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Market Luck: Skill-Biased Inequality and Redistributive Preferences

Jeffrey Yusof © Simona Sartor

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Abstract

Market forces beyond individual control are a central driver of income inequality, a phenomenon we refer to as *market luck*. In meritocratic societies, this raises the question of whether individuals perceive such inequalities as fair. To address this question, we conduct experiments in the US, France, and China in which inequality between workers emerges due to random matching with buyers who require specific skills, creating inequality driven by market luck. Our findings from the US indicate that individuals are more accepting of inequalities resulting from market luck than those caused by brute luck, even though both are beyond workers' control and unrelated to their effort. The results are directionally consistent across all three countries, though with varying magnitudes of treatment effects, suggesting that redistributive preferences are sensitive to cultural differences and exposure to market institutions. We further validate our findings in survey experiments using more natural contexts and show that behavior in the experiments predicts support for real-world policies. Our results provide a novel explanation for the muted demand for redistribution amid rising inequality.

JEL Classifications: C91; D31; D63; D91; H23

Key words: Inequality; Meritocracy; Fairness; Redistribution; Luck; Markets.

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1 Introduction

Individuals' earnings are often determined by market forces beyond their control, a phenomenon we refer to as *market luck*. In today's highly specialized economies, inequality has been exacerbated by structural transformations such as globalization and technological change, which have altered the valuation of various skills in the labor market, diminishing the value of some while increasing the rewards for others (Autor and Dorn, 2013; Goos et al., 2014; Moll et al., 2022; Petrova et al., 2024). For example, Acemoglu and Restrepo (2022) find that 50-70% of the increase in US wage inequality over the last four decades can be attributed to the wage decline of workers heavily exposed to automation. Thus, abrupt changes in skill returns have played a pivotal role in the rise of skill-biased inequality and can be seen as a manifestation of market luck.

Recent increases in global economic inequality have sparked significant political and academic debate about how governments and society should address this issue. Proposed solutions include policies such as a robot tax or universal basic income to protect workers from the effects of automation and artificial intelligence (Wall Street Journal, 2020; Guardian, 2023), as well as initiatives that offer assistance to workers displaced by globalization and trade (NBC News, 2022; New York Times, 2022). As with any redistributive policy, notions of distributive justice and fairness are central to the debate (see, e.g., Almås et al., 2020; Gallup, 2022; Pew Research Center, 2020; Stantcheva, 2021). Prevailing societal views on fairness constitute key political economy constraints within which policymakers must operate. Thus, understanding how people perceive fairness when market luck generates inequalities and how these perceptions shape support for social welfare policies is fundamental.

Skill-biased inequalities introduce a trade-off in fairness perceptions. Skill-biased inequality can seem fair as higher earnings tend to reflect higher productivity. Individuals with skills that are in demand and generate more value for firms or consumers may therefore be viewed as deserving of higher rewards. However, according to meritocratic principles, inequalities are fair only if they result from individual effort, not from factors beyond one's control. Empirical research shows that many people's fairness views depend on whether inequality stems from effort or luck (see, e.g., Almås et al., 2020; Cappelen et al., 2007; Durante et al., 2014). From this perspective, inequality caused by market luck is unfair. This trade-off raises the empirical question of whether individuals perceive inequalities arising from market luck as fair or unfair.

In this paper, we address this question with a pre-registered online experiments in three different countries. The experiment consists of two stages: in the first stage, we create inequality between workers with different skills, and in the second stage, we measure other

individuals’ preferences for redistributing between the workers. To study the effect of market luck on fairness views, we need a setting that captures the two key aspects of the above rationale for why market luck may be considered as fair: (i) there is demand or preference for one skill, and (ii) the skill generates value for another party (e.g., a consumer or a firm). While this does not capture every feature of real-world markets, we argue that value creation and the satisfaction of preferences are fundamental principles of market exchange. For clean identification, we also have to (iii) ensure that income inequality arises purely from exogenous factors rather than from actual or perceived differences in effort and (iv) control for participants’ beliefs about the source of inequality. We design the experiment to meet these criteria, allowing us to identify the causal effect of market luck on redistributive preferences.

In our main treatment, the *market luck* treatment, we explicitly model the two key components of a market: the demand for a particular skill and the value its supply generates. To do so, we recruit separate groups of participants who act as workers and buyers. Workers are randomly assigned different skill types but exert equal effort. Workers with different skills perform very similar tasks, yet these tasks produce different types of output. This reflects the idea that skill is the factor that transforms effort into a specific type of output. On the other hand, buyers choose the output they want to produce to make a profit and demand a specific type of skill as input. Randomly matching a pair of workers with different skills to one buyer determines whether a worker can meet the buyer’s demand and, consequently, sell the output of her labor. The fact that only one worker can sell her labor output creates income inequality between the two workers.

