in the experimental situations and proposed fair divisions between the paired workers for each distributive situation. Unlike previous research (e.g., Almås et al., 2020; Cohn et al., 2023)), where spectators’ allocation decisions were imposed on

experimental pairs, in our setup, spectator allocation decisions were inconsequential. Our focus was on the workers, and collecting spectator decisions fulfilled two additional goals. First, they enabled us to see whether spectators' views would favor natives over immigrants, or would prefer input–output proportional versus equal outcomes.

The second benefit of collecting these spectator decisions is that they served as ground truth to workers' perceptions about their fair shares from the vantage point of UK resident spectators. Workers' stated beliefs in each treatment variation were compared with the spectators' actual decisions. This approach allows the incentive–compatible elicitation of workers' beliefs, as they received monetary reward based on how close these beliefs were to spectator decisions (for similar design approaches eliciting stakeholders' fairness views, see, for example, Dezsó and Loewenstein (2019) and Gächter and Riedl (2005)). In this way, we could test whether workers' perceptions about their fair shares apportioned by UK resident spectators are shaped by two factors. On the one hand, whether beliefs are egocentrically biased by invoking the decision–maker's “(non)contributorship”. Thereby indicating that decision–makers could not escape their self–interest when forming their beliefs about their fair share from the perspective of disinterested parties. On the other hand, whether workers ascribe immigration–background based discrimination to UK resident spectators.

Our two–stage experiment paired workers for a series of distributive situations in which they were prompted to divide a pie that was created from either party's previous contributions. These distributive choices were simple and implemented in a dictator–game format. Therefore, they lacked the strategic complexities, which are, though, important features of

real-world wealth transfer policies. Still, they captured the crucial element of whether one is willing to share the resources one generated with others. Workers also stated their beliefs about their fair share from the vantage point of fully informed UK residents acting as unbiased spectators (i.e., our spectators). These stated beliefs were proxies of workers' perceptions of the fair approach prevailing in the UK.

In the first stage of the experiment, before the distributive situations, workers individually worked on a trivial, real-effort task from which they generated income and made mandatory contributions. These contributions were made in the form of unpaid effort on the task rather than being deducted from their generated incomes. To eliminate any confounding factors arising from income level or contribution asymmetries, in this first stage, workers completed the same number of real-effort tasks (i.e., exerted the same effort), generated the same income, and made the same contributions. Then, a random mechanism determined whether the worker's stage-one contribution was abolished or maintained, which information was public knowledge to everyone. Workers whose stage-one contributions were maintained were called the contributors, and those whose were abolished were called the noncontributors. The "contributor" and "noncontributor" labeling was chosen because the to-be-divided pie in the second stage was framed as having been created from one party's (i.e., the contributors) stage-one contributions.

Stage two paired workers by always matching one contributor with one noncontributor. This pairing regime ensured that the pie was always created from one party's stage-one contributions, and allowed isolating the impact of being the contributor. Orthogonally, the

pairing regime created native–native, immigrant–immigrant, and native–immigrant worker pairs, which allowed for the estimation of ingroup–biased choices and fairness beliefs. To achieve this, each worker participated in four distributive situations. They were chosen twice as the contributor and twice as the noncontributor. This factor was crossed with the partner’s group membership, such that twice they were paired with an ingroup (i.e., native paired with native and immigrant paired with immigrant) and twice with an outgroup partner (i.e., native paired with immigrant and immigrant paired with native). This 2x2 within–subject setup enabled a more conservative estimate of self–serving behavior as we could examine whether choices and beliefs change within the same subject solely due to the contributor versus noncontributor manipulation.

Employing a random mechanism to create contributors and noncontributors and eliminating any asymmetries regarding stage–one income and contributions were crucial design choices. Although the to–be–divided pie in each distributive situation was made from one party’s contributions (i.e., the contributor), in stage–one, both parties made the same mandatory contributions. This approach created a normative pluralism in the distributive situation and allowed for egocentric norm adoption. The contributor may believe that their “contributorhood” is the relevant dimension along which the relevant fairness principle should be selected. This leads to their selecting equity as the fairness principle, whereby some input–output proportionality is preserved in their fair share, which secures them more than half of the pie. In contrast, the noncontributor may focus on the fact that they both made the same mandatory contributions, which makes them symmetric. For noncontributors, equality

is the pertinent fairness rule, splitting the pie equally between parties. Applying the same logic for distributive choices, we expect that mean choices (i.e., how much of the pie they claim for themselves) will be higher for contributors than for noncontributors, suggesting selfishly biased choices due to having invoked their “contributoriness”.

Finally, as a between–subject factor, we measured whether cost concerns would interact with ingroup bias and invoking one’s “contributoriness”. In a separate treatment variation, we varied the extent of harm that the decision–maker needed to impose on the partner to take more than half of the pie for themselves. Specifically, we expected that when the decision–maker needs to harm the partner more than they gain (e.g., one unit of gain for the decision–maker requires imposing two units of harm on the partner), as in the costly treatment arm, they would be less likely to divide unequally than when the harm is commensurate with the gain (i.e., one unit of gain for the decision–maker requires imposing one unit of harm on the partner), as in the costless treatment arm. With this design choice, we aimed to model a situation where providing preferential treatment to natives could, in certain situations, disproportionately disadvantage immigrants, especially considering their generally lower socio–economic status. We speculated that the distributive choices would be less ingroup–biased and selfishly biased in the costly than in the costless treatment arm.

Our results are summarized as follows. We found no evidence of ingroup bias in workers’ distributive choices. In fact, natives were more generous to immigrants than to fellow natives. At the same time, we found evidence of selfishly biased choices among natives and immigrants alike. When natives and immigrants were assigned to be contributors, their choices were,

on average, higher than when they were noncontributors. Similarly, workers' beliefs about their fair share were higher among contributors than among noncontributors, indicating self-servingly formed perceptions of the normative solution. Workers also showed an egocentric norm adoption. As contributors, their beliefs indicated that equity is the relevant fairness principle, whereas as noncontributors, equality is the relevant one, even though workers subsequently were put in both roles.

In other words, native and immigrant workers took advantage of normative pluralism when forming their beliefs about their fair share from the vantage point of UK resident spectators. Surprisingly, immigrants' self-serving beliefs were mitigated, and their egocentric norm adoption was eliminated when they were paired with a native. Immigrants anticipated that UK resident spectators would negatively discriminate against them, but any sign of such discrimination was absent from the spectators' decisions we collected. Spectators, however, slightly favored the contributor over the noncontributor in their allocation views, suggesting that among unbiased UK residents, even when the contributor manipulation is clearly randomly created, the contributor party is seen as deserving of more than half of the to-be-divided pie. Similar results are found in the luck treatments of Almås et al. (2020) and Konow et al. (2020) and in the spectators' decisions reported by Dezsó and Loewenstein (2019).

Failing to find ingroup-bias when groups are delineated along real-life native and immigrant identities corroborates the findings of the meta-analysis of Lane (2016). The author reports that in laboratory settings, ingroup-bias emerges between artificial group identities

but not real-life ones. We also give empirical support to Cavaille and Van der Straeten (2023) advancing that anti-immigrant sentiments are instigated or galvanized by questioning immigrants' welfare entitlements. Questioning immigrants' social rights may successfully target natives' fairness concerns and perceptions about what makes one deserving of redistributive social policies, rather than immigrants' outgroupness on salient dimensions. We add that these fairness concerns are, however, not genuine, but instead are self-servingly formed, and as such are not native-specific but present among anyone who has the upper hand in the contribution dimension.

Our results also connect to a recent critical inquiry by Pisor and Ross (2023) on applying the parochial altruism thesis in explaining natives' reluctance to share welfare with immigrants (or anti-immigrant attitudes in general). In particular, the perception of who is an ingroup member may be formed along lines other than salient phenotypical dimensions. Becoming an ingroup member may result from sharing norms and contributing to the joint resource-pooling endeavor in welfare states, where contributions are the instruments to gain entitlements and become a member of the group of beneficiaries.

Our results also highlight that it is not nativeness per se that is associated with a preference for equity over equality, but it is one's contributorness that is self-servingly invoked. This aspect offers three clear implications. First, invoking contributions to secure a better share in redistributive situations is a universal, self-serving behavior. Second, this opportunistic behavior responds well to psychological costs, as it can be muted by associating it with imposing disproportional harm on the disadvantaged party. Third, from a practical

point of view, immigration policies should prioritize the rapid integration of immigrants into the labor market so that they can make contributions promptly, which seems to be the way to gain membership in the resource-pooling community. However, since fairness concerns can be evoked opportunistically, we suspect that enrolling immigrants into government-assisted employment programs may not be sufficient to lend the perception that they are equal contributors with natives.

The remainder of this paper is structured as follows. In Section 2, we describe our experiment and the survey (i.e., Spectator survey) and introduce the predictions. We present the results in Section 3. In Section 4, we discuss our results and draw some conclusions.

2 The Experiment and the Spectator survey

The experiment and the Spectator survey were programmed in oTree (Chen et al., 2016), and their screenshots are presented in Appendix A. First, we describe the experiment and then briefly the Spectator survey, which mirrored the experiment.

2.1 The Experiment

2.1.1 Preliminaries

Participation was restricted to UK residents, with half of them being native of and the other half immigrants to the UK.³ To facilitate understanding, we will refer to these participants

³Our priority was to obtain a sample that did not show (substantial) native-versus-immigrant differences in terms of age, gender, income. For this reason, we forego sampling a representative sample of UK natives

as workers, even though this was not the terminology used in the experimental materials. This sampling established the two levels of the *Birth* factor: *Natives* and *Immigrants*. The experiment used neutral language, not mentioning redistribution, investment, or the welfare state. The only context introduced was by design: workers were informed whether their partner was born in the UK or abroad without using the terms “native” or “immigrant”.

2.1.2 Stages

The experiment unfolded in two interconnected stages — the *investment* and *allocation* stages — but for workers, they were referred to as the first and second stages, respectively.

In the investment stage, unpaired workers completed ten trivial tasks in which some efforts were paid while others were unpaid. Both paid and unpaid tasks involved selecting the correct label for each of the ten images, each with four possible labels. For example, if there was an image of a fork and the subjects were provided with four labels “lamp”, “fork”, “cat”, and “spoon”, then correct completion required clicking on the word “fork”. Workers were informed that correctly labeling two of the ten images pays them 0.2 GBP. They were also told that to proceed to the second stage (i.e., allocation stage) — where they would make additional money — they needed to correctly label an additional four images. These four correctly labeled images were called their “surplus”, and the efforts to create this surplus remained unpaid.

We intentionally chose this trivial real-effort task to eliminate potential selection issues.

and immigrants.

To make the completion of six correctly labeled images virtually certain and avoid any conceivable association between performance on this task and experimental behaviors, the image-labeling task was pretested to be trivial (for similar designs, see, Dezsó & Loewenstein, 2019). We expected (and found) that essentially everyone could correctly label at least six images.⁴

At the end of the investment stage, subjects learned whether they had correctly labeled the required 2 (for which they were paid) + 4 (unpaid surplus) = 6 images and, thus, whether they could proceed to the allocation stage. Subjects were also truthfully informed that correctly completing more than six images would not bring them additional income or benefits.

At the beginning of the allocation stage, each worker received a 0.4 GBP endowment and was paired with another worker. To eliminate any confounding asymmetries between workers, our design ensured that there were no earnings or performance differences from the investment stage between workers, that they had all created the mandatory surplus, and that they received the same amount as the allocation-stage endowment. The workers were also informed about these facts.

In the allocation stage, the pair was given a pie of size 4 which was called the “multiplier” in the experiment. We intended to create a connection between the surplus (i.e., mandatory contributions) made in the investment stage and the to-be-divided pie. Therefore, the pie was framed as having been created from one worker’s investment-stage surplus, and its size

⁴Although six correctly labeled images were sufficient to complete the investment stage and gain access to the allocation stage, 94% of the workers correctly labeled all ten images.

was 4.⁵

The two experimental behaviors were elicited in the allocation stage. To examine the distributive choices, henceforth called *Choice*, each worker in the pair was asked to propose how to divide the pie. The share each party received from the pie was multiplied by their allocation-stage endowment of 0.4 GBP, resulting in participants' allocation-stage earnings. To examine beliefs about one's fair share (henceforth called *Beliefs*), each worker stated their perception of their fair share of the pie from the vantage point of UK residents holding no monetary stakes in the distributive outcomes.

2.1.3 Main treatment variations

To address how ingroup bias and being the contributor may influence *Choices* and *Beliefs*, we administered two within-subject manipulations via the *Partner* and *Role* factors.

To examine ingroup-bias, we created the *Partner* factor with two levels. The *Ingroup* level was assigned when the decision-maker was paired with a member of their ingroup with respect to immigration background (i.e., Native paired with Native and Immigrant with Immigrant). The *Outgroup* level was assigned when the decision-maker was paired with a member of their outgroup with respect to immigration background (i.e., Native paired with Immigrant)

To examine whether being the contributor of the pie is invoked in *Choices* and *Beliefs*, we created a *Role* factor with two levels. The *Contributor* level was randomly assigned to the

⁵Recall that four images were needed to be labeled to create the surplus, which served as the mandatory contributions

worker within the pair whose investment–stage surplus was preserved, yielding the allocation stage to–be–divided pie. The *Noncontributor* level was assigned to the worker in the pair whose investment–stage surplus was not preserved for the allocation stage. Each subject had a 50% chance of being the Contributor and a 50% of being the Noncontributor in a given round. To ensure that we only have asymmetric pairs consisting of one Contributor and one Noncontributor, this randomization was performed before workers were paired.

Applying a random mechanism to create Contributors and Noncontributors and eliminating any asymmetries regarding investment–stage income and contributions were crucial design choices. Although the to–be–divided pie in each distributive situation was made from one party’s (i.e., Contributor) contributions, in the investment–stage, both parties gave up the same amount of income when making the mandatory contributions. This approach created two normative solutions: equity and equality of outcomes.⁶

To test whether deviating from equally splitting the pie is less likely when doing so is costly, we introduced a between–subject factor, called *Asymmetry* with two levels. For the entire experiment, each worker was assigned to the *Costly* or the *Costless* level of the Asymmetry factor, and workers were paired only within their Asymmetry treatment assignment.

By crossing the Partner and Role within–subject factors, each worker was assigned to all four within–subject variations in the experiment. Consequently, each worker completed the investment– and allocation–stages four times and was paid for them. At the same

⁶Since we kept all factors symmetric between paired workers, neither accountability (i.e., Contributor assignment was outside workers’ control) nor need (i.e., parties arrive at the distributive situation with the same income levels) can justify deviating from equality.

time, workers and pairs kept their single Asymmetry treatment assignment for the entire experiment.

The experiment is a 2 (Asymmetry: Costless/Costly) X 2 (Birth: Native/Immigrant) X 2 (Partner: Ingroup/Outgroup) X 2 (Role: Contributor/Noncontributor) factorial design. Asymmetry and Birth are between-subject, whereas Partner and Role are within-subject factors. The Birth factor assignment was implemented via sample design, all others randomly.

2.1.4 Additional treatment variations

We had two between-subject variations.

First, half of the workers were assigned to the *Before* and the other half to the *After* levels of the *Survey order* factor. This assignment determined whether workers received a survey batter before making the first iteration of entering the investment-stage, as in the *Before*; or after, as in the *After* treatment arms. The survey battery included pretreatment heterogeneity measures used as proxies for various attitudes that could be associated with *Choices* and *Beliefs*. It inquired about workers' votes on the Brexit 2016 referendum and included items from Hellwig and Sinno (2017) covering various aspects of attitudes toward and perceptions of immigrants and immigration. Furthermore, using three survey items borrowed from Fehr et al. (2021), we inquired about workers' preferences for redistribution. The Survey-order factor allowed testing whether priming subjects with immigration, inequality, and redistribution topics influences experimental behaviors. Alesina et al. (2023), for in-

stance, report that making immigration salient first and then asking about preferences for redistribution makes redistribution less preferred than when the order is reversed.

Second, the *Behavior-order* factor randomly determined whether workers first stated their *Beliefs*, then made their *Choices* in the allocation stage, or vice versa. Counterbalancing the elicitation order of these behaviors enabled us to test potential bidirectionality — an unsettled topic in empirical research (e.g., d’Adda et al., 2016; Dezsó et al., 2022).

2.1.5 Procedure

Figure 1 presents the experimental flow. First, workers read the description of the experiment, learned about their expected earnings, and consented to participate. Then, they answered a list of demographic questions. Next, those assigned to the Before treatment arm of the Survey-order factor completed the survey battery.

Next, still unpaired, everyone entered the investment-stage and individually completed the image-labeling task. Those failing to label the six images correctly were excluded from entering the allocation-stage and proceeded to the next of the four within-subject iterations. If no more rounds of the within-subject iterations were left, they finished this part of the study.

The workers then entered the allocation-stage and were paired. They learned about now being paired with another UK resident who — depending on their Partner-level assignment — was either Ingroup or Outgroup to them. They also learned that the investment-stage tasks, the completion criteria, the mandatory requirement of creating the surplus, earnings,

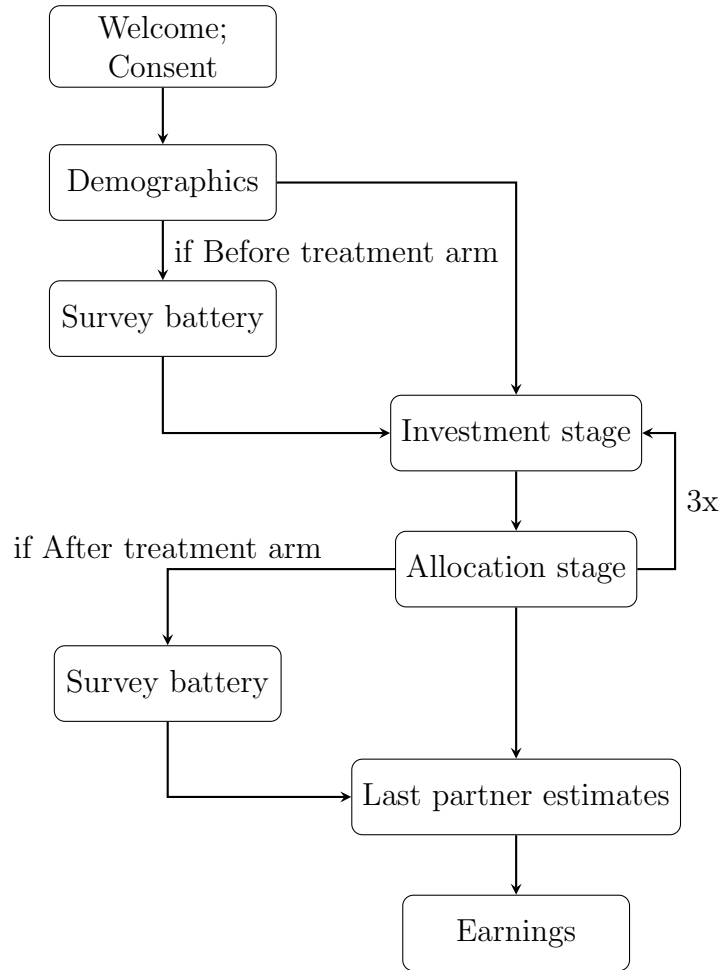


Figure 1: Experimental flow

and the allocation–stage endowment of 0.4 GBP were the same for their partner.

To implement the Role manipulation, parties were informed which one of them was randomly selected to be a Contributor. We framed the situation in the following way: we told both parties that the Contributor’s surplus from the investment–stage was preserved for this allocation–stage, and now serves as the to–be–divided pie that needs to be divided between them. At the same time, they were told that the surplus of the other party (i.e., Noncontributor) was not preserved for this allocation–stage. They also learned that the pie

size is 4 and acts as a multiplier. That is, the share they get from the pie multiplies their allocation–stage endowment of 0.4 GBP.

Then, depending on the Behavior–order assignment, they first revealed their *Choice* and then stated their *Belief*, or vice–versa. In either case, a table was presented with a layout and content similar to Table 1, listing the 11 ways they can divide the pie. To reinforce the Role and Partner manipulations, this table reminded them which one of them was the Contributor as well as the immigration backgrounds of both parties.

Table 1. Alternatives for dividing the pie in the Costless and Costly treatment arms

Alternative	My outcome				Partner’s outcome			
	Pie share		Earnings in GBP		Pie share		Earnings in GBP	
	Costless	Costly	Costless	Costly	Costless	Costly	Costless	Costly
1.	1.5	1	0.6	0.4	2.5	2.5	1	1
2.	1.6	1.2	0.64	0.48	2.4	2.4	0.96	0.96
3.	1.7	1.4	0.68	0.56	2.3	2.3	0.92	0.92
4.	1.8	1.6	0.72	0.64	2.2	2.2	0.88	0.88
5.	1.9	1.8	0.76	0.72	2.1	2.1	0.84	0.84
6.	2	2	0.8	0.8	2	2	0.8	0.8
7.	2.1	2.1	0.84	0.84	1.9	1.8	0.76	0.72
8.	2.2	2.2	0.88	0.88	1.8	1.6	0.72	0.64
9.	2.3	2.3	0.92	0.92	1.7	1.4	0.68	0.56
10.	2.4	2.4	0.96	0.96	1.6	1.2	0.64	0.48
11.	2.5	2.5	1	1	1.5	1	0.6	0.4

Notes: Outcomes are presented in the Costless and the Costly treatment arms. One’s share of the pie is listed in the “Share” column. The column “Earnings” presents allocation–stage earnings after the pie share multiplied the allocation–stage endowment of 0.4 GBP.

Workers indicated their preferred alternative from the list presented in Table 1, and this choice elicitation was implemented via the strategy method (Selten, 1988). Parties were truthfully informed that at the end of the experiment, it would be randomly decided (with equal probability) which workers’ *Choice* would be implemented to determine both worker’s earnings. In this table, alternative 6 presents splitting the pie of 4 equally between

parties, corresponding to a share of 2 for each party. Alternative numbers above 6 favor the decision-maker, while those below 6 favor their partner. Consider, for instance, alternative 8. In the Costless treatment arm, the decision-maker gets a pie share of 2.2, while their partner gets 1.8. Here, compared to the equal split, the partner's share is reduced by 0.2 (i.e., $2 - 0.2 = 1.8$), and this entire amount is granted to the decision-maker who ends up getting a pie share of 2.2 (which is 0.2 more than the share corresponding to an equal split).

Now, consider alternative 8 in the Costly treatment arm. Here, the decision-maker gets a pie share of 2.2 again (just like in the Costless treatment arm), whereas the partner only receives a share of 1.6 (in contrast to a share of 1.8 of the Costless treatment). In the Costly treatment arm, for the decision-maker, to get a gain of 0.2 beyond the equal split, they need to take 0.4 away from the partner. This is because the Costly treatment arm was implemented as a "leaky bucket" design. For the gain of 0.2 of the pie in the Costly treatment arm, the decision-maker needed to harm their partner twice as much as they had to do for the same gain in the Costless treatment arm. Note, however, that across all eleven alternatives and in both levels of the Asymmetry factor, workers' pie share never fell below 1. Therefore, we ensured by design that workers always receive their allocation-stage endowment.

To state their *Beliefs*, workers were given a slider to indicate what they believed their mean fair share of the pie would be from the vantage point of 40 UK residents who do not hold monetary stakes in the outcomes. In doing so, we employed the binarized scoring rule (e.g., Hossain & Okui, 2013) in the following way. All workers received a 0.2 GBP

estimation bonus to start with. Those who made the correct estimate were granted the 0.2 GBP for sure (i.e., with 100% probability). Making correct estimates meant that the worker’s stated *Belief* coincided with the actual mean of the 40 spectators in that specific treatment variation, which spectator decisions we collected in the Spectator survey. However, the further the worker’s estimate fell from the spectators’ mean, the lower their probability of winning the estimation bonus was. ⁷

Next, those assigned to the After level of the Survey–order factor responded to the survey battery.

The total average earnings per worker (calculated after the ex–post matching was done) was approximately 8 GBP.

2.1.6 Predictions

We aim to estimate the effects of being the Contributor and being paired with an Outgroup member, and their interactive effects on workers’ *Choices* and *Beliefs*. Therefore, in the remainder of the paper, *Choices* and *Beliefs* are decision–maker centered. *Choices* describe how much the decision–maker claims for himself when proposing to divide the pie in the allocation–stage. *Beliefs* describe what workers believe to be their fair share from the perspective of UK residents who do not have a monetary stake in the outcome. We formed the

⁷In the last within–subject iteration, each subject was asked to estimate the key demographic characteristics of their partner from the final round. This involved asking workers to state their beliefs about their partner’s birth country region, education level, employment status, religion, and whether they believed that their partner was a citizen of the UK. They were truthfully told that one measure would be randomly selected and, if their estimate for that item was correct, they would receive a 0.10 GBP bonus. However, this part was only intended to be exploratory, and therefore, we have no intention of analyzing these responses.

following hypotheses about workers' *Choices* and *Beliefs*.⁸

Hypothesis 1 (Contributor effect, H1) *Mean Choices and Beliefs are higher when the decision-maker is in the Contributor role than in the Noncontributor role.*

Hypothesis 2 (Ingroup-bias effect, H2) *Mean Choices and Beliefs are higher when the decision-maker's partner is an Outgroup rather than an Ingroup member.*

Hypothesis 3 (Interaction effect, H3) *The effect of being a Contributor is stronger when the decision-maker's partner is Outgroup versus Ingroup.*

We remain agnostic as to whether Natives and Immigrants differ in their *Beliefs* and *Choices*, and whether the Contributor and the Ingroup-bias effects interact with the Birth factor.

Hypothesis 4 (No Native versus Immigrant behavioral difference, H4) *Mean Choices and Beliefs of Natives and Immigrants do not differ.*

We also anticipate that *Choices* are sensitive to cost, but *Beliefs* are not.

Hypothesis 5 (Costs concern, H5) *Mean Choices are lower in the Costly than in the Costless treatment arm.*

Finally, without specific predictions, we explore the associations between the pretreatment heterogeneity measures and the experimental behaviors.

⁸Hypotheses, models, and code for the analysis were preregistered at AEA RCT Registry, RCT ID: AEARCTR-0007577.

2.2 The Spectator survey

Before the experiment, we conducted the “Spectator survey”. We enrolled a separate sample of UK residents who were representative of the age, gender, and income–level distributions of the UK population in 2021. The respondents were prompted to step into the shoes of an unbiased spectator. They were randomly assigned to one of the eight survey conditions, where each condition mirrored an experimental treatment variation. Spectators also responded to the same demographic and pretreatment heterogeneity measures as workers in the experiment, and the administration of the latter was also counterbalanced for spectators. Spectators stated their views, called *Spectator allocations*, by selecting one of the 11 alternatives presented in Table 1 that, in their view, captured the fair division of the pie between two workers. Like the experiment, the language of the vignettes was neutral, as abstract as possible, and absent any terminology that mentions redistribution, mandatory taxation, or the welfare state. The only context given was information on the immigration background of the paired workers. Spectators received a fixed payment of 0.85 GBP for completing this task, and their allocation decisions were hypothetical.

Recall that the goals of the Spectator survey were twofold. The first was to obtain views on the fair allocations from UK residents who do not hold a monetary stake in the distributive outcomes. Here, we had no specific predictions as to whether *Spectator allocations* would favor the Contributor and/or a particular immigration background. Second, by employing *Spectator allocations* within the experiment, we could truthfully incentivize the elicitation of workers’ *Beliefs* about their fair share. That is, workers’ treatment–specific

Beliefs were compared to mean *Spectator allocations* for the focal treatment variation in order to determine workers' estimation bonuses.

3 Results

We first describe the two samples (i.e., workers and spectators), then present key descriptive results from the experiment and the Spectator survey. Next, we model *Choices* and *Beliefs* and compare *Beliefs* to *Spectator allocations*. Finally, we explore the associations between pretreatment heterogeneity measures and *Choices* and *Beliefs*. Additional details and supplementary results are presented in the Appendix .

3.1 Key characteristics of two samples

Of the 688 workers in the experiment, 344 are Natives and 344 are Immigrants. Orthogonally, 345 workers are in the Costless and 343 in the Costly treatment arms. Among workers, we find no Native-versus-Immigrant differences in mean age; sample Mean (SD) = 31.95 (10.93) years. Similarly, the gender distribution does not differ between treatment assignments among the workers: 69% are female, 31% are male, and 1% other. Income levels are also uniformly distributed between treatments among workers; the marginal median income is between 30,000 GBP and 39,999 GBP annually.

Of the 320 spectators, 40 were assigned to each of the eight treatments. 164 spectators are in the *Before* and 156 in the *After* treatment arm. We find no differences in spectators'

mean ages across the eight treatments; sample Mean (SD) = 45.79 (15.25) years. The gender distribution also does not differ between treatments among spectators; 47.2% are female, 47% are male. Income levels are also uniformly distributed across treatments among spectators, with the marginal median income being between 30,000 GBP and 39,999 GBP annually. Finally, 84% of the spectators were born in the UK and 16% outside the UK.

The mean age of the spectators is higher than that of the workers, $F(1, 1006) = 269.40$, $p \leq 0.001$. Spectators are less likely to be female than workers, $\chi^2(1) = 26.28$, $p \leq 0.001$, whereas the median income levels of workers and spectators do not differ.

3.2 Descriptive results

Choices, *Beliefs* and *Spectator allocations* were recorded on the “alternative scale” (i.e., the ordinal numbers assigned to each alternative, ranging from 1 to 11).⁹ In the Spectator survey, each alternative that the spectators select determines a share of the pie for each party. In the remainder of the paper, these *Spectator allocations* express which alternative spectators would give to the worker in the Contributor role (just as *Choices* and *Beliefs* are decision-maker centered).

To facilitate an intuitive understanding, we normalize *Choices*, *Beliefs* and *Spectator allocations* by taking their differences from 6 (that is, the alternative that corresponds to the equal split, recall Table 1), and for the remainder of the results section, we refer to

⁹Using the “alternative scale” rather than estimating mean shares of the pie is necessary to account for unequal differences in terms of monetary value for alternatives above and those below the equal split in the Costly treatment arm.

Choices, *Beliefs* and *Spectator allocations* as normalized values ranging between -5 and 5. Consequently, zero corresponds to an equal split; positive values assign more than half of the pie to the decision-maker (in *Choices* and *Beliefs*) or Contributor (in *Spectator allocations*), and negative values assign less than the equal split to the decision-maker or the Contributor.

As neither the mean *Choices* nor *Beliefs* differ between the two levels of the Survey-order or the Behavior-order factors, we pool the experimental data between these between-subject treatment arms. Similarly, we merge spectator data across the Survey-order factor as mean *Spectator allocations* do not differ across their two levels.

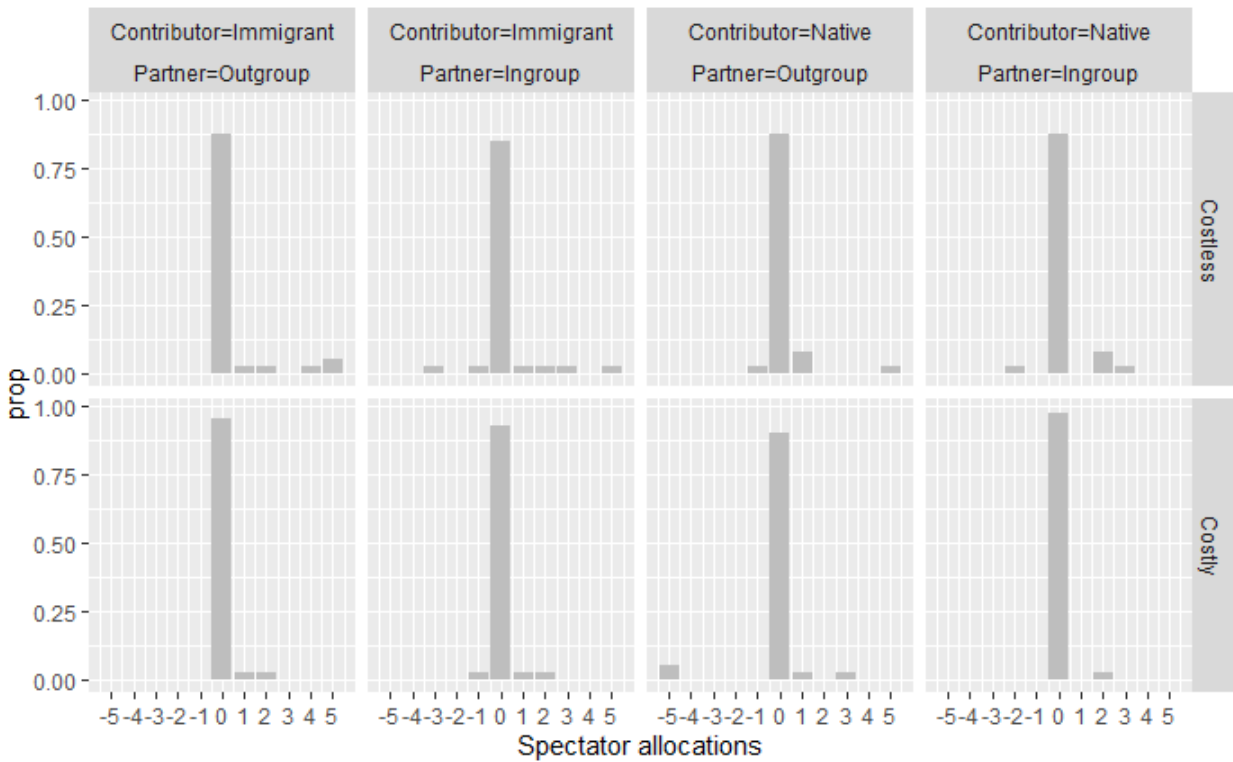


Figure 2: The distribution of *Spectator allocations* in the eight treatments of the Spectator survey

Notes: *Spectator allocations* express which alternative the Contributor would get from spectators. 0 equally splits the pie between the Contributor and Noncontributor. Positive means favor the *Contributor*, and negative means favor the *Noncontributor*.

Figure 2 presents the distribution of *Spectator allocations* in the eight treatments of the Spectator survey. As can be seen in this figure, in all treatment variations, the majority of *Spectator allocations* would equally divide the pie between the *Contributor* and the *Noncontributor*. Although the distribution of *Spectator allocations* does not differ between treatments, $\chi^2(63) = 65.578$, $p = 0.388$, one may still have the impression that they slightly favor the *Contributor* over the *Noncontributor*.

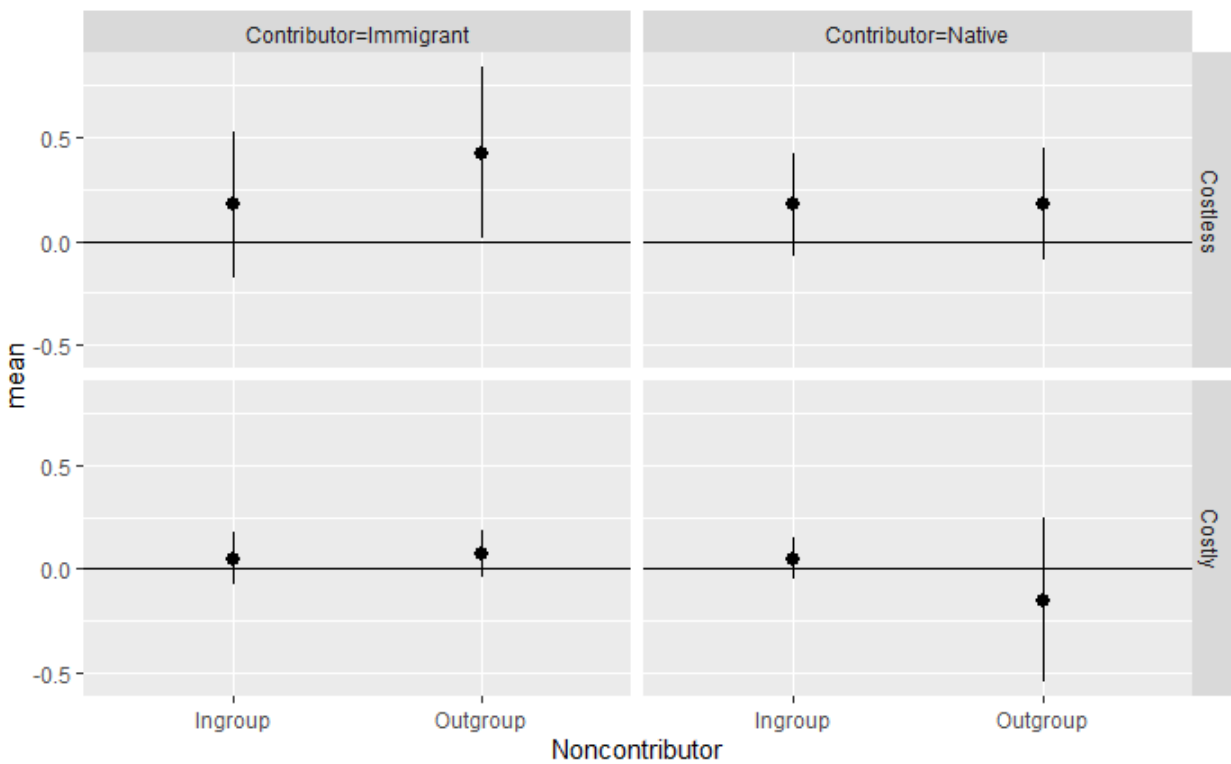


Figure 3: Mean *Spectator allocations* in the eight treatments of the Spectator survey

Notes: *Spectator allocations* express which alternative the Contributor would get from spectators. The circles give the means, and the bars the 95% CIs of these means. The horizontal black line at mean = 0 presents the alternative that equally splits the pie between the Contributor and Noncontributor. Positive means favor the *Contributor*, and negative means favor the *Noncontributor*.

Figure 3 presents the means and their corresponding 95% CIs of the *Spectator allocations* in each treatment. We learn that *Spectator allocations* are not influenced by parties'

immigration backgrounds or the Asymmetry manipulations. The marginal mean (SD) of *Spectator allocations* is 0.122 (0.875), 95%CI is [0.026, 0.218], one sample t-test against Mean = 0 is $t(319) = 2.492$, $p = 0.013$ confirming that spectators would give more than half of the pie to *Contributors* regardless of their and the partner's (i.e., Noncontributor) immigration backgrounds. In other words, *Spectator allocations* slightly favor the Contributor in redistribution, indicating that a representative sample of UK residents acting as spectators would prefer some input-output proportionality in redistributive outcomes over equal ones.

Result 1 *The majority of spectators propose an equal split, and while there is no evidence for discriminating along immigration background, spectators slightly favor the Contributor over the Noncontributor.*

Moving to the results of the experiment, Figure 4 presents the effects of the three main manipulations (i.e., Role, Partner, and Asymmetry) on workers' *Choices* and *Beliefs*. Mean *Choices* are consistently higher than mean *Beliefs*, indicating that decision-makers took more for themselves than they believed their fair share would be. The results presented in the left panel of this figure show a significant main effect of the Role manipulation as the 95% CIs of mean *Choices* and *Beliefs* are higher among Contributors than among Noncontributors (except for *Choices* in the Costly treatment arm). At the same time, the results in the right panel provide no evidence of the main effect of the Partner manipulation. As one can see, the 95%CIs of mean *Choices* and *Beliefs* overlap when the decision-maker is paired with an Ingroup and Outgroup member.