As our primary outcome variable, we collect data on the redistributive choices of nearly 2,000 subjects from the general US population, who act as third-party spectators. These spectators are fully informed about the source of inequality—specifically, the process that generated income differences between two workers. They then decide how much income to redistribute between the two workers who earned unequal initial incomes. Using an impartial-spectator design allows us to measure redistributive preferences independent of material self-interest, as spectators’ decisions do not affect their own payoffs.¹ However, spectators’ decisions have real monetary consequences for the workers.

To identify the effect of market luck, we implement multiple treatments that differ in the source of inequality between the paired workers. Specifically, we compare spectators’ acceptance of inequality in the market luck treatment to a *brute luck* treatment, where there are no buyers and income inequality between the paired workers is determined by a random coin flip. Furthermore, to benchmark our main treatment effect, we implement an

¹There exists a longstanding philosophical tradition positing that impartiality serves as a distinct foundation for moral judgments concerning matters of justice (e.g., Mongin, 2001).

effort treatment where effort levels are not fixed, and inequality is determined by the relative performance of the paired workers.

The crucial aspects of our experiment are that, except for the effort treatment, inequality is always generated in the same way: through a random process in which all workers have equal probability of earning additional income and cannot influence the outcome by providing more effort. If individuals hold meritocratic fairness views in the conventional sense, we would thus expect spectators to implement similar levels of inequality across all treatments. However, we hypothesize that exogenous market forces, even though they are beyond individuals' control, increase spectators' acceptance of inequality.

We find that spectators accept significantly higher levels of inequality when its source is attributed to market luck compared to brute luck, with market luck increasing implemented inequality by 50%. This effect is economically meaningful, as it mirrors the difference in Gini coefficients between countries with very low inequality, such as Denmark (0.27), and those with significantly higher inequality, such as the US (0.38) (OECD, 2022). Compared to the benchmark where initial inequality is determined by effort, implemented inequality in the market luck treatment is halfway between the brute luck and the effort treatments. In reality, people may believe that market luck is at least partly foreseeable—for instance, that workers could have anticipated being replaced by machines—which may further increase acceptance of inequality. Since our experiment rules out such anticipation, our results can be interpreted as a lower bound.

We then disentangle the two potential drivers of the market luck effect, i.e., (i) the fact that workers generate a profit for the buyer and that (ii) buyers can choose what they want to produce and thereby reveal a preference that is ultimately satisfied by one of the workers. We show that removing the choice of the buyers by randomly assigning them to a type of production in the *profit-only* treatment does not significantly affect the spectator's acceptance of inequality compared to the market luck treatment. This finding suggests that the market luck effect is primarily driven by the fact that the lucky worker's labor generates a profit for the buyer.

An important concern with both the market luck and profit-only treatments is that they differ from the brute luck treatment along multiple dimensions: they are more complex and involve an additional player (the buyer), which may give participants a rationale for accepting inequality that is unrelated to the market aspects. To address this, we introduce the *no-exchange* treatment. As in the market luck treatment, worker incomes are determined by being matched with a third player who uploads either even or odd number sequences. However, unlike in the market luck treatment, the third player has no choice, does not purchase sequences from workers, and does not earn a profit. We find that the inequality

implemented in the no-exchange treatment is virtually identical to that in the brute luck treatment, suggesting that the mere presence of a third player does not affect inequality acceptance.

Additional analyses of open-ended responses offer further suggestive evidence that individuals commonly perceive higher earnings for more productive skills as fair, even when factors beyond individual control determine which skills those are. Spectators in the market luck treatment more frequently justify their redistributive choices based on output considerations—such as the worker’s output being in demand and meeting the buyer’s needs—compared to those in the brute luck treatment. In summary, our results, therefore, suggest that the conventional dichotomy of effort versus luck falls short of explaining redistributive preferences in contexts where market forces beyond individual control generate inequality.