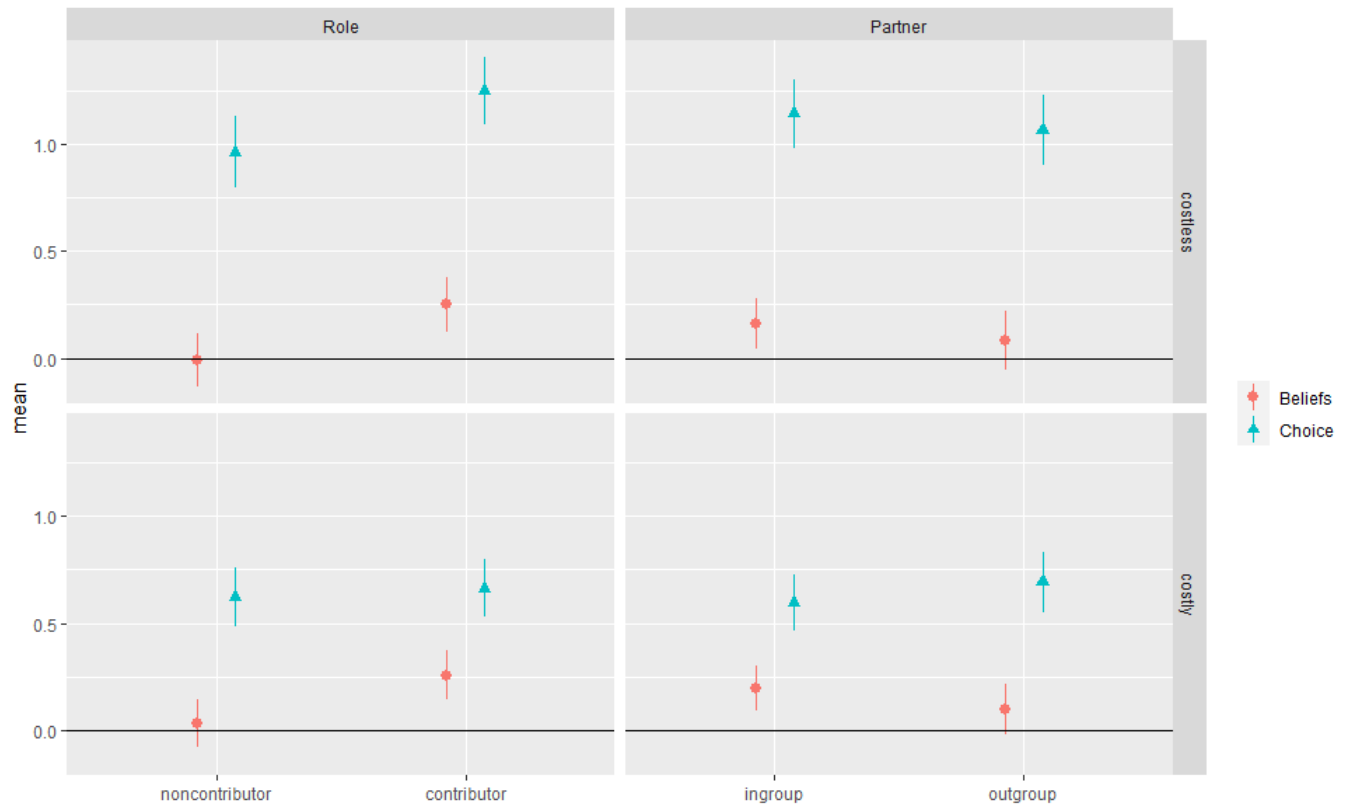


Figure 4: The effects of the three main experimental manipulations on workers' *Choices* and *Beliefs*

Notes: Mean *Choices* and *Beliefs*, and their 95% CIs clustered on participants. The horizontal black line at mean = 0 presents the alternative that equally splits the pie between the paired workers. Positive values favor the decision-maker, and negative values favor the partner.

3.3 Modeling workers' *Choices* and *Beliefs*

We model *Choices* and *Beliefs* using the following preregistered OLS specification.

$$\text{Choices or Beliefs} = \beta_0 + \beta_1 \text{ Role} + \beta_2 \text{ Partner} + \beta_3 \text{ Asymmetry} + \beta_4 \text{ Birth} + \beta_5 \text{ Role} \\ \times \text{Partner}$$

The within-subject variations involve taking repeated measures, and, in all specifications, we account for the resulting individual-level correlations by clustering standard errors on participant ID.

From the constants in specifications I through III presented in Table 2, we learn that in the absence of any treatment effects, mean *Choices* are higher than the equal split (i.e., coefficients of the Constant term are greater than zero). Confirming H1, in all specifications, mean *Choices* are higher for Contributors than Noncontributors. At the same time — and contrary to H2 — we find no main effect of the Partner manipulation, as being paired with an Outgroup partner does not statistically differ from being paired with an Ingroup one. We also find no evidence for H3, as there is no significant interaction between the Partner and the Role terms.

Surprisingly, and in contrast to H4, Natives' mean *Choices* are *lower* than those of Immigrants, and the significant Birth-by-Partner interaction indicates that being with an Ingroup versus an Outgroup partner has a different effect on Natives' and Immigrants' *Choices*. On average, Natives take *less* for themselves when paired with an Outgroup (i.e., Immigrant) than with an Ingroup (i.e., Native), whereas Immigrants' *Choices* are unaffected by their Partner's group membership. Natives and Immigrants do not differ in how being the Con-

Table 2. Summary of modeling *Choices* under different specifications

	I	II	III
Constant	1.173 *** (0.129)	1.123 *** (0.131)	1.179 *** (0.162)
Role = Contributor	0.172 * (0.069)	0.172 * (0.069)	0.335 ** (0.111)
Partner = Outgroup	0.020 (0.055)	0.120 (0.076)	0.034 (0.092)
Asymmetry = Costly	-0.467 *** (0.127)	-0.467 *** (0.128)	-0.617 ** (0.201)
Birth = Native	-0.316 * (0.127)	-0.216 (0.132)	-0.363 + (0.210)
Role X Partner	-0.017 (0.080)	-0.017 (0.080)	-0.017 (0.080)
Birth X Partner		-0.200 * (0.089)	-0.197 * (0.088)
Birth X Role		-0.084 (0.116)	-0.118 (0.111)
Asymmetry X Role			-0.245 * (0.116)
Asymmetry X Partner			0.170 (0.089)
Asymmetry X Birth			0.375 (0.253)
N (workers)	688	688	688
LR χ^2	58.14 ***	59.88 ***	70.13 ***
Df	5	6	10
AIC	11608.37	11608.63	11606.38

Notes: OLS with robust standard errors clustered on the participant level to account for the within-subject correlations. Standard errors are in parentheses. The experimental terms are dummy coded. The results are robust after controlling for demographics and pretreatment heterogeneity measures (see Appendix B).

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

tributor impacts their *Choices* (i.e., Birth-by-Role interaction does not differ significantly from zero). Finally, confirming H5, mean *Choices* are lower in the Costly than Costless treatment arm, but from the significant Asymmetry-by-Role interaction, we learn that the effect of Role depends on the cost of the asymmetric outcome.

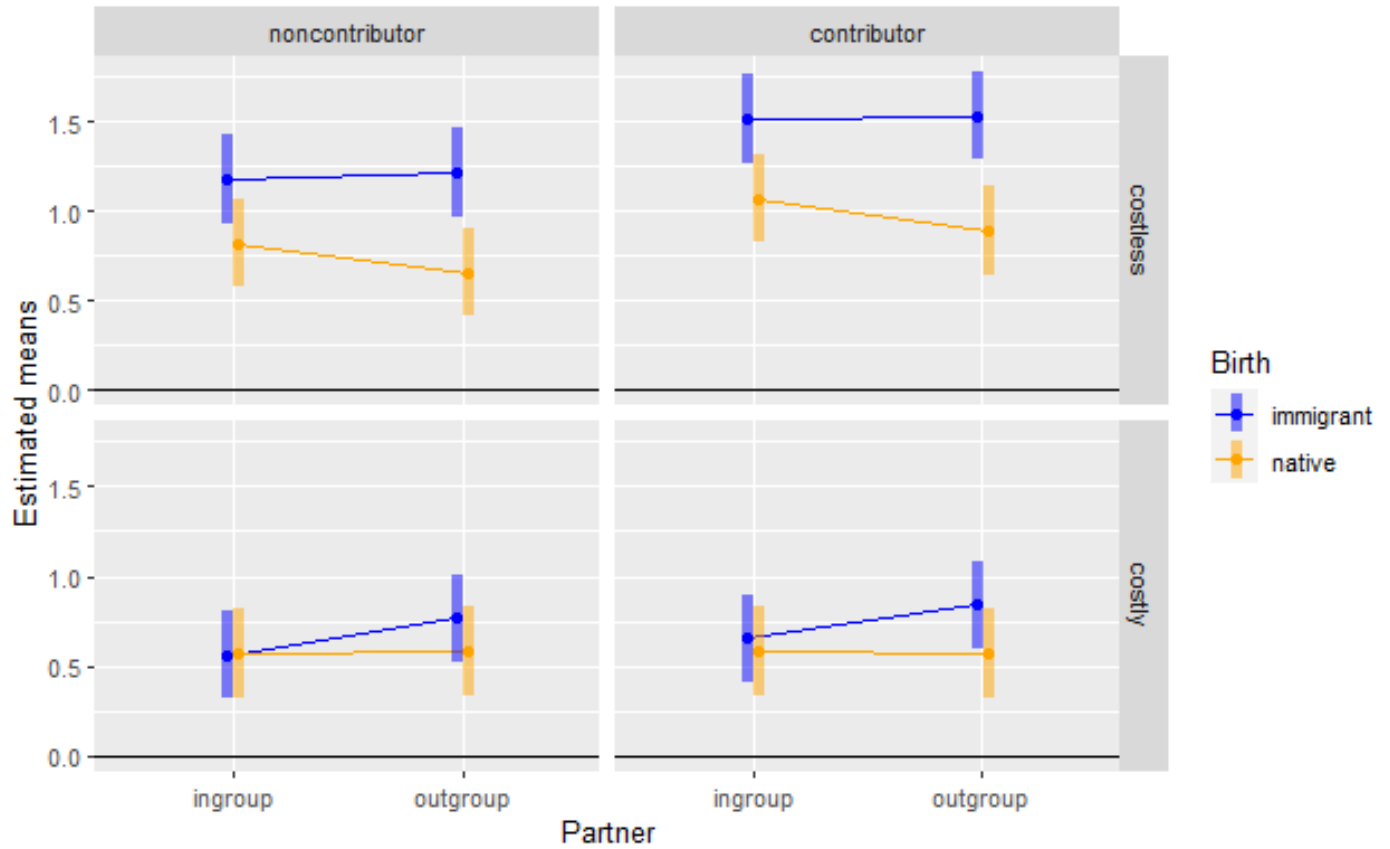


Figure 5: Estimated marginal means of *Choices*

Notes: The circles give the estimated marginal means, and the bars the 95% CIs of these means, estimated from specification III of Table 2. The horizontal black line at 0 indicates an equal split. A higher number means a higher share of the pie for the decision-maker.

Figure 5 plots the estimated marginal means deployed from the third model of *Choices*, and aims to facilitate the interpretation of the significant Asymmetry-by-Role interaction. In fact, the Contributor effect disappears in the Costly treatment arm, suggesting that the

invocation of being the Contributor can be deterred by costs. In the Costly treatment arm, we find no difference between Natives' and Immigrants' mean *Choices*. In contrast, we do so in the Costless treatment arm. Here, in the Contributor and Noncontributor roles, Immigrants' mean *Choices* are higher than those of Natives. This implies that Natives, on average, make more generous *Choices* than Immigrants.¹⁰ Finally, by visualizing the marginally significant Asymmetry-by-Partner interaction presented in Table 2, we learn that the Costly versus Costless difference is *smaller* when the partner is an Outgroup member than an Ingroup member. In other words, concerns about costs are less active in driving *Choices* when the partner is Outgroup than when Ingroup. This may imply that, if ingroup-bias were to influence choices, it may not respond well to incentives.

Result 2 *We find no ingroup-bias in Choices.*

Result 3 *Natives' and Immigrants' Choices are selfishly biased. Their mean Choices are higher when they are Contributors than Noncontributors.*

Result 4 *The Contributor versus Noncontributor difference disappears from Choices when the behavior entails costs.*

Result 5 *On average, Natives' Choices are lower than those of Immigrants, and even more so when Natives share the pie with Immigrants.*

¹⁰One might form the impression that the effect of being paired with an Outgroup member differs between Natives and Immigrants and that this difference varies in the cost of Asymmetry. This visual impression is, however, not supported when adding the Asymmetry-by-Birth-by-Partner interaction to the model. Admittedly, however, we also did not power to reliably detect any three-way interactions.

Table 3. Summary of modeling *Beliefs* under different specifications

	I	II	III
Constant	-0.006 (0.096)	0.075 (0.096)	0.098 (0.086)
Role = Contributor	0.228 *** (0.060)	0.228 *** (0.060)	0.181 * (0.069)
Partner = Outgroup	-0.103 (0.059)	-0.267 *** (0.072)	-0.267 *** (0.072)
Asymmetry = Costly	0.028 (0.096)	0.027 (0.096)	0.027 (0.095)
Birth = Native	0.114 (0.096)	-0.050 (0.096)	-0.097 (0.106)
Role X Partner	0.028 (0.075)	0.028 (0.075)	0.028 (0.075)
Birth X Partner		0.327 *** (0.084)	0.327 *** (0.084)
Birth X Role			0.094 (0.095)
N (workers)	688	688	688
LR χ^2	21.82 ***	29.15 ***	29.76 ***
df	5	6	7
AIC	10355.73	10350.39	10351.79

Notes: OLS with robust standard errors clustered on the participant level to account for the within-subject correlations. Standard errors are in parentheses. The experimental terms are dummy coded. The results are robust after controlling for demographics and pretreatment heterogeneity measures (see Appendix B).

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Specifications I through III of Table 3 summarize results of modeling *Beliefs*.¹¹ Confirming H1, mean *Beliefs* are higher when the decision-maker is in the Contributor than the Noncontributor role. At the same time, and in contrast to H2, mean *Beliefs* are marginally

¹¹As the Asymmetry term is not significantly different from zero for *Beliefs*, we follow our preregistration plan and do not add the interactions with the Asymmetry term when modeling *Beliefs*.

lower when the partner is an Outgroup versus an Ingroup member, but according to the significant Birth-by-Partner interaction, the effect of the Partner term differs between Natives and Immigrants. Finally, our results do not confirm H3, and we do not find evidence to reject H4.

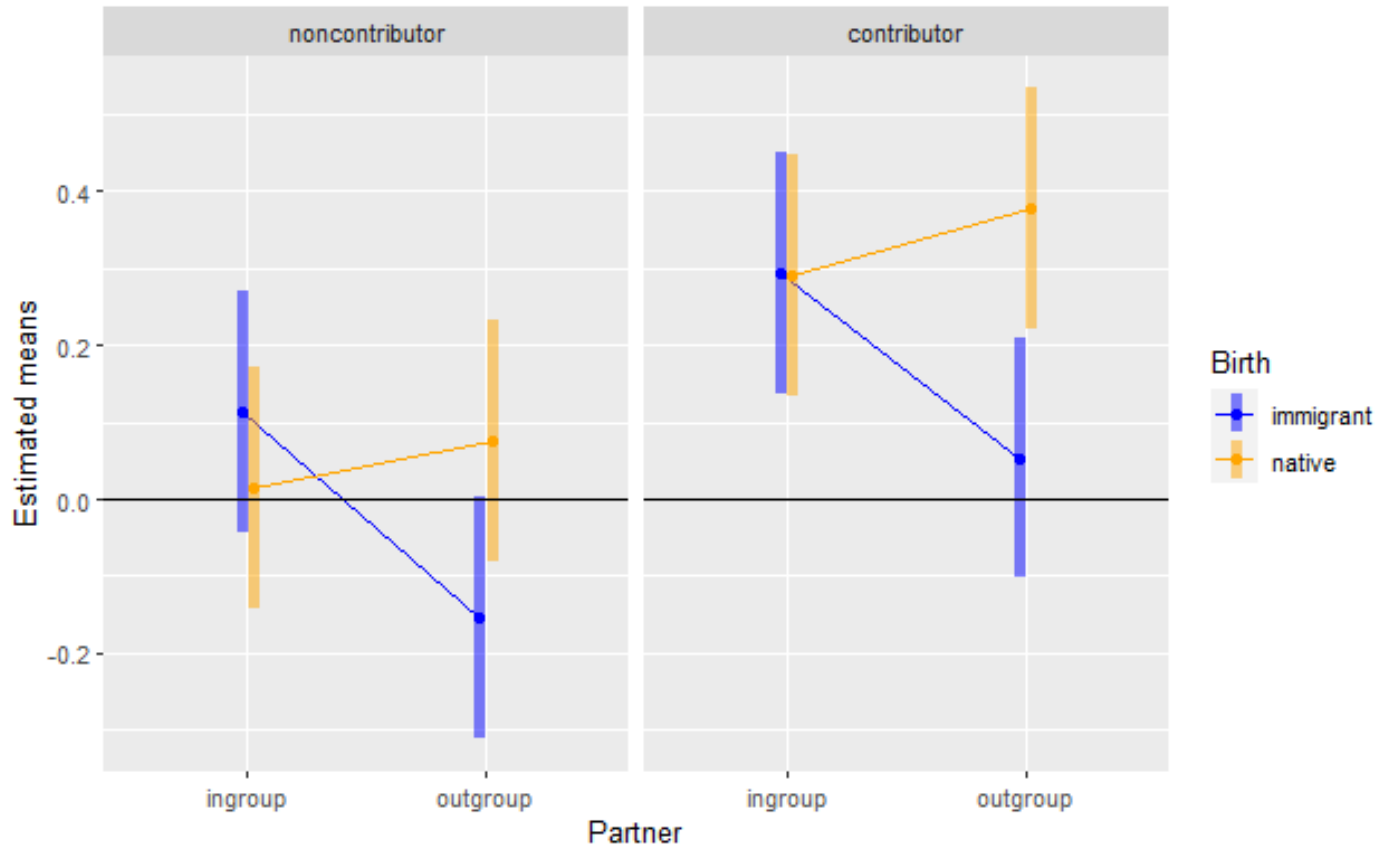


Figure 6: Estimated marginal means of *Beliefs*

Notes: The circles give the estimated marginal means, and the bars the 95% CI of these means, obtained from the third *Beliefs* model in Table 3. The horizontal black line at 0 indicates an equal split. A higher number means a higher share of the pie for the decision-maker.

To gain intuitive insight into how treatment variations impact *Beliefs* and to interpret the Birth-by-Partner interaction, Figure 6 plots the estimated marginal means and their 95% CI's obtained from Model III of *Beliefs*. Both as Noncontributors (left panel) and

Contributors (right panel), Natives' and Immigrants' *Beliefs* are indiscernible from each other when paired with an *Ingroup* partner. That is, their mean *Beliefs* are higher when they are Contributors than when Noncontributors, suggestive of self-serving perceptions about their fair shares. As Contributors, they believe that equity should guide the division (95% CIs of means *Beliefs* are above zero), ensuring more than half of the pie for themselves. However, as Noncontributors, they perceive that equality would be the relevant fairness principle (95% CIs of mean *Beliefs* include zero). This switch between equity and equality as the relevant fairness norm indicates an egocentric norm adoption among Natives and Immigrants alike.

From the Birth-by-Partner interaction we learn that Natives' and Immigrants' *Beliefs* diverge from each other when paired with an Outgroup partner (i.e., Native paired with Immigrant and Immigrant with Native). While Natives' *Beliefs* are uninfluenced by this aspect, Immigrants' *Beliefs* are indeed influenced by who their partner is. First, we scrutinize this interaction when Natives and Immigrants are Noncontributors (left panel) and then when they are Contributors (right panel).

As Noncontributors, Immigrants' mean *Beliefs* are lower when paired with an Outgroup than an Ingroup partner, $t = -3.69$ $p \leq 0.001$. These *Beliefs* are also lower than those of Natives who are paired with an Outgroup member, $t = -1.949$ $p = 0.051$. Despite these statistical differences in the mean *Beliefs* of Natives and Immigrants, they are qualitatively still the same. Irrespective of their partner's group membership, Noncontributor Immigrants and Natives believe that unbiased UK residents would equally split the pie between them.

As Contributors, Immigrants' *Beliefs* are lower when paired with an Outgroup than an

Ingroup member, $t = -3.174$, $p = 0.002$. Furthermore, when Native and Immigrant are paired together (i.e., an Outgroup pairing), Immigrants' *Beliefs* are lower than those of Natives, $t = -2.573$, $p = 0.010$. Beyond these quantitative differences, we also observe a salient qualitative difference between Natives and Immigrants when they are Contributors. Whereas Natives paired with any immigration background and Immigrants paired with a fellow Immigrant invoke their "contributoriness" by believing that equity is the fair solution, Immigrant Contributors with an Outgroup partner believe that the fair solution would be an equal split. In other words, these Immigrants believe that UK resident spectators would only acknowledge their "contributoriness" when they are paired with a fellow Immigrant — not with a Native. This anticipated negative discrimination against themselves wipes out their self-serving norm adoption of choosing equity over equality as Contributors.