These findings, however, reflect views and behaviors within a specific cultural context, particularly because the US is a country with a free market economy and liberal market views (Pew Research Center, 2014; Zitelmann, 2023). This raises the question of whether similar patterns would emerge in other countries, especially those with different approaches to or historical experiences with free markets. To explore the cultural boundaries of the market luck effect, we conduct large-scale experiments with over 3,500 spectators in two countries that differ significantly in these aspects: France and China. While France shares many similarities with the US in terms of economic development and Western cultural values, it has a strong tradition of state intervention and an extensive social safety net, with some of the highest spending on labor market programs in the world (OECD, 2024). Meanwhile, China differs significantly from the US in both its economic structure and cultural context, largely due to its historical transition from a centrally planned economy to a hybrid economy with substantial state control.

We collect data from 2,044 spectators in France and 1,530 spectators in China. We find directionally consistent results across all three countries, as we always observe the same ordering of implemented inequality (brute luck $<$ market luck $<$ effort). However, inequality levels and the magnitude of the treatment effects vary across countries. We observe a significant market luck effect in France, with implemented inequality increasing by 17% in the market luck treatment compared to the brute luck treatment. This increase is smaller than the 50% increase observed in the US, which could reflect the different approaches to free markets in the two countries or general differences in inequality acceptance. In China, we find substantially higher baseline levels of inequality acceptance in the brute luck treatment—more than double that of the US—which limits the scope for identifying a market luck effect. While implemented inequality in the market luck treatment and the effort treatment is higher than in the brute luck treatment, this difference is only significant for the effort treatment in China.

The cross-country comparison suggests that fairness views and redistributive preferences are sensitive to economic and cultural differences. The market luck effect is most pronounced in Western societies, where individuals appear to be consistently more accepting of inequalities resulting from market shocks.

A potential concern is that inequality acceptance measured in an abstract experimental setting may not reflect behavior in more realistic situations. To address this, we conduct a complementary survey experiment with US subjects to elicit their fairness views across different market scenarios and to investigate whether the market luck effect generalizes to real-world market settings. In the survey experiment, subjects saw vignettes describing scenarios involving two similar workers who experienced unequal income shocks due to different market changes, brute luck, or effort. For example, we informed subjects that one worker experienced a loss in earnings due to automation or competition from foreign imports. Consistent with the findings from the online experiment, we find that while income differences resulting from brute luck are viewed as unfair, income differences across market luck scenarios are, on average, perceived as fair. Moreover, we show that the anticipation of market shocks has no significant effect on fairness views.

Finally, we study how people’s fairness views elicited in our experiments relate to their support for real-world welfare policies. We elicit subjects’ support for various inequality-reducing policies, such as taxation schemes, unemployment policies, and policies supporting workers in declining industries. We also measure subjects’ attitudes toward government interventions related to immigration, trade, and unions. This approach allows us to estimate the predictive value of their revealed redistributive preferences for their self-reported support for government policies. Similarly, we can correlate subjects’ fairness views from the survey experiment with their support for these different policies. Our findings indicate that fairness views, measured in both the online and survey experiments, strongly predict people’s support for social welfare policies, bolstering the external validity of our experimental paradigm. Across all policies, inequality acceptance measured in the market luck treatment shows the largest predictive value, suggesting that this treatment offers a more accurate depiction of the source of income inequality in reality.

Our paper contributes to a growing literature on people’s perception of inequality and their demand for redistribution (Alesina and La Ferrara, 2005; Alesina et al., 2018; Benabou and Tirole, 2006; Cruces et al., 2013; Fehr et al., 2022; Hvidberg et al., 2023; Karadja et al., 2017; Kuziemko et al., 2015; Marechal (r) al., 2023). To gain a comprehensive understanding of people’s support for redistributive policies, such as different forms of taxation, it is crucial to learn about their fairness views (Alesina and Giuliano, 2011; Cohn et al., 2023; Epper (r) al., 2020; Fisman et al., 2017; Harrs and Sterba, 2023; Kerschbamer and Müller, 2020;

Nathan et al., 2024; Perez-Truglia and Yusof, 2024; Saez and Stantcheva, 2016).² We advance the understanding of fairness in meritocratic societies by showing that individuals are willing to accept inequalities resulting from market forces beyond individuals’ control, which reflect a central mechanism through which inequality emerges in dynamic, specialized, and globally integrated market economies.

We build on the experimental literature on meritocracy and fairness views, which shows that people are more willing to accept inequalities attributed to differences in effort than those resulting from differences in luck (Almås et al., 2020; Cappelen et al., 2007, 2013, 2022; Durante et al., 2014; Fehr and Vollmann, 2022). Recent studies suggest that people might be “shallow meritocrats,” who reward effort but overlook the role of luck in shaping both effort choices and outcomes (Andre, 2024; Bhattacharya and Mollerstrom, 2022; Cappelen et al., 2024; Dong et al., 2022; Preuss et al., 2022). Some of these studies investigate contexts where luck determines opportunities to acquire training or exert effort (Bhattacharya and Mollerstrom, 2022; Dong et al., 2022), while others focus on how luck shapes incentives to provide effort (Andre, 2024; Cappelen et al., 2024). Preuss et al. (2022) examine a setting characterized by uncertainty about the role of luck and performance in determining final outcomes. In contrast to previous studies, our study holds effort constant across workers and removes uncertainty about the role of luck, yet we still observe substantial differences in inequality acceptance across treatments. By explicitly modeling both the demand for a skill and the value it generates, we study redistributive preferences in a market context and show that individuals accept exogenous market forces as drivers of inequality.³ We identify the central mechanism, demonstrating that individuals are seen as more deserving of higher income when their effort, by chance, becomes more valuable to a third party.

Critics of meritocracy argue that individuals, particularly the wealthy, often downplay the role of luck in their success (see e.g., Frank, 2016; Sandel, 2020). Our findings indicate that, even when individuals recognize the influence of (market) luck, they still accept it as a source of inequality. This offers a novel explanation for why the demand for redistribution has remained stagnant despite rising inequality (Ashok et al., 2015; Kenworthy and McCall, 2008; Kuziemko et al., 2015).

The remainder of this paper is structured as follows. Section 2 presents a simple conceptual framework. Section 3 describes the main experimental design. Section 4 explains the data collection, and Section 5 presents the main results. Section 6 presents the cross-

²The literature suggests that fairness considerations often outweigh efficiency concerns in shaping views on tax policy (Almås et al., 2020; Stantcheva, 2021).

³There exists literature studying how markets can affect social preferences and moral values (Bartling et al., 2015, 2020; Falk and Szech, 2013; Kahneman et al., 1986; Sandel, 2012). We contribute to this literature by investigating how market interactions and specific aspects of market demand shape redistributive preferences.

country comparison with France and China. Section 7 presents the design and results of the complementary survey experiment. In Section 8, we examine the predictive power of our experimental measures of fairness views for subjects' support for real-world social welfare policies. Finally, Section 9 concludes the paper.

2 Conceptual Framework

To guide our main analysis, we introduce a simple conceptual framework. It models the social preferences of a third-party spectator i , who observes inequality between two individuals, A and B. Individual A has initial earnings Z , while B has zero. For simplicity, we assume that spectator i is solely concerned with fairness and experiences disutility from deviating from what she considers to be a fair allocation. Accordingly, the spectator chooses the optimal amount of redistribution by maximizing the following utility function:

$$V_i(y_i) = -\left(\frac{y_i}{Z} - s_i\right)^2, \quad (1)$$

where y_i denotes the amount of income that spectator i allocates to individual A (who initially holds Z), and s_i denotes the share of Z that the spectator i considers to be the fair amount to give to A. Focusing on an interior solution, the optimal spectator behavior is given by

$$y_i^* = Zs_i. \quad (2)$$

From a conventional meritocratic perspective, the fair share s_i depends only on factors within an individual's control. For simplicity, we assume that these endogenous factors are fully captured by individual effort e_k , where $k = A, B$. Although we assume individuals differ in their skills, defined as the factor that transforms effort into a specific type of output, we treat skill as an exogenous trait.⁴ As a result, meritocratic spectators do not consider it when making fairness judgments. Under this view, a meritocratic spectator bases their redistributive decision only on d , the difference in effort between individual A and individual B, such that

$$s_i(d) = \frac{1}{2} + d, \quad (3)$$

where d is a function that is non-decreasing in the effort differences between individuals

⁴See Appendix E for a simple conceptual framework of labor supply and demand, which illustrates how skill and effort contribute to a worker's labor input, and how skill-biased inequalities can arise from exogenous shocks to labor demand.

A and B:

$$d = f(e_A - e_B), \quad (4)$$

with $f \in [-\frac{1}{2}, \frac{1}{2}]$ and $f(0) = 0$. More precisely, if both individuals exert equal effort ($d = 0$), a fair outcome would involve an equal split of total earnings ($y_i^* = \frac{Z}{2}$). If individual A provides more effort than individual B ($d > 0$), it is fair for individual A to get a larger share of the total earnings, and if the effort difference between the two individuals is sufficiently large ($d = \frac{1}{2}$), it is fair that individual A can keep all the initial earnings ($y_i^* = Z$).