Result 6 *Natives' and Immigrants' beliefs are self-servingly biased. Their mean Beliefs are higher when they are the Contributors than the Noncontributors.*

Result 7 *Evidence for egocentric norm adoption. When decision-makers are Contributors, they believe that equity is the normative fair solution, but when they are Noncontributors, it is equality.*

Result 8 *Immigrants anticipate that spectators would give them a lower share when paired with a Native than with an Immigrant.*

Next, we explore how much workers' mean *Beliefs* coincide with the mean *Spectator allocations*.¹² We create a variable called *Deviation* that captures the difference between a

¹²Note, this analysis was not preregistered.

worker’s *Belief* in one treatment variation and the mean of the *Spectator allocations* obtained from UK residents for this treatment variation (i.e., *Belief* of the focal worker in one treatment variation minus the mean *Spectator allocations* to him or her for this treatment variation). Simply put, we explore how accurately workers estimated their fair share as determined by allocations among a sample of unbiased UK residents.

Table 4. Modeling *Deviation* among Immigrants and Natives

	Immigrants	Natives
Constant	-0.122 (0.119)	-0.233* (0.096)
Role = Contributor	0.158 (0.085)	0.298*** (0.084)
Partner = Outgroup	-0.189* (0.082)	-0.057 (0.082)
Asymmetry = Costly	0.264 (0.154)	0.253* (0.114)
Role X Partner	-0.163 (0.113)	0.219* (0.099)
N (workers)	344	344
LR χ^2	17.329**	42.465***
Df	4	4

Notes: OLS with robust standard errors clustered on the participant level to account for the within-subject correlations. Standard errors are in parentheses.

The experimental terms are dummy coded.

Deviation is the difference of *Beliefs*’ of a focal worker in one treatment variation minus the mean *Spectator allocations* for that treatment variation.

We used the main preregistered model to model *Deviation*.

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Table 4 summarizes the results of regressing *Deviation* on the key experimental terms, broken down by Immigrants and Natives. For Immigrants, the Partner term is significantly less than zero, indicating that the mean *Deviation* is lower when their partner is Outgroup

(i.e., the Immigrant is paired with a Native) than Ingroup (i.e., the Immigrant is paired with another Immigrant) member. When the Immigrant’s partner is a Native (i.e., Outgroup), the estimated marginal mean obtained from this model is negative (-0.181, 95%CI[-0.312, -0.049]), whereas when the partner is an Ingroup (i.e., Immigrant), the mean is indiscernible from zero (0.089, 95%CI[-0.042, 0.221]). This pattern suggests that when paired with a fellow Immigrant, Immigrants form correct beliefs about how UK residents would treat them in a distributive situation. When, however, they are paired with an Outgroup member (i.e., Native), they assume that UK residents would discriminate against them in favor of Natives. In other words, Immigrants’ *Beliefs* about the prevailing fair solution among UK residents are infiltrated with anticipated negative discrimination against them, which is not actually observed among UK resident spectators (recall Figures 2 and 3).

Mean *Deviation* among Natives shows a complex pattern. First, their mean *Beliefs* exceed the actual mean *Spectator allocations* to a greater extent in the Costly than in the Costless treatment arm. From the positive Contributor term, we learn that Natives’ mean *Beliefs* are also higher than the actual mean *Spectator allocations* when Natives are Contributors than when they are Noncontributors. Most importantly, as one can see from the Role-by-Partner interaction, this positive Contributor premium is greater when Natives are paired with an Outgroup (i.e., Immigrant) than an Ingroup (i.e., Native) member. This suggests that Natives assume that UK residents would only acknowledge their “Contributoriness” in the redistribution when their partner is an Immigrant but not when it is a Native. Simply put, Natives (similarly to Immigrants) anticipate negative discrimination against Immigrants

by spectators, but only when this is “concealed” behind rewarding their “Contributorness”.

Result 9 *Natives and Immigrants mistakenly assume that spectators would negatively discriminate against Immigrants.*

3.4 The association between heterogeneity measures and experimental behaviors

Recall that we administered a survey battery that included a list of pretreatment heterogeneity measures. Before we include these measures in modeling *Beliefs* and *Choices*, we present their descriptive statistics broken down by Natives and Immigrants in Table 5. To account for the eight pairwise comparisons, we Bonferroni-adjust the significance level to $\alpha = 0.05/8 = 0.006$. Accordingly, we only find a Native-versus-Immigrant difference on the “Contribute” item. Immigrants tend to agree more than Natives with the statement that “Immigrants contribute more to the British economy than natives”.

Next, we perform two Principle Component Analyses (PCA). One on the five immigration-related survey items, and another, on the three efficiency-equality related items (upper and lower panels of Table 5, respectively). For the immigration-related items, two main components emerge. We name the first component *Societal burden* as it captures the items that revolve around the perceived redistributive burden of immigrants and includes the “Allow”, “Take jobs”, and “Abuse” items. Mean *Social burden* does not differ between Natives and Immigrants. We name the second component *Productivity*, which captures the questions

Table 5. Mean responses on the pretreatment heterogeneity measures

	Immigrants	Natives	Statistical test of differences
Allow	2.436 (0.514)	2.401 (0.503)	$F(1, 686) = 0.81,$ $p = 0.37$
Take jobs	1.663 (0.902)	1.811 (1.008)	$F(1, 686) = 4.13,$ $p = 0.043$
Abuse welfare	2.061 (1.104)	2.049 (1.080)	$F(1, 686) = 0.02,$ $p = 0.89$
Contribute	3.395 (0.861)	3.145 (0.898)	$F(1, 686) = 13.89,$ $p = 0.002$
Needed	3.756 (1.140)	3.610 (1.050)	$F(1, 686) = 3.03,$ $p = 0.08$
Growth preferred over equality	2.456 (1.119)	2.238 (1.078)	$F(1, 686) = 6.76,$ $p = 0.009$
Inequalities should be reduced	4.012 (0.996)	4.090 (0.894)	$F(1, 686) = 1.18,$ $p = 0.28$
Income inequalities are incentives	2.221 (1.157)	2.166 (1.119)	$F(1, 686) = 0.41,$ $p = 0.53$

Notes: “Allow” — Allow immigrants to live in the U.K. Response scale: 1 — none, 2 — some, 3 — many. “Take jobs” — Immigrants take jobs from British people. “Abuse welfare” — Immigrants abuse welfare. “Contribute” — On average, immigrants contribute to the British economy more than natives do. “Needed” — Immigrants are needed for jobs the British will not do. “Growth preferred over equality” — It should be more important for the government to achieve a high growth rate than to reduce inequality between people through all sorts of government support. “Inequalities should be reduced” — Inequalities should be reduced. “Income inequalities are incentives” — We need larger income differences as incentives for individual effort. Apart from the “Allow” item, the response scale was a 5 –level Likert–scale: 1—strongly disagree, 2—disagree, 3—neither agree nor disagree, 4—agree, 5—strongly agree.

To account for the 8 pairwise comparisons, the Bonferroni–adjusted significance level is $\alpha = 0.05/8 = 0.006$.

about immigrants’ perceived labor market productivity and includes the “Contribute” and “Needed” items. Mean *Productivity* is higher among Immigrants (Mean(SE)=0.12(0.027), 95%CI[0.067, 0.172]) than among Natives (Mean(SE)=-0.12(0.027), 95%[-0.173, -0.068]) suggesting that Immigrants, on average, believe that they are more productive members of

Table 6. Modeling *Choices* and *Beliefs* with including the pretreatment heterogeneity measures as reduced factors

	Beliefs	Choices
Constant	0.153 0.110	1.201 *** 0.172
Role = Contributor	0.181 * (0.077)	0.335 ** (0.111)
Partner = Out-group	-0.267 *** (0.072)	0.033 (0.093)
Asymmetry = Costly	0.039 (0.098)	-0.592 ** (0.203)
Birth = Native	-0.094 (0.105)	-0.298 (0.211)
Role X Partner	0.027 (0.075)	-0.017 (0.080)
Birth X Partner	0.327 *** (0.084)	-0.197 * (0.089)
Birth X Role	0.094 (0.095)	-0.084 (0.116)
Asymmetry X Role		-0.244 * (0.116)
Asymmetry X Partner		0.170 + (0.089)
Asymmetry X Birth		0.350 (0.254)
Societal burden	0.090 + (0.054)	-0.093 (0.069)
Productivity	-0.006 (0.053)	0.050 (0.067)
Antiredistribution	0.079 (0.059)	0.223 ** (0.078)
Heterogeneity = Before	-0.126 (0.127)	-0.124 (0.127)
N (workers)	688	688
LR χ^2	56.217 ***	103.19 ***
Df	11	14

Notes: OLS with robust standard errors clustered on the participant level to account for the within-subject correlations. Standard errors are in parentheses. The experimental terms are dummy coded. *** $p \leq 0.001$, ** $p \leq 0.05$, * $p \leq 0.01$, + $p \leq 0.1$.

British society than Natives perceive them to be. We identify a single underlying factor on the three items related to efficiency–equality tradeoff and name it *Antiredistribution* as it captures respondents’ distaste for redistribution. Higher values in *Antiredistribution* indicate a taste for efficiency over equality and a distaste for redistribution to compensate for inequalities. We find that mean values on *Antiredistribution* are higher among Immigrants (Mean(SE)=0.069(0.027), 95%CI[0.017, 0.122]) than among Natives (Mean(SE)=-0.069(0.027), 95%CI[-0.122, -0.016]) indicating that, on average, Immigrants are more against a generous welfare state than Natives. ¹³

We include the reduced factors in the final models (Model III) of *Choices* and *Beliefs*, where we also control for the Survey–order factor, and summarize the results in Table 6. The main results of *Beliefs* are maintained, and the *Societal burden* factor — agreement with the proposition that immigrants burden society — is marginally positively associated with *Beliefs*. The main results on *Choices* are preserved, and, among all heterogeneity measures, only *Antiredistribution* is associated with *Choices*. That is, being more against redistribution is associated with a higher mean *Choices* (i.e., claiming more for oneself).

Result 10 *An increased agreement with the proposition that immigrants burden society is associated with higher Beliefs.*

Result 11 *A decrease in preference for redistribution is associated with higher Choices.*

¹³When modeling the mean *Social burden*, *Productivity* and *Antiredistribution*, we regressed (OLS) each term on the Birth factor.

4 Discussion and Conclusion

We presented the results of an experiment where native and immigrant UK residents made distributive choices and stated their beliefs about their fair share from the perspective of UK residents holding no monetary stakes in the outcomes. Specifically, we estimated the extent to which fairness concerns and their opportunistic appeal, as well as ingroup bias, shape natives' and immigrants' redistributive preferences. To obtain allocation decisions in the absence of a monetary stake, in a complementary survey administered on a separate sample of UK residents, disinterested spectators proposed fair divisions for the distributive situations presented in the experiment.

One novelty of our approach was the enrollment of immigrants in the experiment. This allowed us to unpack whether immigrants' redistributive preferences are shaped by the same factors as those of natives. In particular, immigration research attributes anti-immigrant preferences to ingroup bias and fairness concerns but only focuses on natives in these respects. Therefore, it may seem as though that these factors shaping anti-immigrant preferences are unique to natives rather than universally shaping redistributive preferences. We conjectured and found that the main drivers of redistributive preferences are shared between natives and immigrants.

In previous studies, natives were asked to indicate whether and to what extent immigrants should be eligible for welfare benefits. Here, the concept of an immigrant conflates two aspects, and thus, their individual impacts are obscured. On the one hand, immigrants are members of an outgroup, and the nativist demand for an exclusionary welfare provisioning

for natives is attributed to ingroup bias. On the other hand, immigrants have made little or no contributions to the welfare state, and the reluctance to include them in the group of beneficiaries may be an expression of fairness concerns. Therefore, from a single response measuring whether one would redistribute to immigrants, one cannot disentangle the individual impact of fairness concerns and ingroup bias in shaping preferences. Furthermore, previous empirical works employ survey studies (e.g., Mewes & Mau, 2013; Steele, 2016; Van Der Waal et al., 2013) or vignette experiments (e.g., Ford & Kootstra, 2017; Kootstra, 2016; Van der Meer & Reeskens, 2021; Van Oorschot & Uunk, 2007) that involve hypothetical decisions. These have a limited ability to estimate how strongly attitudes map to actual choices.

Consistent with research on welfare chauvinism (e.g., Andersen & Bjørklund, 1990; Ford & Kootstra, 2017; Kootstra, 2016) and recent work from Cavaille and Van der Straeten (2023) on what drives natives' (un)willingness to grant welfare access to immigrants, we found that redistributive choices were not ingroup-biased but, instead, were guided by self-serving fairness concerns. In fact, on average, natives in our sample were more generous than immigrants, and even more so when prompted to share with an immigrant. The absence of ingroup bias based on real-life identities is consistent with experimental research on discrimination in the laboratory (Lane, 2016). While we do not doubt that ingroup bias exists in real-world situations — and indeed, this might be the reason why our immigrant participants expected to be negatively discriminated against by disinterested UK residents — we find that opportunistically formed fairness concerns might be more relevant when it comes

to shaping redistributive preferences. As a limitation, perhaps, in our setup, the ingroup-bias channel stayed dormant in the presence of an eye-catching and easy justification — i.e., invoking one’s contributions — to gain an upper hand in the redistribution.

The finding that input–output proportionality was seen as fair when the decision–maker was in the contributor role, whereas the equal split was seen so when they were not in that role, indicates that invoking contributions among natives when demanding exclusionary redistributive social policies is not a genuine preference for equity, but is rather an opportunistic behavior that takes advantage of their upper hand. This finding adds a novel explanation to Reeskens and Van Oorschot (2013) documenting that affluent people adhere to equity and those with lesser means to equality. Our results suggest that selecting the relevant fairness view is opportunistic rather than genuine and, thus, context–dependent. The existence of the role–dependent distributive choices and fairness perceptions in our within–subject experiment hints that, when “have–nots” become “haves”, they will egocentrically select the equity principle, as this not only secures them a higher share, but — beyond its normative appeal — it is justifiable based on having made higher contributions. Although these findings do not rule out that genuine fairness concerns play a role in real–world settings where true effort and contribution differences among natives and immigrants may prevail, in our minimal setting employing pure framing rather than actual incentive differences to create the contributor roles, the fact that these self–serving behaviors emerged leads us to conjecture that in real life, the formation of similarly opportunistic beliefs may even be more pronounced and automatic.

Incorporating self-serving behavior into immigration research may explain why some wealthier Europeans may vote for parties in favor of less redistribution. These parties promise to prevent that those with lower income and lesser contributions — among whom immigrants are overly represented — disproportionately benefit from redistributive policies. A justification for these restrictive social policies could be fed by a self-serving view about the implications of one's (typically, natives') contributions on shares from the welfare pie. Including self-serving behavior in the etiology of anti-immigrant preferences may also explain why support for generous social policies dissipates when the proportion of low-skilled immigrants who make low or zero contributions increases in a region (Eger, 2010). Here, higher-skilled and wealthier locals (who are also the main contributors to welfare states) may become reluctant to include newcomers among beneficiaries, as they may perceive that they would unduly receive access to the welfare pie (Cavaille & Van der Straeten, 2023).

To our surprise, the group membership of one's partner had a divergent influence on natives' versus immigrants' perceptions about the fair solution among the UK resident spectators. Immigrants believed that UK residents would give them less when they are paired with a native than when with an immigrant, to the point where their egocentric norm adoption was eliminated. These perceptions of immigrants were shared by natives, even though any immigration background-based discrimination was absent from spectators' views. It seems as though the perception still lingers in the UK that average residents would negatively discriminate against immigrants.

Our results have four novel implications for understanding how redistributive preferences

and anti-immigrant attitudes are formed. First, as we observed no genuine preference for input-output proportionality in redistributive preferences, we infer that anyone who made higher contributions would self-servingly invoke this upper hand to secure a more beneficial outcome. Second, it was not nativeness that triggered the egocentric norm adoption and the opportunistic behavior, but rather being the contributor. Third, the finding that these selfishly biased distributive choices respond to costs offers a silver lining. Making the price of anti-immigrant attitudes and welfare chauvinism salient may remove the appeal of excluding newcomers with no contributions from redistributive social policies. Fourth, the perception of immigration background-based negative discrimination still exists, even though it seems to be unfounded.

All in all, we believe that our research points to an important research avenue which uncovers the dimensions along which redistributive preferences are formed. One promising approach of this kind is put forth by Cavaille and Van der Straeten (2023), advancing the idea that immigrants are seen as ingroups beginning at the point when they become part of the state-builders' community, as opposed to ingroup-outgroup delineation being formed along sociotropic lines. In European welfare states, this is achieved by swift integration into the labor market, so that contributions are made through deductions from gross wages. Whether natives would consider these contributions to be sufficient for including immigrants in the ingroup of state-builders who deserve full welfare access should be addressed in further research.

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APPENDIX A

Experimental screenshots

1. Welcome

Welcome to our experiment!

Thank you for your willingness to participate.

First, we would like to inform you that this study cannot be completed on a phone and there is some reading involved in the experiment. You need to have at least a tablet or, preferably, a laptop or desktop computer screen to complete this study. Additionally, please complete the study without interruptions to ensure that you get paid for your time and for your choices. It takes approximately 8-10 minutes to complete the study.

Some questions and task in the experiment may seem repetitive. Nevertheless, in order to maximize your experimental earnings, please read all text and instructions. Make sure that you always pay attention to the highlighted text as they summarize key information.

Your task: In the experiment we will ask some demographic questions and some questions about your attitudes towards various social issues. Apart from these, the experiment consists of 4 different parts. Each part consists of two stages: stage 1 and stage 2. The stage 1 task is always to correctly select names of 10 images. The stage 2 task always to state your preferences about sharing resources with a partner with whom - technically speaking - you will be matched after you have submitted your responses. In order to proceed from stage 1 to stage 2 within a part, you need to successfully complete stage 1. If you fail to accomplish stage 1, you will be redirected to the next part (rather than completing Stage 2 of the focal part). Note that the back button is disabled. This means that you cannot go back to pages you have already passed.

Payment: After you submit your task in a timely fashion, you will be eligible for the completion payment indicated on Prolific when you accepted the task. Then, in maximum three weeks (or as soon as we have collected enough responses), your bonus payment will be added to your earnings and you will get paid the total amount (completion payment + bonus payment). In order to maximize your bonus payment, make sure that you pay close attention to the tasks, read all text carefully and consider all choices. You should especially pay attention to the bold and/or highlighted texts as they include crucial information. Beyond your luck, your performance and choices determine how much bonus you get.

Your maximum bonus earnings are 5.7 GBP and the minimum (if you happen to fail on every task) is 0 GBP.

Your mean (expected) bonus earnings are approximately 4.65 GBP.

Next

2. Consent

Consenting to participate

The guidelines of ethical conduct in empirical research require to inform study participants about the following points and ask for their consent.

Participation is voluntary: You can discontinue completion at any time. Note, however, that we only pay for completed studies.

Confidentiality: All information you provide will be anonymous and treated with utmost confidentiality. We are unable to link your responses to your identity.

Questions: Should you have any questions, please email the Principal Investigator:



Hereby I confirm that I am at least 18 years old. I have read the informed consent form and agree with all terms

I want to participate in the study:

- Yes
 No

Next

3. Prolific ID

Your Prolific ID

Please confirm your Prolific ID:

ID shows up here 

Please double-check your Prolific ID here. If it is wrong, your payment will not reach you!
Click on Next if the presented ID is correct.

Next

4. Demographics

Demographic questions

Your year of birth?

Your gender?

Select the geographical region of your birth country:

For how long have you been living in the United Kingdom?

At the moment, do you hold UK citizenship?
 Yes
 No

Your religious affiliation?

Your highest level of education?

What is your current employment status?

What is your yearly household income? Please provide your best guess.

Including yourself, how many people (including adults and minors) live in your household?

[Next](#)

5. Survey battery

Attitudes

To what extent do you agree with the following statement? Britain should allow immigrants to come and live in the UK:

To what extent do you agree with the following statement? Immigrants take jobs away from other British workers.

To what extent do you agree with the following statement? Immigrants abuse the welfare system.

To what extent do you agree with the following statement? On average, immigrants contribute to the British economy more than natives do.

To what extent do you agree with the following statement? Immigrants are needed to do the jobs other British people won't do.

How did you vote on the Brexit vote in 2016?

How would you describe your political preferences?

To what extent do you agree with the following statement? It should be more important to the government to achieve a high growth rate than to reduce inequality between people through all sorts of government support.

To what extent do you agree with the following statement? Social justice requires that income inequalities should be reduced.

To what extent do you agree with the following statement? We need larger income differences as incentives for individual effort.