A key innovation of our framework is the incorporation of factors beyond individual effort that may influence fairness judgments. Specifically, we allow for the possibility that spectators may not view all external influences as equally unfair. In particular, we consider *market luck*, defined as exogenous market forces — such as shocks to the demand for certain skills — that create inequality in initial earnings. Spectators may regard higher earnings for an individual as fair if the individual’s skills meet a demand and generate value for others.

We model this by extending the function that defines the fair share s_i to incorporate both effort-based and market-based considerations, introducing the parameters α , β , and ω :

$$s_i(d, \omega, \alpha, \beta) = \frac{1}{2} + \alpha d + \beta \omega, \quad (5)$$

where $\alpha, \beta \in [0, 1]$ with $\alpha + \beta \leq 1$, and $\omega \in [-\frac{1}{2}, \frac{1}{2}]$. Parameter ω captures factors that introduce inequality but are exogenous to provided effort e_k .⁵ Although these factors are beyond individual control, they may still be perceived as a fair source of inequality and thus influence the fair share s_i . In our framework, ω specifically captures *market luck*.

Our framework captures how spectators weigh both effort and market luck in their redistribution decisions. While α represents the weight a spectator assigns to the difference in effort in her fairness judgment, β reflects her tolerance for inequality resulting from external market forces. A strict meritocrat considers only effort and rejects any fairness justification for external influences. This corresponds to $\alpha = 1$ and $\beta = 0$, resulting in equal earnings whenever there are no differences in effort. However, if $\beta > 0$, it indicates that the spectator views market forces as a fair source of inequality. In this case, even when effort levels are identical, the spectator may allocate a larger share of earnings to the individual who benefited from market luck.

In this paper, we investigate whether spectators accept inequalities resulting from market luck, and test the following hypothesis:

⁵Whereas this implies that an individual’s effort e_i cannot affect ω , it is possible that exogenous factors, such as circumstances, shape effort choices. For the sake of simplicity, we abstract from this possibility in this paper.

Main Hypothesis. *When there are no differences in effort, spectators allocate a larger share of income to the individual with initial earnings if the inequality is due to market luck rather than brute luck. Formally, s_i is strictly increasing in ω if and only if $\beta > 0$.*

Our main hypothesis is that spectators may not adhere strictly to the conventional meritocratic distinction between effort and luck. Instead, they may be more willing to accept inequality caused by exogenous market forces than by other forms of luck. To test this, we compare redistributive decisions across two scenarios: one where inequality arises from market luck, and another where it results from a coin flip (brute luck). If spectators allocate a larger share of earnings to the advantaged individual in the market luck scenario, this suggests that they see market-driven inequality as a more legitimate form of inequality than that caused by brute luck.

By holding effort constant in some conditions ($d = 0$), we isolate the effect of market luck on spectators' acceptance of inequality. Conversely, by excluding market luck ($\omega = 0$) and introducing effort differences, we examine whether spectators' redistributive choices are consistent with traditional meritocratic fairness principles. This approach allows us to assess the extent to which individuals accept market-generated inequality beyond the conventional meritocratic distinction between effort and luck.

3 Experimental Design

To investigate our main hypothesis, we designed an online experiment that models a situation where workers with different skills are exposed to a market demand shock for their skills. For that, we separately recruited three types of subjects: workers, buyers, and spectators. In our main treatment, the market luck treatment, workers meet buyers in a market setting that generates income inequality between workers. Our main outcome of interest is the redistributive behavior of third-party spectators, who are randomly assigned to one of the experimental treatments. All subjects received a fixed participation compensation for participating in the experiment. The payments mentioned in the following sections are payments *in addition* to the fixed participation fee.⁶

3.1 Workers

Subjects recruited as workers are randomly assigned to specialize in one of two tasks: *odd* or *even*. In both tasks, workers have to translate ten five-letter sequences into sequences of digits with the help of a decryption key they are given. As illustrated in Figure 1, the tasks differ

⁶See Appendix F.1 and F.2 for the complete experimental instructions.

only in that some workers receive a decryption key that translates letters into odd digits, while other workers receive a decryption key that translates letters into even digits. This reflects the conceptualization of skill as the factor that turns effort into a specific type of output. Hence, workers' skills can be inferred from the output generated by their labor. This mirrors real-world scenarios where, for example, a factory worker and a researcher both put in a day's work, providing the same effort, but at the end of the day, the factory worker has produced a car and the researcher a paper. Furthermore, a worker has a comparative advantage since another worker with a different skill could not do her task and vice versa. More importantly, this design allows us to hold effort constant across workers since all workers translate the same amount of sequences, and translating letters into odd or even digits requires the same amount of effort. This design feature is crucial, as it allows us to rule out the possibility that beliefs about differences in effort are driving our results, since there should be no effort differences across tasks in expectation. After the workers have provided effort and completed the task, each worker is paired with another worker who worked on the other task, i.e., who has a different skill.

Figure 1: Translation Task of Workers

B	H	K	M	S	B	H	K	M	S
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	7	1	5	9	2	6	0	4	8

Decryption key of Worker A
Decryption key of Worker B

Worker A: **HBKMS** → **73159**

Worker B: **HBKMS** → **62048**

Notes: This figure illustrates the translation task of the workers. All workers translate the same letter sequences, but a worker assigned to the *odd* task receives a decryption key that translates letters into odd numbers (Worker A), whereas a worker assigned to the *even* task receives a decryption key that translates letters into even numbers (Worker B).

3.2 Buyers

Subjects recruited as buyers are assigned to the production of products ODD or EVEN. To assign buyers to a product type, they are asked at the beginning of the experiment whether they prefer to work with odd or even numbers. Buyers who choose even numbers produce product EVEN, and buyers who choose odd numbers produce product ODD. This design feature captures an essential characteristic of markets, where the buyer's demand reflects her preference, which is revealed through her choice of production.

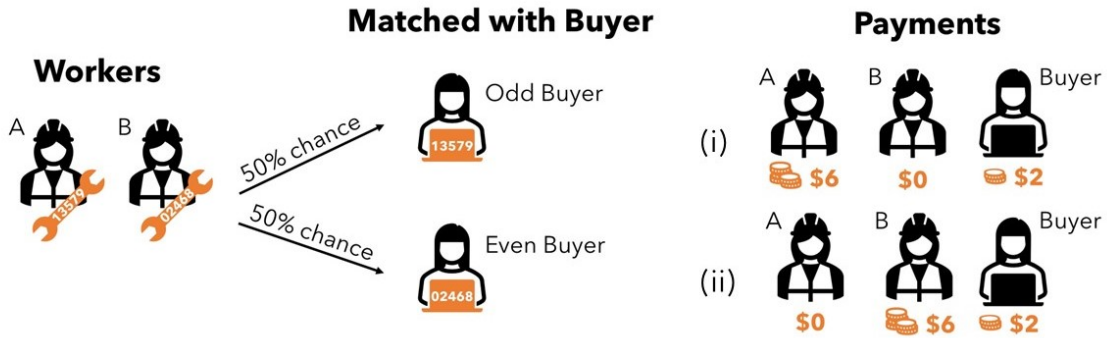
The buyers' production consists of uploading sequences of digits by checking them off

in a matrix of randomly ordered number sequences. The production of the two products differs; for product ODD, buyers need to upload sequences of odd digits, while for product EVEN, buyers need to upload sequences of even digits. Hence, buyers need a specific input—sequences of either odd or even digits—for their production.

The input buyers require corresponds to the workers' labor output, meaning buyers must purchase the number sequences from the workers for their own production. It is explained to both workers and buyers that buyers have to purchase the required number sequences from the corresponding worker for a fixed price of USD 6. Purchasing the right sequences allows the buyers to produce, i.e., to upload the number sequences. This generates additional earnings of USD 8 for the buyer, resulting in a profit of USD 2. This payoff structure mirrors real-world labor markets, where labor supplied by a worker generates a profit for the buyer and an income for the worker.

Income inequality between the paired workers is induced by the matching of workers with a buyer. Only one of the two workers translated the number sequences the buyer needs for her production. This worker can sell her sequences to the buyer and earns an additional income (USD 6). The other worker cannot sell her sequences and earns no additional income. The random matching of a worker pair with one buyer, therefore, generates random variation in market demand, which reflects exogenous shocks to market demand making certain skills more valuable. Figure 2 illustrates how the initial payments of the workers and the buyer are determined.

Figure 2: Payment Allocation Process



Notes: This figure illustrates how the payments of the workers and the buyer are determined. In the first stage, workers are randomly assigned to a task and translate number sequences. In the second stage, the paired workers are randomly matched with a buyer, who chose either odd or even numbers. In the third stage, payments are realized. The worker who can provide the buyer with the number sequences the buyer needs earns USD 6, whereas the other worker earns no additional income. The buyer earns USD 2 in total for buying and uploading the number sequences. I.e., if the pair was matched to an odd buyer, payment (i) is implemented. Vice versa, if they are matched to an even buyer, payment (ii) is implemented.