Next

6. Stage 1 instructions

Instructions for part 1 of 4

You are in the **first part and this part consists of two stages (Stage 1 and Stage 2)**.

Your Stage 1 task:

In stage 1, you will be asked to label 10 images. Specifically, your task will be to choose the correct name of the presented image among 4 answer choices. For example: If you see the image of a helicopter and your four options are: "knife", "airplane", "helicopter" and "ship" in order to get this image correctly labeled, you need to select "helicopter".

If you succeed with Stage 1, you will proceed to Stage 2.

What does succeeding at Stage 1 mean and what is your remuneration for the Stage 1 image labeling task?

Successfully completing Stage 1 means that you have at least 6 images correctly labeled. These 6 images are divided into 2+4 correctly labeled images.

1. If you **fail to correctly label 2 images, you receive no payment for Stage 1** and you are also not eligible to continue with Stage 2 within this first part. You simply skip to the next part.
2. If you label **at least 2 but fewer than 6 images correctly, you get paid £0.20 for the completion of 2 images.** However, **because you failed to have labeled the additional 4 images correctly, you will not be eligible to continue with Stage 2 within this first part.** You simply skip to the next part.
3. If you label **at least 2+4 (i.e., a total of 6) images correctly, you get paid £0.20 for completing the 2 images. The extra 4 correctly labeled images will be unpaid in Stage 1 and will be called your surplus.** Only by **completing this surplus (i.e., the extra 4 unpaid images) will you be eligible to proceed to Stage 2 within this first part where you will be endowed with more money.** By creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

Click on next if you understood your Stage 1 task, the payment scheme and you are ready to start it.

Next

7. All ten images

Question 1 of 10



Which label best fits the image?

- fat
- key
- pencil
- dog

Next

Question 2 of 10



Which label best fits the image?

- envelope
- elevator
- moisture
- balcony

Next

Question 3 of 10



Which label best fits the image?

- bread
- jail
- beach
- eagle

Next

Question 4 of 10



Which label best fits the image?

- race car
- motorbike
- kite
- rainbow

Next

Question 5 of 10



Which label best fits the image?

- school
- hate
- rainbow
- house

Next

Question 6 of 10



Which label best fits the image?

- sea
- grapes
- mountain
- beach

Next

Question 7 of 10



Which label best fits the image?

- map
- compass
- alarm clock
- watch

Next

Question 8 of 10



Which label best fits the image?

- rain
- cow
- catch
- cake

Next

Question 9 of 10



Which label best fits the image?

- orchard
- pears
- cheese
- sausage

Next

Question 10 of 10



Which label best fits the image?

- oatmeal
- milk
- cake
- coke

Next

8. Stage 1 results

Results of Stage 1

According to the Stage 1 remuneration scheme, for correctly labeling at least 2 images, you get £0.20.

Since you also succeeded at labeling at least 4 more images, these are your **surplus**. As mentioned before, **you do not get paid for these 4 images in Stage 1** but instead, they make you eligible proceeding to Stage 2 where you will be endowed with more money.

Next

9. Stage 2 Information examples (treatment arm specific)

You are in Stage 2 of part 1 now

Below you find the key information for Stage 2. In order to maximize your payoff from this Stage 2, it is crucial that you read this information very closely, understand and memorize it.

- In Stage 2, you are given an endowment of £0.40.
- Additionally, you are paired with another person who is your partner. This person is also a UK resident. Unlike you, however, your partner was born outside of the UK.
- Your partner is also endowed with the Stage 2 endowment of £0.40.
- You and your partner successfully created the surplus by labeling the extra four images correctly for which neither of you got paid. As you know, labeling this extra four images was unpaid for the both of you.
- In Stage 2, your pair (you and your partner) is given a multiplier which can be applied on your Stage 2 endowment of £0.40.
- **The size of this multiplier is 4 and it needs to be divided between the two of you.**
- The share you get from the multiplier is applied on your Stage 2 endowment of £0.40. This means, the share you get from the multiplier multiplies your endowment which then becomes your Stage 2 earnings. For instance, if your share is 2 from the multiplier then, your endowment of £0.40 is multiplied by 2, giving you a £0.80 Stage 2 earnings.

Where is this multiplier from?

Your partner and you each had a 50% chance to be selected and have his/her surplus of 4 unpaid images from Stage 1 converted into the multiplier of 4.

The resolution of this random draw

is that you are selected. Hence, this to-be-divided multiplier of 4 was created from your surplus of the 4 unpaid images, while your partner's surplus is ignored.

Next

You are in Stage 2 of part 2 now

Below you find the key information for Stage 2. In order to maximize your payoff from this Stage 2, it is crucial that you read this information very closely, understand and memorize it.

- In Stage 2, you are given an endowment of £0.40.
- Additionally, you are paired with another person who is your partner. This person is also a UK resident. Just like you, **your partner was born in the UK.**
- Your partner is also endowed with the Stage 2 endowment of £0.40.
- You and your partner successfully created the surplus by labeling the extra four images correctly for which neither of you got paid. As you know, labeling this extra four images was unpaid for the both of you.
- In Stage 2, your pair (you and your partner) is given a multiplier which can be applied on your Stage 2 endowment of £0.40.
- **The size of this multiplier is 4 and it needs to be divided between the two of you.**
- The share you get from the multiplier is applied on your Stage 2 endowment of £0.40. This means, the share you get from the multiplier multiplies your endowment which then becomes your Stage 2 earnings. For instance, if your share is 2 from the multiplier then, your endowment of £0.40 is multiplied by 2, giving you a £0.80 Stage 2 earnings.

Where is this multiplier from?

Your partner and you each had a 50% chance to be selected and have his/her surplus of 4 unpaid images from Stage 1 converted into the multiplier of 4.

The resolution of this random draw

is that you are selected. Hence, this to-be-divided multiplier of 4 was created from your surplus of the 4 unpaid images, while your partner's surplus is ignored.

Next

You are in Stage 2 of part 2 now

Below you find the key information for Stage 2. In order to maximize your payoff from this Stage 2, it is crucial that you read this information very closely, understand and memorize it.

- In Stage 2, you are given an endowment of £0.40.
- Additionally, you are paired with another person who is your partner. This person is also a UK resident. Just like you, **your partner was born in the UK.**
- Your partner is also endowed with the Stage 2 endowment of £0.40.
- You and your partner successfully created the surplus by labeling the extra four images correctly for which neither of you got paid. As you know, labeling this extra four images was unpaid for the both of you.
- In Stage 2, your pair (you and your partner) is given a multiplier which can be applied on your Stage 2 endowment of £0.40.
- **The size of this multiplier is 4 and it needs to be divided between the two of you.**
- The share you get from the multiplier is applied on your Stage 2 endowment of £0.40. This means, the share you get from the multiplier multiplies your endowment which then becomes your Stage 2 earnings. For instance, if your share is 2 from the multiplier then, your endowment of £0.40 is multiplied by 2, giving you a £0.80 Stage 2 earnings.

Where is this multiplier from?

Your partner and you each had a 50% chance to be selected and have his/her surplus of 4 unpaid images from Stage 1 converted into the multiplier of 4.

The resolution of this random draw

is that you are selected. Hence, this to-be-divided multiplier of 4 was created from your surplus of the 4 unpaid images, while your partner's surplus is ignored.

Next

You are in Stage 2 of part 3 now

Below you find the key information for Stage 2. In order to maximize your payoff from this Stage 2, it is crucial that you read this information very closely, understand and memorize it.

- In Stage 2, you are given an endowment of £0.40.
- Additionally, you are paired with another person who is your partner. This person is also a UK resident. Just like you, **your partner was born in the UK.**
- Your partner is also endowed with the Stage 2 endowment of £0.40.
- You and your partner successfully created the surplus by labeling the extra four images correctly for which neither of you got paid. As you know, labeling this extra four images was unpaid for the both of you.
- In Stage 2, your pair (you and your partner) is given a multiplier which can be applied on your Stage 2 endowment of £0.40.
- **The size of this multiplier is 4 and it needs to be divided between the two of you.**
- The share you get from the multiplier is applied on your Stage 2 endowment of £0.40. This means, the share you get from the multiplier multiplies your endowment which then becomes your Stage 2 earnings. For instance, if your share is 2 from the multiplier then, your endowment of £0.40 is multiplied by 2, giving you a £0.80 Stage 2 earnings.

Where is this multiplier from?

Your partner and you each had a 50% chance to be selected and have his/her surplus of 4 unpaid images from Stage 1 converted into the multiplier of 4.

The resolution of this random draw

is that your partner is selected. Hence, this to-be-divided multiplier of 4 was created from your partner's surplus of the 4 unpaid images, while your surplus is ignored.

Next

You are in Stage 2 of part 4 now

Below you find the key information for Stage 2. In order to maximize your payoff from this Stage 2, it is crucial that you read this information very closely, understand and memorize it.

- In Stage 2, you are given an endowment of £0.40.
- Additionally, you are paired with another person who is your partner. This person is also a UK resident. **Unlike you, however, your partner was born outside of the UK.**
- Your partner is also endowed with the Stage 2 endowment of £0.40.
- You and your partner successfully created the surplus by labeling the extra four images correctly for which neither of you got paid. As you know, labeling this extra four images was unpaid for the both of you.
- In Stage 2, your pair (you and your partner) is given a multiplier which can be applied on your Stage 2 endowment of £0.40.
- **The size of this multiplier is 4 and it needs to be divided between the two of you.**
- The share you get from the multiplier is applied on your Stage 2 endowment of £0.40. This means, the share you get from the multiplier multiplies your endowment which then becomes your Stage 2 earnings. For instance, if your share is 2 from the multiplier then, your endowment of £0.40 is multiplied by 2, giving you a £0.80 Stage 2 earnings.

Where is this multiplier from?

Your partner and you each had a 50% chance to be selected and have his/her surplus of 4 unpaid images from Stage 1 converted into the multiplier of 4.

The resolution of this random draw

is that your partner is selected. Hence, this to-be-divided multiplier of 4 was created from your partner's surplus of the 4 unpaid images, while your surplus is ignored.

Next

10. Choices in the Costless and Costly treatment arms

Choose how to divide the multiplier!

In the table below, you find 11 alternative ways to divide the multiplier between you and your partner. Each row describes an alternative.

Alternative 6 presents the equal split of the multiplier where each of you gets 2 from the multiplier. If you apply this 2 on your Stage 2 endowment of £0.40, you each earn £0.80 in Stage 2 and the total earnings of the two of you would be £1.60.

Divisions which favor you are presented from Alternatives 7 through 11, while Alternatives from 1 through 5 present divisions favoring your partner.

Consider for instance, Alternative 11. Here, you take away 0.5 from your partner because compared to giving him/her 2 (equally splitting), s/he would only get 1.5 from the multiplier. Then, this 0.5 is given to you, giving you 2.5 from the multiplier.

Alternative number	Your choice (Click on the row in which the fair alternative is presented.)	You		Your Partner		Summed Stage 2 Earnings of You and Your Partner
		Your share from the multiplier	Your stage 2 earnings after multiplier applied	Your partner's share from the multiplier	Your partner's stage 2 earnings after multiplier applied	
1	<input type="radio"/>	1.5	£0.60	2.5	£1.00	£1.60
2	<input type="radio"/>	1.6	£0.64	2.4	£0.96	£1.60
3	<input type="radio"/>	1.7	£0.68	2.3	£0.92	£1.60
4	<input type="radio"/>	1.8	£0.72	2.2	£0.88	£1.60
5	<input type="radio"/>	1.9	£0.76	2.1	£0.84	£1.60
6	<input type="radio"/>	2.0	£0.80	2.0	£0.80	£1.60
7	<input type="radio"/>	2.1	£0.84	1.9	£0.76	£1.60
8	<input type="radio"/>	2.2	£0.88	1.8	£0.72	£1.60
9	<input type="radio"/>	2.3	£0.92	1.7	£0.68	£1.60
10	<input type="radio"/>	2.4	£0.96	1.6	£0.64	£1.60
11	<input type="radio"/>	2.5	£1.00	1.5	£0.60	£1.60

Your choice

Consult with the table and select the alternative you would like to have implemented. Click on the selected alternative in the second column. Your partner is also selecting the alternative s/he wants to have implemented. At the end of the experiment **one of you (you or your partner you are paired with) will be randomly selected (with each of you having 50% probability of being selected) and this person's choice will be implemented.** For instance, if you choose Alternative 8 and you partner chooses Alternative 10 and your partner is selected then, his/her choice will be imposed on both of you. This means that your partner will get 2.4 from the multiplier and you will get 1 from the multiplier.

[Next](#)

Appendix A: Self-serving redistributive preferences

Choose how to divide the multiplier!

In the table below, you find 11 alternative ways to divide the multiplier between you and your partner. Each row describes an alternative.

Alternative 6 presents the equal split of the multiplier where each of you gets 2 from the multiplier. If you apply this 2 on your Stage 2 endowment of £0.40, you each earn £0.80 in Stage 2 and the total earnings of the two of you would be £1.60.

Divisions which favor you are presented from Alternatives 7 through 11, while Alternatives from 1 through 5 present divisions favoring your partner.

Any deviation from equally splitting the multiplier is, however, costly. Splitting it in a way that is beneficial to you (as in Alternatives 7 through 11) implies that the amount you take away from your partner is halved before you get it.

Consider for instance, Alternative 11. Here, you take 1 away from your partner because compared to giving him/her 2 (equally splitting), s/he would only get 1 from the multiplier. But then only 0.5 (half of the 1) is given to you, giving you 2.5 from the multiplier.

Alternative number	Your choice (Click on the row in which the fair alternative is presented.)	You		Your Partner		Summed Stage 2 Earnings of You and Your Partner
		Your share from the multiplier	Your stage 2 earnings after multiplier applied	Your partner's share from the multiplier	Your partner's stage 2 earnings after multiplier applied	
1	<input type="radio"/>	1.0	£0.40	2.5	£1.00	£1.40
2	<input type="radio"/>	1.2	£0.48	2.4	£0.96	£1.44
3	<input type="radio"/>	1.4	£0.56	2.3	£0.92	£1.48
4	<input type="radio"/>	1.6	£0.64	2.2	£0.88	£1.52
5	<input type="radio"/>	1.8	£0.72	2.1	£0.84	£1.56
6	<input type="radio"/>	2.0	£0.80	2.0	£0.80	£1.60
7	<input type="radio"/>	2.1	£0.84	1.8	£0.72	£1.56
8	<input type="radio"/>	2.2	£0.88	1.6	£0.64	£1.52
9	<input type="radio"/>	2.3	£0.92	1.4	£0.56	£1.48
10	<input type="radio"/>	2.4	£0.96	1.2	£0.48	£1.44
11	<input type="radio"/>	2.5	£1.00	1.0	£0.40	£1.40

Your choice

Consult with the table and select the alternative you would like to have implemented. Click on the selected alternative in the second column. Your partner is also selecting the alternative s/he wants to have implemented. At the end of the experiment **one of you (you or your partner you are paired with) will be randomly selected (with each of you having 50% probability of being selected) and this person's choice will be implemented.** For instance, if you choose Alternative 8 and you partner chooses Alternative 10 and your partner is selected then, his/her choice will be imposed on both of you. This means that your partner will get 2.4 from the multiplier and you will get 1 from the multiplier.

Next

11. Fairness estimates in the Costless and Costly treatment arm

Estimate the fair division of the multiplier!

In the table below (scroll down as the page is long), you find 11 alternative ways to divide the multiplier between you and your partner. Each row describes an alternative.

Alternative 6 presents the equal split of the multiplier where each of you gets 2 from the multiplier. If you apply this 2 on your Stage 2 endowment of £0.40, you each earn £0.80 in Stage 2 and the total earnings of the two of you would be £1.60.

Divisions which favor you are presented from Alternatives 7 through 11, while Alternatives from 1 through 5 present divisions favoring your partner.

Consider for instance, Alternative 11. Here, you take away 0.5 from your partner because compared to giving him/her 2 (equally splitting), s/he would only get 1.5 from the multiplier. Then, this 0.5 is given to you, giving you 2.5 from the multiplier.

Now, consult the table and indicate your estimation on the slider below. Then, click on next to submit your answer!

Alternative Number	You		Your Partner		Summed Stage 2 Earnings of You and Your Partner
	Your share from the multiplier	Your stage 2 earnings after multiplier applied	Your partner's share from the multiplier	Your partner's stage 2 earnings after multiplier applied	
1	1.5	£0.60	2.5	£1.00	£1.60
2	1.6	£0.64	2.4	£0.96	£1.60
3	1.7	£0.68	2.3	£0.92	£1.60
4	1.8	£0.72	2.2	£0.88	£1.60
5	1.9	£0.76	2.1	£0.84	£1.60
6	2.0	£0.80	2.0	£0.80	£1.60
7	2.1	£0.84	1.9	£0.76	£1.60
8	2.2	£0.88	1.8	£0.72	£1.60
9	2.3	£0.92	1.7	£0.68	£1.60
10	2.4	£0.96	1.6	£0.64	£1.60
11	2.5	£1.00	1.5	£0.60	£1.60

Your estimation task

40 uninvolved UK residents recruited from Prolific who are informed about your and your partner's Stage 1 outcomes (earnings and the creation of the unpaid surplus) and also about both of your birth country backgrounds, were asked to indicate the fair division of the multiplier between the two of you. These subjects served as unbiased judges and they had no stakes in the division. Each of them selected an alternative number from this table which they see as the fair solution. **Now, you are asked to predict the mean of these judges' choices on the alternative scale and indicate this mean on the slider below. On the slider below, you can select any numbers between 1 and 11 but you should round your prediction to one decimal place.**

For this estimation task, you are given £0.20 as an estimation bonus. Whether you will get this money depends on **how closely your estimate falls to the true mean of the 40 unbiased judges' choices.** The closer your estimate is to the actual mean, the higher is the likelihood of getting £0.20. In order to maximize your expected payoff, the best strategy you can apply is to state your truthful estimate of the mean of the 40 judges' choice. Details on how an accurate guess maximizes your chances of winning £0.20 can be found [here](#).

Set the slider to your prediction of the average **alternative number** judged to be fairest by 40 judges:

Click on the blue slider bar to set a value.



Next

Estimate the fair division of the multiplier!

In the table below (scroll down as the page is long), you find 11 alternative ways to divide the multiplier between you and your partner. Each row describes an alternative.

Alternative 6 presents the equal split of the multiplier where each of you gets 2 from the multiplier. If you apply this 2 on your Stage 2 endowment of £0.40, you each earn £0.80 in Stage 2 and the total earnings of the two of you would be £1.60.

Divisions which favor you are presented from Alternatives 7 through 11, while Alternatives from 1 through 5 present divisions favoring your partner.

Any deviation from equally splitting the multiplier is, however, costly. Splitting it in a way that is beneficial to you (as in Alternatives 7 through 11) implies that the amount you take away from your partner is halved before you get it. Similarly, splitting it in a way that is beneficial for your partner implies that the amount that is taken away from you is halved before your partner gets it.

Consider for instance, Alternative 11. Here, you take 1 away from your partner because compared to giving him/her 2 (equally splitting), s/he would only get 1 from the multiplier. But then only 0.5 (half of the 1) is given to you, giving you 2.5 from the multiplier.

Now, consult the table and indicate your estimation on the slider below. Then, click on next to submit your answer!

Alternative Number	You		Your Partner		Summed Stage 2 Earnings of You and Your Partner
	Your share from the multiplier	Your stage 2 earnings after multiplier applied	Your partner's share from the multiplier	Your partner's stage 2 earnings after multiplier applied	
1	1.0	£0.40	2.5	£1.00	£1.40
2	1.2	£0.48	2.4	£0.96	£1.44
3	1.4	£0.56	2.3	£0.92	£1.48
4	1.6	£0.64	2.2	£0.88	£1.52
5	1.8	£0.72	2.1	£0.84	£1.56
6	2.0	£0.80	2.0	£0.80	£1.60
7	2.1	£0.84	1.8	£0.72	£1.56
8	2.2	£0.88	1.6	£0.64	£1.52
9	2.3	£0.92	1.4	£0.56	£1.48
10	2.4	£0.96	1.2	£0.48	£1.44
11	2.5	£1.00	1.0	£0.40	£1.40

Your estimation task

40 uninvolved UK residents recruited from Prolific who are informed about your and your partner's Stage 1 outcomes (earnings and the creation of the unpaid surplus) and also about both of your birth country backgrounds, were asked to indicate the fair division of the multiplier between the two of you. These subjects served as unbiased judges and they had no stakes in the division. Each of them selected an alternative number from this table which they see as the fair solution. **Now, you are asked to predict the mean of these judges' choices on the alternative scale and indicate this mean on the slider below. On the slider below, you can select any numbers between 1 and 11 but you should round your prediction to one decimal place.**

For this estimation task, you are given £0.20 as an estimation bonus. Whether you will get this money depends on **how closely your estimate falls to the true mean of the 40 unbiased judges' choices.** The closer your estimate is to the actual mean, the higher is the likelihood of getting £0.20. In order to maximize your expected payoff, the best strategy you can apply is to state your truthful estimate of the mean of the 40 judges' choice. Details on how an accurate guess maximizes your chances of winning £0.20 can be found [here](#).

Set the slider to your prediction of the average **alternative number judged to be fairest by 40 judges**:

Click on the blue slider bar to set a value.



Next

12. Guessing who the last partner was

Your beliefs about your last partner's demographics

Finally, we would like to know about your beliefs about your last partner, who was born in the UK. Therefore, please answer the following four questions. After you have submitted your responses, the computer will randomly select one of the questions and matches your and your last round's partner's answer on this. If you made the correct choice, you will get an extra £0.10 bonus (i.e., *partner estimate bonus*).

The geographical region of his/her birth country:

Does s/he hold UK citizenship?

- Yes
 No

His/her religion:

His/her level of education:

His/her employment status:

Next

13. Results and Comments

Results

Thank you very much! You have successfully completed the experiment.

You will be paid your hourly fee as indicated when you accepted participating in the experiment. Then, in maximum three weeks (or as soon as we have collected enough responses), we will add your bonus earnings from the image labeling tasks, your estimations and choices.

In the box below, please describe your strategy you applied when making your estimations and choices in the experiment! Also, mention if you had any technical problems, or any other issues with understanding the text or instructions.

Once ready, please click on next to get your completion code which makes you eligible to get paid.

Next

14. Completion

Completing the survey

Thank you for your participation in this study. Your completion code is:

25UOGKLH

When you proceed to the next page, we will try to redirect you back to Prolific and automatically submit your completion code. However in case this does not work, please copy this code and submit it manually on the Prolific website.

Next

Appendix A: Self-serving redistributive preferences

Spectator Survey Screenshots

Welcome to our survey!

In this survey, we are interested in your view about how to distribute proceeds between two individuals. You will be asked to take the position of an impartial judge and provide your view about the fair division of resources between two parties.

The Principal Investigator of this study is [REDACTED]

This survey cannot be completed on a phone! You need to have at least a tablet or, preferably, a laptop or desktop computer screen to complete this survey. Additionally, you must have approximately 10 undisturbed minutes as you are not allowed to stop and resume the study at a later point. If you fail to complete the survey during this period, you will not get paid. In order to ensure completion, please do not look at your phone, email, or engage in other distractions while working on the survey.

Procedure: You will answer some demographic questions and some questions about your attitudes toward social issues. Then, you will have to stand in the shoes of an impartial judge. You will read a description of two people in a pair, and you will have to indicate, from the vantage point of an unbiased judge, the fair division of resources between them. It is very important that you very carefully read the page describing the members of the pair and the distributive situation. You should especially pay attention to text printed bold and/or red. Finally, you will be asked to very briefly describe the behavioral strategy you applied.

Confidentiality: Your responses are anonymous and all data you provide are stored confidentially, according to the EU GDPR. Nobody will be able to link your responses to your personal information. All participants' responses will be aggregated, analyzed, and published in an academic publication. Your participation is voluntary, you can withdraw your participation at any time. In this case, you will not get paid.

If you have any questions, comments or you are seeking further information about the study, please contact [REDACTED]

If you are ready to proceed, click on Next.

Next

Appendix A: Self-serving redistributive preferences

Consenting to participate

The guidelines of ethical conduct in empirical research require to inform study participants about the following points and ask for their consent.

Participation is voluntary: You can discontinue completion at any time. Note, however, that we only pay for completed studies.

Confidentiality: All information you provide will be anonymous and treated with utmost confidentiality. We are unable to link your responses to your identity.

Questions: Should you have any questions, please email the Principal Investigator:

Hereby I confirm that I am at least 18 years old. I have read the informed consent form and agree with all terms

I want to participate in the study:

Yes

No

[Next](#)

Your Prolific ID

Please confirm your Prolific ID:

Please double-check your Prolific ID here. If it is wrong, your payment will not reach you!
Click on Next if the presented ID is correct.

Next

Demographic questions

Your year of birth?

Your gender?

Select the geographical region of your birth country:

For how long have you been living in the United Kingdom?

At the moment, do you hold UK citizenship?

- Yes
 No

Your religious affiliation?

Your highest level of education?

What is your current employment status?

What is your yearly household income? Please provide your best guess.

Including yourself, how many people (including adults and minors) live in your household?

Next

Appendix A: Self-serving redistributive preferences

Attitudes

In your view, in the past ten years, has the overall quality of social welfare services (NHS services, state schools, public parks, public transit, unemployment benefits, etc.) changed in the UK?

To what extent do you think Britain should allow immigrants to come and live in the UK?

To what extent do you agree with the following statement? Immigrants take jobs away from other British workers.

To what extent do you agree with the following statement? Immigrants abuse the welfare system.

To what extent do you agree with the following statement? Immigrants contribute to the British economy.

To what extent do you agree with the following statement? Immigrants are needed to do the jobs other British people won't do.

How did you vote on the Brexit vote in 2016?

With all the knowledge you have by now, how would you vote if the Brexit vote were held today?

How would you describe your political preferences?

Which of the following statements describes the best your personal view about the cause of the global climate change?

The coronavirus (i.e. COVID-19) was created in a laboratory as a biological weapon.

Certain significant events have been the result of the activity of a small group that secretly manipulates world events.

[Next](#)

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Persons A and B were both born in the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "tamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is born in the UK) and Person B (who is also born in the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

These lopsided divisions are costly. This means that the part that is taken away from one party is halved when given to the other party. To understand this mechanism, consider Alternative 2 in row 2. Here Person A gets 2.4 from the multiplier, while Person B gets 1.2 from it. This is because compared to the equal split of 2, Person B's share was reduced by 0.8 which left him with a 1.2 share of the multiplier. This 0.8 was then halved, resulting in 0.4. This amount was then deposited to Person A's account and added to 2 which would have been his share in the event of equal split.

Alternatively, look at Alternative 8 in row 8. Here Person A gets 1.6 from the multiplier, while Person B gets 2.2 from it. This is because compared to the equal split of 2, Person A's share was reduced by 0.4 which left him with 1.6 share of the multiplier. This 0.4 was then halved, resulting in 0.2. This amount was then deposited to Person B's account and added to 2 which would have been his share in the event of equal split.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.0	£0.40	2.5	£1.00	£1.40	<input type="radio"/>
1.2	£0.48	2.4	£0.96	£1.44	<input type="radio"/>
1.4	£0.56	2.3	£0.92	£1.48	<input type="radio"/>
1.6	£0.64	2.2	£0.88	£1.52	<input type="radio"/>
1.8	£0.72	2.1	£0.84	£1.56	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.8	£0.72	£1.56	<input type="radio"/>
2.2	£0.88	1.6	£0.64	£1.52	<input type="radio"/>
2.3	£0.92	1.4	£0.56	£1.48	<input type="radio"/>
2.4	£0.96	1.2	£0.48	£1.44	<input type="radio"/>
2.5	£1.00	1.0	£0.40	£1.40	<input type="radio"/>

Please provide a brief explanation of your choice.

Next

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Persons A and B were both immigrant to the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "lamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is immigrant to the UK) and Person B (who is also immigrant to the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

These lopsided divisions are costly. This means that the part that is taken away from one party is halved when given to the other party. To understand this mechanism, consider Alternative 2 in row 2. Here Person A gets 2.4 from the multiplier, while Person B gets 1.2 from it. This is because compared to the equal split of 2, Person B's share was reduced by 0.8 which left him with a 1.2 share of the multiplier. This 0.8 was then halved, resulting in 0.4. This amount was then deposited to Person A's account and added to 2 which would have been his share in the event of equal split.

Alternatively, look at Alternative 8 in row 8. Here Person A gets 1.6 from the multiplier, while Person B gets 2.2 from it. This is because compared to the equal split of 2, Person A's share was reduced by 0.4 which left him with 1.6 share of the multiplier. This 0.4 was then halved, resulting in 0.2. This amount was then deposited to Person B's account and added to 2 which would have been his share in the event of equal split.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
<ul style="list-style-type: none"> Is immigrant to the UK Had surplus converted into multiplier 		<ul style="list-style-type: none"> Is immigrant to the UK 			
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.0	£0.40	2.5	£1.00	£1.40	<input type="radio"/>
1.2	£0.48	2.4	£0.96	£1.44	<input type="radio"/>
1.4	£0.56	2.3	£0.92	£1.48	<input type="radio"/>
1.6	£0.64	2.2	£0.88	£1.52	<input type="radio"/>
1.8	£0.72	2.1	£0.84	£1.56	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.8	£0.72	£1.56	<input type="radio"/>
2.2	£0.88	1.6	£0.64	£1.52	<input type="radio"/>
2.3	£0.92	1.4	£0.56	£1.48	<input type="radio"/>
2.4	£0.96	1.2	£0.48	£1.44	<input type="radio"/>
2.5	£1.00	1.0	£0.40	£1.40	<input type="radio"/>

Please provide a brief explanation of your choice.

Next

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial Judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Persons A and B were both born in the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "lamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2-4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2, individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is born in the UK) and Person B (who is also born in the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial Judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

Consider for example Alternative 2 in row 2. Here, Person A gets 2.4 and Person B gets 1.6 from the multiplier. This is because compared to equally splitting and getting 2 from the multiplier, Person B's share was reduced by 0.4 which amount was then deposited to Person A's account giving him/her 2.4.

Or, consider Alternative 8 in row 8. Here, Person A gets 1.8 from the multiplier while Person B gets 2.2 from it. This is because compared to 2, Person A's share was reduced by 0.2 which amount was then deposited to Person B's account giving him/her 2.2.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
<ul style="list-style-type: none"> Is born in the UK Had surplus converted into multiplier 		<ul style="list-style-type: none"> Is born in the UK 			
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.5	£0.60	2.5	£1.00	£1.60	<input type="radio"/>
1.6	£0.64	2.4	£0.96	£1.60	<input type="radio"/>
1.7	£0.68	2.3	£0.92	£1.60	<input type="radio"/>
1.8	£0.72	2.2	£0.88	£1.60	<input type="radio"/>
1.9	£0.76	2.1	£0.84	£1.60	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.9	£0.76	£1.60	<input type="radio"/>
2.2	£0.88	1.8	£0.72	£1.60	<input type="radio"/>
2.3	£0.92	1.7	£0.68	£1.60	<input type="radio"/>
2.4	£0.96	1.6	£0.64	£1.60	<input type="radio"/>
2.5	£1.00	1.5	£0.60	£1.60	<input type="radio"/>

Please provide a brief explanation of your choice.

Next

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Persons A and B were both immigrant to the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "lamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is immigrant to the UK) and Person B (who is also immigrant to the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

Consider for example Alternative 2 in row 2. Here, Person A gets 2.4 and Person B gets 1.6 from the multiplier. This is because compared to equally splitting and getting 2 from the multiplier, Person B's share was reduced by 0.4 which amount was then deposited to Person A's account giving him/her 2.4.

Or, consider Alternative 8 in row 8. Here, Person A gets 1.8 from the multiplier while Person B gets 2.2 from it. This is because compared to 2, Person A's share was reduced by 0.2 which amount was then deposited to Person B's account giving him/her 2.2.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
<ul style="list-style-type: none"> Is immigrant to the UK Had surplus converted into multiplier 		<ul style="list-style-type: none"> Is immigrant to the UK 			
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.5	£0.60	2.5	£1.00	£1.60	<input type="radio"/>
1.6	£0.64	2.4	£0.96	£1.60	<input type="radio"/>
1.7	£0.68	2.3	£0.92	£1.60	<input type="radio"/>
1.8	£0.72	2.2	£0.88	£1.60	<input type="radio"/>
1.9	£0.76	2.1	£0.84	£1.60	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.9	£0.76	£1.60	<input type="radio"/>
2.2	£0.88	1.8	£0.72	£1.60	<input type="radio"/>
2.3	£0.92	1.7	£0.68	£1.60	<input type="radio"/>
2.4	£0.96	1.6	£0.64	£1.60	<input type="radio"/>
2.5	£1.00	1.5	£0.60	£1.60	<input type="radio"/>

Please provide a brief explanation of your choice.

[Next](#)

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Person A was born in the UK whereas Person B was immigrant to the UK.

The Background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "lamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is born in the UK) and Person B (who is immigrant to the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

These lopsided divisions are costly. This means that the part that is taken away from one party is halved when given to the other party. To understand this mechanism, consider Alternative 2 in row 2. Here Person A gets 2.4 from the multiplier, while Person B gets 1.2 from it. This is because compared to the equal split of 2, Person B's share was reduced by 0.8 which left him with a 1.2 share of the multiplier. This 0.8 was then halved, resulting in 0.4. This amount was then deposited to Person A's account and added to 2 which would have been his share in the event of equal split.

Alternatively, look at Alternative 8 in row 8. Here Person A gets 1.6 from the multiplier, while Person B gets 2.2 from it. This is because compared to the equal split of 2, Person A's share was reduced by 0.4 which left him with 1.6 share of the multiplier. This 0.4 was then halved, resulting in 0.2. This amount was then deposited to Person B's account and added to 2 which would have been his share in the event of equal split.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.0	£0.40	2.5	£1.00	£1.40	<input type="radio"/>
1.2	£0.48	2.4	£0.96	£1.44	<input type="radio"/>
1.4	£0.56	2.3	£0.92	£1.48	<input type="radio"/>
1.6	£0.64	2.2	£0.88	£1.52	<input type="radio"/>
1.8	£0.72	2.1	£0.84	£1.56	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.8	£0.72	£1.56	<input type="radio"/>
2.2	£0.88	1.6	£0.64	£1.52	<input type="radio"/>
2.3	£0.92	1.4	£0.56	£1.48	<input type="radio"/>
2.4	£0.96	1.2	£0.48	£1.44	<input type="radio"/>
2.5	£1.00	1.0	£0.40	£1.40	<input type="radio"/>

Please provide a brief explanation of your choice.

Next

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Person A was immigrant to the UK whereas Person B was born in the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "ramp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is immigrant to the UK) and Person B (who is born in the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

These lopsided divisions are costly. This means that the part that is taken away from one party is halved when given to the other party. To understand this mechanism, consider Alternative 2 in row 2. Here Person A gets 2.4 from the multiplier, while Person B gets 1.2 from it. This is because compared to the equal split of 2, Person B's share was reduced by 0.8 which left him with a 1.2 share of the multiplier. This 0.8 was then halved, resulting in 0.4. This amount was then deposited to Person A's account and added to 2 which would have been his share in the event of equal split.

Alternatively, look at Alternative 8 in row 8. Here Person A gets 1.6 from the multiplier, while Person B gets 2.2 from it. This is because compared to the equal split of 2, Person A's share was reduced by 0.4 which left him with 1.6 share of the multiplier. This 0.4 was then halved, resulting in 0.2. This amount was then deposited to Person B's account and added to 2 which would have been his share in the event of equal split.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
<ul style="list-style-type: none"> Is immigrant to the UK Had surplus converted into multiplier 		<ul style="list-style-type: none"> Is born in the UK 			
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.0	£0.40	2.5	£1.00	£1.40	<input type="radio"/>
1.2	£0.48	2.4	£0.96	£1.44	<input type="radio"/>
1.4	£0.56	2.3	£0.92	£1.48	<input type="radio"/>
1.6	£0.64	2.2	£0.88	£1.52	<input type="radio"/>
1.8	£0.72	2.1	£0.84	£1.56	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.8	£0.72	£1.56	<input type="radio"/>
2.2	£0.88	1.6	£0.64	£1.52	<input type="radio"/>
2.3	£0.92	1.4	£0.56	£1.48	<input type="radio"/>
2.4	£0.96	1.2	£0.48	£1.44	<input type="radio"/>
2.5	£1.00	1.0	£0.40	£1.40	<input type="radio"/>

Please provide a brief explanation of your choice.

Next

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Person A was born in the UK whereas Person B was immigrant to the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "lamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is born in the UK) and Person B (who is immigrant to the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

Consider for example Alternative 2 in row 2. Here, Person A gets 2.4 and Person B gets 1.6 from the multiplier. This is because compared to equally splitting and getting 2 from the multiplier, Person B's share was reduced by 0.4 which amount was then deposited to Person A's account giving him/her 2.4.

Or, consider Alternative 8 in row 8. Here, Person A gets 1.8 from the multiplier while Person B gets 2.2 from it. This is because compared to 2, Person A's share was reduced by 0.2 which amount was then deposited to Person B's account giving him/her 2.2.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A • Is born in the UK • Had surplus converted into multiplier		Person B • Is immigrant to the UK		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.5	£0.60	2.5	£1.00	£1.60	<input type="radio"/>
1.6	£0.64	2.4	£0.96	£1.60	<input type="radio"/>
1.7	£0.68	2.3	£0.92	£1.60	<input type="radio"/>
1.8	£0.72	2.2	£0.88	£1.60	<input type="radio"/>
1.9	£0.76	2.1	£0.84	£1.60	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.9	£0.76	£1.60	<input type="radio"/>
2.2	£0.88	1.8	£0.72	£1.60	<input type="radio"/>
2.3	£0.92	1.7	£0.68	£1.60	<input type="radio"/>
2.4	£0.96	1.6	£0.64	£1.60	<input type="radio"/>
2.5	£1.00	1.5	£0.60	£1.60	<input type="radio"/>

Please provide a brief explanation of your choice.

[Next](#)

Appendix A: Self-serving redistributive preferences

Now, take the position of an impartial judge while reading the following scenario and answering the questions which follow.

Imagine that two people, called persons A and B are paired.

Person A was immigrant to the UK whereas Person B was born in the UK.

The background: Persons A's and B's Stage 1 task:

Before these two people were paired, they individually completed the exact same Stage 1 task. Their task was to correctly identify images. In particular, they were individually presented with 10 images, one by one. Under each image, there were four labels and they had to select the label that best described the image. For instance, if there was an image of a fork and they were given the labels of "lamp", "fork", "knife" and "spoon", they had to click on "fork". Both parties received the same 10 images and labels below them.

To get paid £0.20 for their Stage 1 work, they needed to have 2 images correctly labeled out of the 10 images presented. **However, in order to be eligible to proceed to Stage 2, they needed to correctly label an additional 4 images for which they did not get paid and this was called their "surplus".**

With respect to the surplus, Persons A and B were told the following: Correctly labeling the additional 4 images (i.e., completing the surplus) makes you eligible to proceed to Stage 2 where you will be endowed with more money. Most importantly, however, by creating this surplus you will also have the chance to have your Stage 2 endowment amplified with a multiplier which can significantly increase your final Stage 2 earnings but can never decrease it below the original size of the endowment.

[Note, those failing to correctly label the 2+4 images were excluded from entering Stage 2.]

The Stage 2 division:

Everyone reaching Stage 2 individually received the Stage 2 endowment of £0.40. Persons A and B were paired at this point. **Then, the pair was given an endowment-multiplier of 4, which needs to be divided between the two of them. The share of the multiplier each party receives will multiply each person's Stage 2 endowment of £0.40.**

This multiplier arose from Person A's Stage 1 surplus. Specifically, Person A (who is immigrant to the UK) and Person B (who is born in the UK) both had a 50% chance to have their surplus converted into this multiplier, to be decided by a virtual "coin flip". **This chance event played out so that person A was the one whose surplus ended up being converted into becoming the multiplier.**

Now you, as an impartial judge, are asked to divide the multiplier fairly between Persons A and B. The portion each party receives will be applied to (multiplied by) his/her Stage 2 endowment of £0.40 to yield his/her respective Stage 2 earnings.

In the table below, each row presents an alternative way to divide the multiplier. As you see, there are eleven alternatives for dividing the multiplier of 4 between Persons A and B. The division described in Alternative 6 (row 6) corresponds to equally splitting the multiplier. That is, each party in the pair gets a multiplier of 2 and, hence, each party's Stage 2 endowment would be multiplied by 2, yielding equal earnings of £0.80 for each party.