3.3 Spectators

As our main outcome, we measure how subjects recruited as third-party spectators redistribute earnings between two workers. To mitigate potential demand effects, we use a between-subjects design, randomly assigning spectators to one of the treatments.

Within each treatment, spectators are matched with a pair of workers (worker A and worker B), where one worker earned an additional income (USD 6), and the other worker earned no additional income. It is emphasized to the spectators that their choice has real consequences for these workers. The spectators' choices are probabilistically incentivized, meaning that the decision of one out of ten spectators is payoff-relevant for a pair of workers. Spectators receive detailed information about the context of their decision, i.e., they are fully informed about the information provided to the workers and the buyers and how earnings were determined. Spectators are also informed that workers are at no point informed about their initial earnings prior to the spectators' redistributive choices in order to minimize the role of worker expectations in the decision of the spectators.⁷ Spectators also know that there should not be any differences in effort between the two workers (except in the effort treatment, discussed below) as both workers translate the same number of sequences. Spectators have to answer comprehension questions to ensure that they fully understand the context of their decision. Finally, spectators decide whether and how they want to redistribute earnings from the high-income worker to the low-income worker. They choose from seven possible income distributions: (6,0), (5,1), (4,2), (3,3), (2,4), (1,5), and (0,6). Our main outcome of interest is the inequality I implemented by spectator i :

$$I_i = \frac{|\text{income worker } A_i - \text{income worker } B_i|}{\text{total income}} \in [0, 1]$$

The interpretation of inequality I is similar to the one of a Gini coefficient, where a higher value indicates a more unequal distribution of incomes.

3.4 Additional Treatments

To understand the treatment effect of market luck on redistributive preferences, we implement additional treatments: a brute luck treatment (control treatment), a benchmark treatment, and multiple mechanism treatments. Comparing spectators' implemented inequality in the market luck treatment and the control treatment allows us to test our main hypothesis: $\beta > 0$, meaning that spectators accept market luck as a driver of inequality compared to brute luck. The benchmark treatment allows us to compare our main treatment effect to the

⁷Workers do not know their initial earnings but are only told that a third person, the spectator, will be informed and allowed to redistribute the initial earnings.

treatment effect of brute luck versus effort experiments. Finally, the mechanism treatments are designed to isolate the specific channels that may be driving the main treatment effect.

All treatments share the basic structure of the market luck treatment described above: workers are randomly assigned to one of the two tasks, odd or even, and are subsequently matched with another worker who worked on the other task, i.e., who has a different skill. After both workers provided effort and completed the task, we induce income inequality between the two workers, as one of the two workers earns a high income (USD 6), whereas the other worker earns nothing for completing the task. The treatments differ in the source of the induced inequality. Table 1 gives an overview of all experimental treatments.

Control Treatment: Brute Luck

In the brute luck treatment, a coin flip decides which worker earns the additional income and which worker earns no additional income after they complete the task. There are no buyers, i.e., we do not model the market demand side. Holding effort levels constant across workers ($d = 0$) enables us to isolate the effect of market luck on spectators' acceptance of inequality by comparing the implemented inequality in the market luck and brute luck treatments, allowing us to test whether $\beta > 0$.

Benchmark Treatment: Effort

In this treatment, the allocation of the additional income is based on workers' relative productivity. This is the only treatment where the source of inequality is endogenous with respect to the workers' behavior. Both workers work on the translation task for the same amount of time, and the worker who translates more sequences earns the additional income. As in the control condition, there are no buyers in this treatment. By comparing the effort treatment to the brute luck treatment, we abstract from market luck ($\omega = 0$), which allows us to test whether $\alpha > 0$.

Mechanism Treatment: Profit-Only

The main treatment effect comparing the brute luck and the market luck treatment could be driven by the fact that i) workers generate a profit for the buyer and that ii) buyers could choose what they want to produce and thereby reveal a preference which is then satisfied by one of the workers. Both factors could make the high-income worker appear more deserving in the eyes of the spectators, leading them to redistribute less to the low-income worker. The profit-only treatment allows us to isolate the two potential mechanisms.

The profit-only treatment is almost identical to the market luck treatment, with the only difference being that buyers are randomly assigned to their production, in contrast to the assignment being based on their choice. Buyers still earn an additional income (USD 2), and hence, this mechanism treatment isolates the effect of the buyers' profit.