However, the multiplier can also be divided in an asymmetric fashion by deviating from equally splitting the multiplier. These divisions are presented in the other 10 alternatives. Above the equal split the divisions are favoring Person A, and below the equal split the divisions are favoring Person B.

Consider for example Alternative 2 in row 2. Here, Person A gets 2.4 and Person B gets 1.6 from the multiplier. This is because compared to equally splitting and getting 2 from the multiplier, Person B's share was reduced by 0.4 which amount was then deposited to Person A's account giving him/her 2.4.

Or, consider Alternative 8 in row 8. Here, Person A gets 1.8 from the multiplier while Person B gets 2.2 from it. This is because compared to 2, Person A's share was reduced by 0.2 which amount was then deposited to Person B's account giving him/her 2.2.

Note that in next-to-last column, we present the sum total earnings of Persons A and B for each alternative.

Please review this table and find the alternative that you think is the fairest division of the multiplier. In the last column, select the row in which the fairest division of the multiplier is presented.

Person A		Person B		Summed Stage 2 Earnings of Persons A and B	The Fair Solution (Click on the row in which the fair alternative is presented.)
<ul style="list-style-type: none"> Is immigrant to the UK Had surplus converted into multiplier 		<ul style="list-style-type: none"> Is born in the UK 			
Person A's share from the multiplier	Person A's stage 2 earnings after multiplier applied	Person B's share from the multiplier	Person B's stage 2 earnings after multiplier applied		
1.5	£0.60	2.5	£1.00	£1.60	<input type="radio"/>
1.6	£0.64	2.4	£0.96	£1.60	<input type="radio"/>
1.7	£0.68	2.3	£0.92	£1.60	<input type="radio"/>
1.8	£0.72	2.2	£0.88	£1.60	<input type="radio"/>
1.9	£0.76	2.1	£0.84	£1.60	<input type="radio"/>
2.0	£0.80	2.0	£0.80	£1.60	<input type="radio"/>
2.1	£0.84	1.9	£0.76	£1.60	<input type="radio"/>
2.2	£0.88	1.8	£0.72	£1.60	<input type="radio"/>
2.3	£0.92	1.7	£0.68	£1.60	<input type="radio"/>
2.4	£0.96	1.6	£0.64	£1.60	<input type="radio"/>
2.5	£1.00	1.5	£0.60	£1.60	<input type="radio"/>

Please provide a brief explanation of your choice.

Next

Appendix A: Self-serving redistributive preferences

Completing the survey

Thank you for your participation in this study. Your completion code is:

25UOGKLH

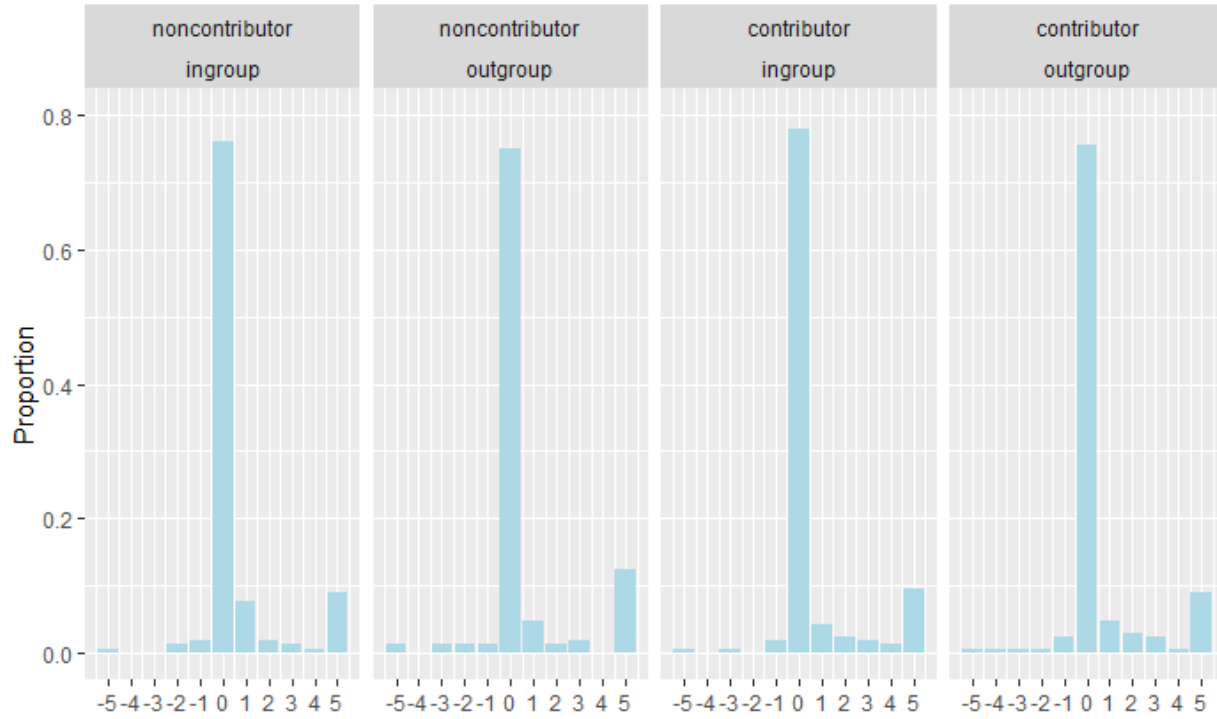
When you proceed to the next page, we will try to redirect you back to Prolific and automatically submit your completion code. However in case this does not work, please copy this code and submit it manually on the Prolific website.

[Next](#)

Appendix B: Additional results from the experiment and the Spectator survey

I. Additional Figures

Figure B1. Distribution of Natives' Choices in the Costly Treatment Arm



Appendix B: Self-serving redistributive preferences

Figure B2: Distributions of Natives' Choices in the Costless Treatment Arm

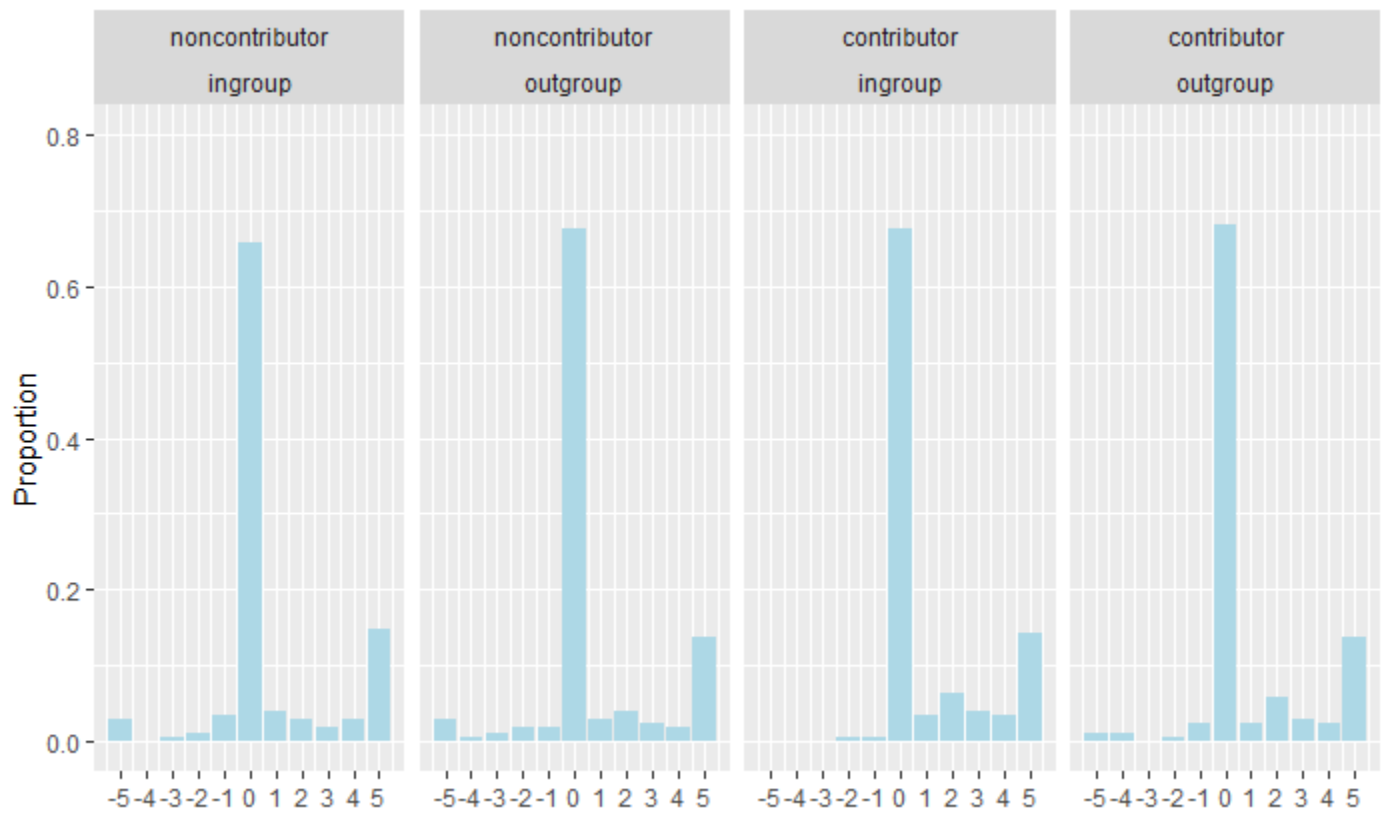


Figure B3 Distribution of Immigrants' Choices in the Costly Treatment Arm

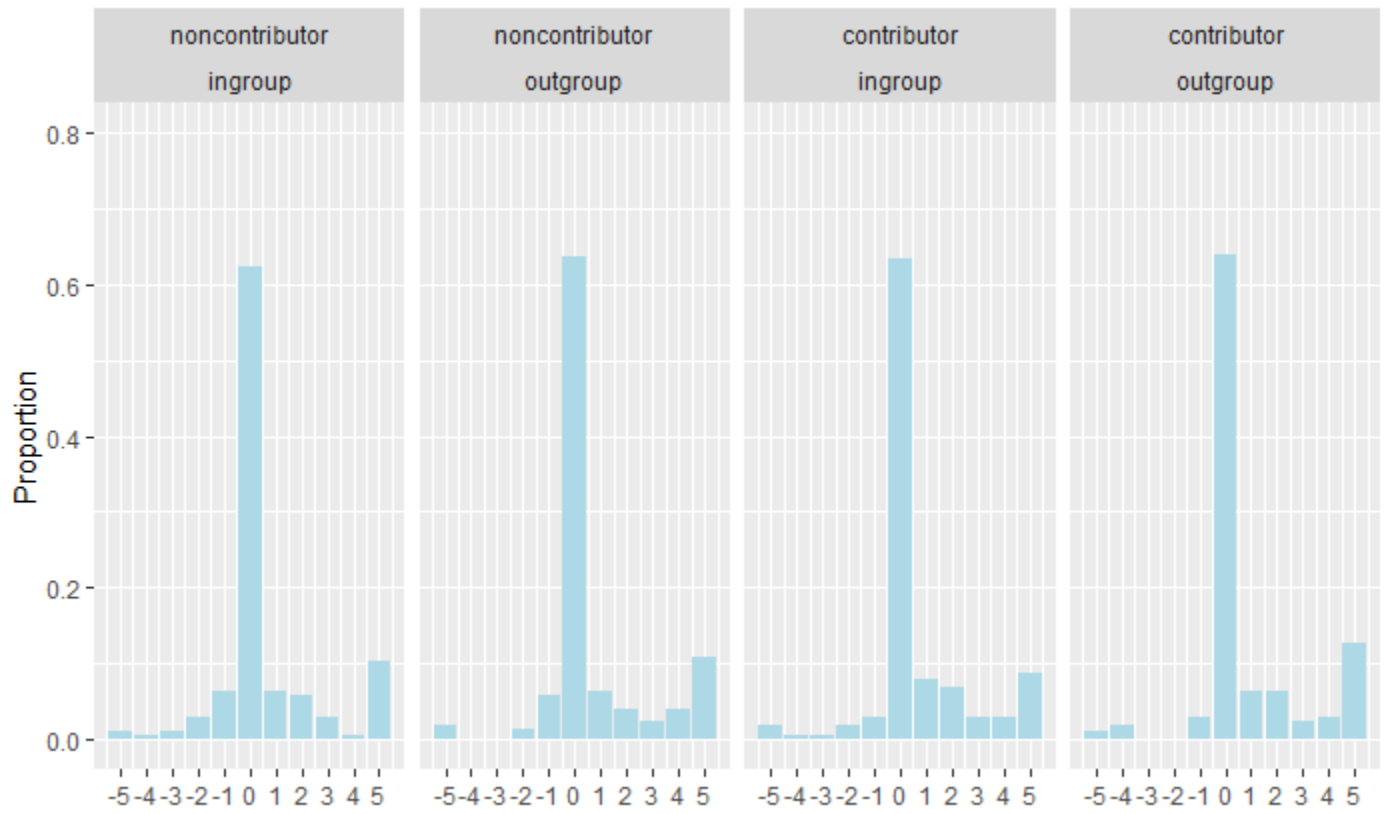
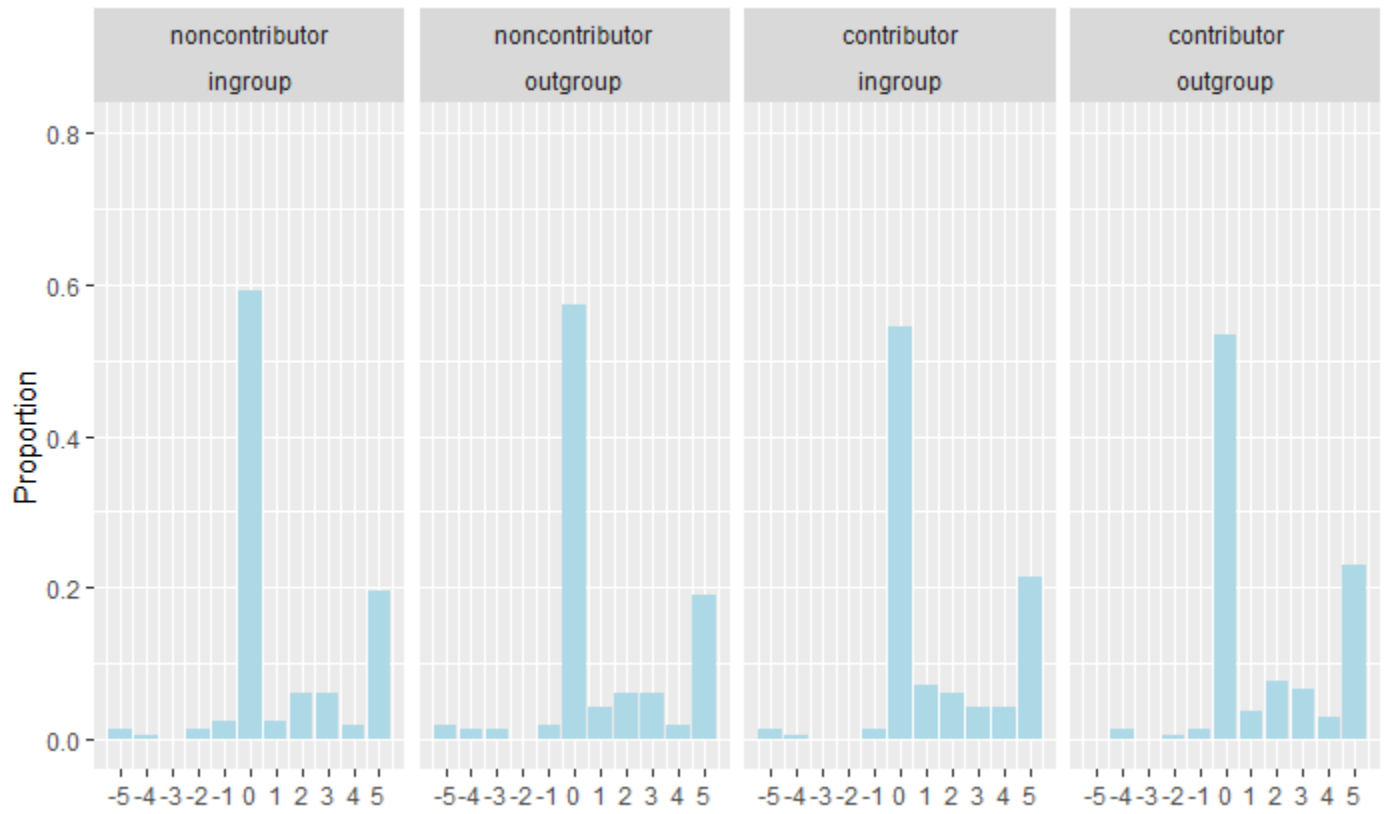


Figure B4. Distribution of Immigrants' Choices in the Costless Treatment Arm



II. Additional Tables

1. Descriptive results

Table B1. Distribution of Natives and Immigrants in the between- subject treatment arms

Survey-order	Behavior-order	Costless		Costly	
		Immigrant	Native	Immigrant	Native
Before	Choices, Beliefs	41 (51 %)	43 (51 %)	42 (49 %)	45 (52 %)
	Beliefs, Choices	40 (49 %)	42 (49 %)	44 (51 %)	41 (48 %)
	Total	81 (100 %)	85 (100 %)	86 (100 %)	86 (100 %)
After	Choices, Beliefs	48 (55 %)	40 (44 %)	42 (47 %)	42 (51 %)
	Beliefs, Choices	40 (45 %)	51 (56 %)	47 (53 %)	40 (49 %)
	Total	88 (100 %)	91 (100 %)	89 (100 %)	82 (100 %)
Total		169 (100 %)	176 (100 %)	175 (100 %)	168 (100 %)

Appendix B: Self-serving redistributive preferences

Table B2. Natives' and Immigrants' demographic characteristics

		Immigrant	Native	Test
Age	mean (SD)	32.01 (10.093)	31.88 (11.726)	$F(1, 686) = 0.03,$ $p = 0.87$
Gender N(%)	Female	244 (71%)	228 (66%)	$\chi^2 (2) = 1.76,$ $p = 0.41$
	Male	97 (28%)	113 (33%)	
	Other	3 (0.9%)	3 (1%)	
	Total	344 (100.0%)	344 (100.0%)	
Birth region origin N(%)	Africa	27 (8 %)	0 (0 %)	$\chi^2 (8) = 313.73,$ $p \leq 0.001$
	Asia	68 (20 %)	0 (0 %)	
	Eastern-Eurpe	96 (28 %)	16 (5 %)	
	Middle East	9 (3 %)	0 (0 %)	
	North America	19 (6 %)	0 (0 %)	
	Oceania	11 (3 %)	1 (0 %)	
	South America	9 (3 %)	0 (0 %)	
	The Caribbean	2 (1 %)	1 (0.3 %)	
	Western Europe	103 (30 %)	326 (94.8 %)	
	Total	344 (100%)	344 (100%)	
U.K. citizen N(%)	No	196 (57 %)	3 (1 %)	$\chi^2 (1) = 263.36,$ $p \leq 0.001$
	Yes	148 (43 %)	341 (99 %)	
	Total	344 (100 %)	344 (100 %)	
Religion N(%)	Atheist/Agnostic	126 (37 %)	210 (61 %)	$\chi^2 (8) = 62.16,$ $p \leq 0.001$
	Buddhism	5 (1 %)	3 (1 %)	
	Christianity	123 (36 %)	77 (22 %)	
	Hinduism	12 (3 %)	3 (1 %)	
	Islam	33 (10 %)	6 (2 %)	
	Judaism	3 (1 %)	0 (0 %)	
	Sikhism	0 (0%)	2 (1 %)	
	Other	25 (7 %)	30 (9 %)	
	Prefer not to answer	17 (5 %)	13 (4 %)	
Total	344 (100 %)	344 (100 %)		
Highest Education level N(%)	Some or no High School	24 (7 %)	35 (10 %)	$\chi^2 (5) = 40.18,$ $p \leq 0.001$
	Trade school or assoc degree	16 (5 %)	30 (9 %)	
	College, BA, BSc	138 (40 %)	192 (56 %)	
	University, MA, MSc	134 (39 %)	71 (21 %)	
	Advanced	15 (4 %)	6 (2 %)	

Appendix B: Self-serving redistributive preferences

	Other	17 (5 %)	10 (3 %)	
	Total	344 (100 %)	344 (100 %)	
Employment status N(%)	Full-time	141 (41 %)	121 (35 %)	$\chi^2 (6) = 7.85,$ $p = 0.25$
	Part-time	57 (17 %)	75 (22 %)	
	Homemaker	18 (5 %)	15 (4 %)	
	Retired	3 (1 %)	8 (2 %)	
	Student	77 (22 %)	80 (23 %)	
	Unemployed	29 (8 %)	32 (9 %)	
	Other	19 (6 %)	13 (4 %)	
		Total	344 (100 %)	
Yearly income levels in GBP	Less than 10,000	28 (8 %)	41 (12 %)	$\chi^2 (11) = 15.31,$ $p = 0.17$
	10,001 - 19,999	62 (18 %)	42 (12 %)	
	20,000 - 29,999	46 (13 %)	44 (13 %)	
	30,000 - 39,999	42 (12 %)	54 (16 %)	
	40,000 - 49,999	45 (13 %)	41 (12 %)	
	50,000 - 59,999	30 (9 %)	32 (9 %)	
	60,000 - 69,999	17 (5 %)	26 (8 %)	
	70,000 - 79,999	10 (3 %)	14 (4 %)	
	80,000 - 89,999	12 (3 %)	4 (1 %)	
	90,000 - 99,999	6 (2 %)	7 (2 %)	
	Over 100,000	16 (5 %)	13 (4 %)	
	Prefer not to answer	30 (9 %)	26 (8 %)	
	Total	344 (100 %)	344 (100 %)	
Median yearly income level in GBP	30,000 - 39,999	30,000 - 39,999		Wilcoxon = 59608, $p = 0.86$

Appendix B: Self-serving redistributive preferences

Table B3. Demographic characteristics of spectators in the eight treatments

		Costless				Costly				
		nat	imm	nat	imm	nat	imm	nat	imm	Test
		+	+	+	+	+	+	+	+	
		nat	imm	imm	nat	nat	imm	imm	nat	
Mean (SD) age		44.95 (13.93)	43 .00 (15.06)	46.83 (13.82)	42.60 (16.61)	51.38 (14.42)	42.60 (16.09)	46.83 (14.81)	48.13 (16.37)	F(7, 312) = 1.69, p = 0.11
Gender N (%)	female	19 (48%)	18 (45%)	20 (50%)	22 (55%)	18 (45%)	28 (70%)	21 (53%)	23 (57%)	χ^2 (7) = 7.71, p = 0.36
	male	21 (52%)	22 (55%)	20 (50%)	18 (45%)	22 (55%)	12 (30%)	19 (47%)	17 (43%)	
	Total	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	
UK born N (%)	no	4 (10%)	7 (18%)	5 (13%)	8 (20%)	3 (8%)	11(28 %)	8 (20%)	4 (10%)	χ^2 (7) = 9.76, p = 0.20
	yes	36 (90%)	33(82 %)	35(87 %)	32(80 %)	37(92 %)	29(72 %)	32(80 %)	36 (90%)	
	Total	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	
UK Citizen N (%)	no	2 (5%)	6 (15%)	4 (4%)	5 (12%)	1 (2%)	7 (17%)	7 (17%)	2 (5%)	χ^2 (7) = 10.4 0, p = 0.17
	yes	38(95%)	34(85 %)	36(90 %)	35(87 %)	39(98 %)	33(83 %)	33(83 %)	38 (95%)	
	Total	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	
Religion N (%)	Atheist/agnos tic	18 (45%)	22(55%)	16(40%)	17(42%)	12 (30%)	18(45%)	16(40%)	21 (53%)	c (49) = 49.8 5, p = 0. 79
	Buddhism	0 (0%)	0 (0%)	0 (0%)	1(2%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	
	Christianity	14 (35%)	9 (22%)	17(42%)	19(48%)	19(48%)	15(38%)	18(45%)	15 (38%)	
	Hindusim	1 (2%)	0 (0%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1(2%)	
	Islam	3 (8%)	4 (10%)	2 (5%)	0 (0%)	1 (2%)	3 (8%)	1 (2%)	1(2%)	
	Judaism	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1(2%)	0 (0%)	0 (0%)	0 (0%)	
	Other	3 (8%)	3 (8%)	2 (5%)	1 (2%)	4 (10%)	2 (5%)	1 (2%)	1(2%)	
	Prefer not to say	1 (2%)	2 (5%)	2 (5%)	2 (5%)	2 (5%)	2 (5%)	4 (10%)	1 (2%)	
Total	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%	40 100%		

Appendix B: Self-serving redistributive preferences

Highest Education level N(%)	Some High school or none	3 (8%)	7 (18%)	4 (10%)	8 (20%)	11 (28%)	4 (10%)	8 (20%)	6 (15%)	χ^2 (35) = 39.86, p = 0.26
	Trade school or assoc degree	3 (8%)	5 (12%)	7 (18%)	6 (15%)	4 (10%)	4 (10%)	2 (5%)	1 (2%)	
	College, BA, BSc	16 (40%)	17(42%)	15(38%)	15(38%)	14(35%)	17(43%)	22(55%)	20 (50%)	
	University, MA, MSc	15 (38%)	8 (20%)	9 (22%)	6 (15%)	8 (20%)	14(35%)	6 (15%)	9 (23%)	
	Advanced	3 (8%)	3 (8%)	4 (10%)	2 (5%)	1 (2%)	1 (3%)	2 (5%)	3 (8%)	
	Other	0 (0%)	0 (0%)	1 (2%)	3 (8%)	2 (5%)	0 (0%)	0 (0%)	1 (3%)	
Total	40	40	40	40	40	40	40	40	40	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Employment N (%)	Unemployed	4 (10%)	6 (15%)	2 (5%)	7 (18%)	7(18%)	0(0%)	3(8%)	3(8%)	χ^2 (42) = 39.86, p = 0.074
	Employed full-time	20 (50%)	21(52%)	23(58%)	13(32%)	13(33%)	16(40%)	15(38%)	14(35%)	
	Employed part-time	10 (25%)	5 (13%)	6 (15%)	12(30%)	8(20%)	7(18%)	10(25%)	9(22%)	
	Retired	2 (5%)	4 (10%)	4 (10%)	3 (8%)	8(20%)	5(12%)	5(12%)	8(20%)	
	Student	1 (2%)	2 (5%)	2 (5%)	2 (5%)	1(3%)	7(18%)	4(10%)	2(5%)	
	Homemaker	0 (0%)	0 (0%)	2 (5%)	0 (0%)	0(0%)	4(10%)	2(5%)	3(8%)	
	Other	3 (8%)	2 (5%)	1 (2%)	3 (8%)	3(8%)	1(2%)	1(2%)	1(3%)	
Total	40	40	40	40	40	40	40	40	40	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Income level N (%)	Less than 10,000	3 (8%)	8 (20%)	2 (5%)	6(15%)	4(10%)	5(12%)	2(5%)	3(8%)	χ^2 (77) = 77.77, p = 0.45
	10,001 - 19,999	1 (2%)	2 (5%)	5 (12%)	5(12%)	6(15%)	3(8%)	5(12%)	4(10%)	
	20,000 - 29,999	4 (10%)	4 (10%)	7 (18%)	8(20%)	5(12%)	12(30%)	12(30%)	6(15%)	
	30,000 - 39,999	11 (28%)	5 (12%)	7 (18%)	6(15%)	6(15%)	8(20%)	5(12%)	8(20%)	
	40,000 - 49,999	4 (10%)	6 (15%)	3 (8%)	6(15%)	1(2%)	5(12%)	3(8%)	5(13%)	
	50,000 - 59,999	7 (18%)	7 (18%)	5 (12%)	0(0%)	5(12%)	1(2%)	5(12%)	4(10%)	
	60,000 - 69,999	4 (10%)	2 (5%)	2 (5%)	3(8%)	1(2%)	1(2%)	2(5%)	4(10%)	
	70,000 - 79,999	0 (0%)	2 (5%)	0 (0%)	0(0%)	3(8%)	2(5%)	2(5%)	1(2%)	
	80,000 - 89,999	0 (0%)	1 (2%)	1 (2%)	0(0%)	1(2%)	1(2%)	0(0%)	0(0%)	
	90,000 - 99,999	0 (0%)	1 (2%)	2 (5%)	1(2%)	1(2%)	0(0%)	0(0%)	0(0%)	

Appendix B: Self-serving redistributive preferences

	Over 100,000	2 (5%)	1 (2%)	3 (8%)	2(5%)	1(2%)	0(0%)	0(0%)	0(0%)	
	Prefer not to answer	4 (10%)	1 (2%)	3 (8%)	3(8%)	6(15%)	2(5%)	4(10%)	5(3%)	
	Total	40	40	40	40	40	40	40	40	
		100%	100%	100%	100%	100%	100%	100%	100%	
Household size N (%)	1	8 (20%)	6(15%)	9(23%)	5(13%)	11(28%)	6(15%)	7(18%)	7(18%)	$\chi^2(42) = 37.05, p = 0.688$
	2	11(28%)	17(43%)	17(43%)	14(35%)	11(28%)	16(40%)	11(28%)	16(40%)	
	3	12(30%)	7(18%)	5(13%)	10(25%)	4(10%)	6(15%)	12(30%)	13(33%)	
	4	7(18%)	5(13%)	6(15%)	8(20%)	7(18%)	7(18%)	6(15%)	3(8%)	
	5	1(3%)	3(8%)	1(3%)	2(5%)	5(13%)	5(13%)	4(10%)	0(0%)	
	6	1(3%)	1(2%)	1(2%)	1(2%)	1(2%)	0(0%)	0(0%)	0(0%)	
	7	0(0%)	1(2%)	1(2%)	0(0%)	1(2%)	0(0%)	0(0%)	1(2%)	
	Total	40	40	40	40	40	40	40	40	

Notes: nat = natives, imm = immigrants. The columns represent the eight treatments in the Spectator survey.

Appendix B: Self-serving redistributive preferences

Table B4. Spectators versus workers comparisons on key demographics

		Spectators	Workers	Test
Median yearly income level in GBP		30,000-39,0000	30,000-39,0000	Wilcoxon = 109409, p = 0.87
Mean (SD) age in years		45.79 (15.24)	31.95 (10.94)	F (1, 1006) = 269.4, p ≤ 0.001
Gender N (%)	female	169 (53%)	478 (69%)	$\chi^2 (2) = 26.28, p \leq 0.001$
	male	151 (47%)	210 (31%)	
	Total	320 (100%)	688 (100%)	
Employment N (%)	unemployed	32 (10%)	61 (9%)	$\chi^2 (6) = 84.56, p \leq 0.001$
	employed full-time	135 (42%)	262 (38%)	
	employed part-time	67 (21%)	132 (19%)	
	retired	39 (12%)	11 (2%)	
	student	21 (7%)	157 (23%)	
	homemaker	11 (3%)	33 (5%)	
	other	15 (5%)	32 (5%)	
	Total	320 (100%)	688 (100%)	
Education N (%)	some HS or not HS	51 (16%)	59 (9%)	$\chi^2 (5) = 25.07, p \leq 0.001$
	trade school or assoc degree	32 (10%)	46 (7%)	
	College, BA, BSc	136 (42%)	330 (48%)	
	University, MA, MSc	75 (23%)	205 (30%)	
	Advanced	19 (6%)	21 (3%)	
	other	7 (2%)	27 (4%)	
	Total	320 (100%)	688 (100%)	

Table B5. Choices and Beliefs across the two between-subject treatment variations

	Survey order factor				Behavioral order factor			
	Beliefs		Choices		Beliefs		Choice	
	Before	After	Before	After	Beliefs, Choice	Choice, Beliefs	Beliefs, Choice	Choice, Beliefs
Mean	0.074	0.190	0.798	0.946	0.166	0.100	0.901	0.846
(SD)	(1.528)	(1.649)	(2.000)	(2.021)	(1.606)	(1.577)	(2.033)	(1.991)
Median	0	0	0	0	0	0	0	0
Minimum	-5	-5	-5	-5	-5	-5	-5	-5
Maximum	5	5	5	5	5	5	5	5

We find no difference in mean Spectator allocations across the Survey order factor, Mean (SD) in the Before treatment arm 0.146 (0.954) and 0.096 (0.785) in the After treatment arm, $F(1, 318) = 0.26$, $p > 0.1$.

2. Robustness checks

Table B6. Modeling Choices with all demographic variables included

	Estimate	Std. Error	t value	Pr(> t)	
Constant	1.024	0.454	2.256	0.024	*
Role = Contributor	0.335	0.112	3.006	0.003	**
Partner = Outgroup	0.033	0.093	0.358	0.721	
Asymmetry = Costly	-0.614	0.204	-3.010	0.003	**
Birth = Native	-0.463	0.237	-1.955	0.051	.
age	-0.013	0.008	-1.569	0.117	
income	0.020	0.021	0.940	0.348	
male	0.094	0.150	0.629	0.529	
UKCitizenship	0.437	0.202	2.160	0.031	*
Employment = part-time	-0.150	0.197	-0.760	0.448	
Employment = Student	-0.276	0.207	-1.332	0.183	
Employment = Retired	-0.275	0.383	-0.719	0.472	
Employment = Unemployed	-0.674	0.215	-3.133	0.002	**
Employment = Homemaker	-0.576	0.211	-2.731	0.006	**
Employment = Other	-1.113	0.253	-4.400	0.000	***
Education = Trade school or assoc degree	0.221	0.361	0.614	0.539	
Education = College, BA, BSc	0.071	0.218	0.326	0.744	
Education = University, MA, MSc	0.292	0.241	1.208	0.227	
Education = Advanced	0.111	0.431	0.259	0.796	
Education = Other	0.178	0.363	0.490	0.625	
Politics = Conservative/Tory	-0.047	0.215	-0.220	0.826	
Politics = Liberal Democrat	0.046	0.177	0.261	0.794	
Politics = Prefer not to answer	0.362	0.245	1.478	0.140	
Politics = Other	-0.036	0.193	-0.185	0.854	
BREXIT vote = LEAVE	0.265	0.215	1.234	0.217	
BREXIT vote = Other	0.358	0.182	1.964	0.050	*
Role X Partner	-0.017	0.080	-0.207	0.836	
Partner X Birth	-0.196	0.089	-2.210	0.027	*
Role X Birth	-0.084	0.117	-0.723	0.470	
Role X Asymmetry	-0.244	0.116	-2.097	0.036	*
Partner X Asymmetry	0.170	0.089	1.911	0.056	.
Asymmetry X Birth	0.374	0.263	1.423	0.155	
N(workers)	688				
LR χ^2	201.9			< 0.001	
Df	31				

Notes: OLS with robust standard errors and standard errors are clustered on the participant level to account for the within-subject correlations. Experimental terms are dummy-coded. Reference levels:

Appendix B: Self-serving redistributive preferences

Gender = Female, Education = Some HS or no HS, Employment = Full-time employed, Education = Some high school or no HS, Politics = Social Democrats/Labour, BREXIT vote = REMAIN. Income level and Age are included as continuous variables and covariates.

Table B7. Modeling Beliefs with all demographic variables included

	Estimate	Std. Error	t-value	Pr(> t)	
Constant	-0.115	0.273	-0.422	0.673	
Role = Contributor	0.181	0.077	2.359	0.018	*
Partner = Outgroup	-0.268	0.072	-3.705	0.000	***
Asymmetry = Costly	0.013	0.100	0.126	0.900	
Birth = Native	-0.048	0.137	-0.349	0.727	
age	0.003	0.005	0.485	0.628	
income	0.018	0.015	1.215	0.224	
male	0.103	0.110	0.940	0.347	
UKCitizenship	-0.022	0.162	-0.138	0.890	
Employment = part-time	0.072	0.159	0.455	0.649	
Employment = Student	-0.203	0.151	-1.346	0.179	
Employment = Retired	0.200	0.374	0.535	0.593	
Employment = Unemployed	-0.443	0.161	-2.758	0.006	**
Employment = Homemaker	-0.356	0.249	-1.431	0.153	
Employment = Other	-0.422	0.204	-2.071	0.038	*
Education = Trade school or assoc degree	0.019	0.277	0.068	0.946	
Education = College, BA, BSc	0.052	0.151	0.346	0.730	
Education = University, MA, MSc	0.182	0.162	1.122	0.262	
Education = Advanced	-0.173	0.244	-0.708	0.479	
Education = Other	-0.018	0.306	-0.058	0.954	
Politics = Conservative/Tory	-0.299	0.175	-1.710	0.087	.
Politics = Liberal Democrat	-0.148	0.133	-1.112	0.266	
Politics = Prefer not to answer	0.238	0.183	1.304	0.192	
Politics = Other	-0.017	0.152	-0.109	0.913	
BREXIT vote = LEAVE	0.164	0.176	0.932	0.351	
BREXIT vote = Other	0.094	0.126	0.749	0.454	
Role X Partner	0.028	0.075	0.375	0.708	
Partner X Birth	0.328	0.084	3.896	0.000	***
Role X Birth	0.093	0.095	0.978	0.328	
N(workers)	688				
LR χ^2	98.51			< 0.001	
Df	28				

Notes: OLS with robust standard errors and standard errors are clustered on the participant level to account for the within-subject correlations. Experimental terms are dummy-coded. Reference levels:

Appendix B: Self-serving redistributive preferences

Gender = Female, Education = Some HS or no HS, Employment = Full-time employed, Education = Some high school or no HS, Politics = Social Democrats/Labour, BREXIT vote = REMAIN. Income level and Age are included as continuous variables and covariates.

3. Pretreatment heterogeneity measures

Table B8. Distribution of political preferences across Natives and Immigrants workers

		Immigrant	Native	Total
Mostly Conservative/Tories	N	24	46	70
	%	7.0%	13.4%	10.2%
Mostly Liberal Democrats	N	83	41	124
	%	24.1%	11.9%	18.0%
Mostly Social Democrats/Labour	N	124	174	298
	%	36.0%	50.6%	43.3%
Other	N	58	54	112
	%	16.9%	15.7%	16.3%
Prefer not to answer	N	55	29	84
	%	16.0%	8.4%	12.2%
Total	N	344	344	688
	%	100.0%	100.0%	100.0%

The distribution of political preferences differs between immigrants and natives, $\chi^2(4) = 37.72$, $p \leq 0.001$.

Appendix B: Self-serving redistributive preferences

Table B9. Distribution of Brexit votes among Native and Immigrant workers

		Immigrant	Native	Total
I stayed away from voting	N	35	37	72
	%	10.2%	10.8%	10.5%
I voted to LEAVE the European Union	N	18	48	66
	%	5.2%	14.0%	9.6%
I voted to REMAIN a member of the European Union	N	84	150	234
	%	24.4%	43.6%	34.0%
I was not eligible to vote	N	196	102	298
	%	57.0%	29.7%	43.3%
Prefer not to answer	N	11	7	18
	%	3.2%	2.0%	2.6%
Total	N	344	344	688
	%	100.0%	100.0%	100.0%

$\chi^2 (4) = 62.85, p \leq 0.001$, the distribution of the Brexit votes differs across Natives and Immigrants.

Table B10. Results of Principal Component Analysis of Attitudes towards immigrants survey items

	Immigrant	Native
Immigrants take jobs away from British people	0.752	
Britain should allow immigrants to come and live in the UK	-0.735	
Immigrants are needed to do jobs that the British won't do		0.887
On average, immigrants contribute to the British economy more than natives do	-0.370	0.613

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 3 iterations.

Table B11. Means (SDs) of the two Immigration factors for Natives and Immigrants workers

	Immigrant	Native	t-test	p-value=
1 Perceived <u>Societal burden</u> of immigrants	-0.44 (0.95)	0.04 (1.05)	1.16	0.245
2. Perceived labor market productivity of immigrants	0.12 (1.03)	-0.12 (0.95)	-3.16	0.002

Table B12. Results of PCA for the three items about efficiency vs inequality

Component Matrix	
	Component
	1
We need larger income differences as incentives for individual effort.	0.823
Social justice requires that income inequalities should be reduced.	-0.763
It should be more important to the government to achieve a high growth rate than to reduce inequality between people through all sorts of government support.	0.754

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

Table B13. Means (SDs) of the Antiredistribution factor for Natives and Immigrants.

	Immigrant	Native	t-test=	p-value=
1 Antiredistribution	0.07 (1.01)	-0.07 (0.98)	-1.82	0.07