Robustness Treatment: No-Exchange

Compared to the brute luck treatment, the decision context of the spectators in the market luck treatment involves an additional actor, the buyer, and the initial inequality between workers depends on a random matching mechanism with buyers. There are potential confounding factors that could be driving the treatment effect. First, the presence of the buyer could make the decision context more complex and the randomness of the source of inequality less salient, causing spectators to be more hesitant to redistribute earnings between workers. Second, it could be that the mere presence of a third party makes spectators more acceptable of inequality, without any profit or choice involved, as the matching with the buyer might offer a justification for the unequal outcomes.⁸ To ensure that our estimated effect is not driven by any of these confounds, we designed the no-exchange treatment.

The key difference between the no-exchange treatment and the market luck treatment lies in the role of buyers.⁹ In both treatments, worker pairs are matched with buyers who upload either even or odd number sequences. However, in the no-exchange treatment, buyers do not make any choices; they are randomly assigned to either ODD or EVEN production and receive no additional earnings. As in the market luck treatment, each worker pair is matched with a buyer. The worker who translated the same type of letters as the matched buyer earns the higher income, while the other worker receives no additional income. However, there is no exchange between workers and buyers, i.e., there is no demand from the buyers, as they are just given the number sequences they have to upload. In other words, inequality arises because the buyer randomly works with the same type of numbers (odd or even) as one of the workers.

⁸One might also hypothesize that an inequality-averse spectator's preferred level of inequality between two workers could differ depending on whether the setting involves only the two workers or includes an additional actor, such as a buyer. We designed the payoff structure such that optimal redistribution is identical across both settings for spectators who are inequality-averse in the sense of Fehr and Schmidt (1999) or Bolton and Ockenfels (2000), or who seek to minimize inequality, such as by reducing the overall Gini coefficient.

⁹It is important to note that the term 'buyer' is not used in the experimental instructions in any of the treatments.

Table 1: Overview of Experimental Treatments

	(1)	(2)	(3)	(4)	(5)	(6)
	Buyer	Exchange	Profit	Choice	Source of inequality	Observations
Market Luck	✓	✓	✓	✓	random	423
Brute Luck	✗	✗	✗	✗	random	429
Effort	✗	✗	✗	✗	performance	193
Profit-only	✓	✓	✓	✗	random	433
No-exchange	✓	✗	✗	✗	random	444

Notes: This table provides an overview of the different experimental treatments. Each row corresponds to a specific treatment. Column (1) shows whether a buyer was present. Column (2) indicates if there was an exchange between the buyer and the worker, meaning the buyer bought the sequences from the worker. Column (3) indicates whether the buyer earned an additional profit. Column (4) denotes whether the buyer could choose the production. Column (5) distinguishes whether the source of inequality was exogenous or endogenous from the worker’s perspective. Column (6) reports the number of observations for each treatment.

4 Data Collection

The experiment was pre-registered at the AEA RCT Registry (AEARCTR-0011869). We implemented the online experiment using Qualtrics and collected data through the panel provider Prolific. Spectators were recruited from a representative sample of the US population, cross-stratified by gender, age, and ethnicity.¹⁰ All subjects received a fixed participation compensation, which amounted to an estimated hourly wage of USD 12. Spectators received a participation compensation of USD 4, whereas workers and buyers received a participation compensation of USD 1. Depending on the treatment assignment and the spectators’ decision, workers and buyers received additional bonus payments. Spectators earned a bonus payment of USD 0.25 if they answered all comprehension questions correctly. 10% of the spectators were matched with actual workers, which was explained in the spectators’ instructions.

We collected our data in two waves, as specified in the pre-analysis plan. We collected data from 405 workers, 180 buyers, and 1,988 spectators in August and September 2023. We pool the data from the two waves of data collection and include wave fixed effects in all our analyses (see Appendix A.1 for a detailed discussion of the data collection process and Appendix Table D.2 for descriptive statistics of the spectators). We rejected submissions from spectators who did not pass an attention check and exclude spectators with a completion time that deviated by more than two standard deviations from the mean completion time

¹⁰See Appendix Table D.3 for a comparison of our sample with the general US population.

in each treatment from the analyses, as specified in the pre-analysis plan. Our final sample consists of 1,922 spectators.

5 Results

5.1 Main Results

Figure 3 shows that the average implemented inequality in the brute luck treatment is 0.229, while in the market luck treatment it is 0.343.¹¹ In other words, the average level of inequality increases by 0.114 in the market luck treatment, representing a 50% increase from the baseline level in the brute luck treatment (Mann-Whitney $p < 0.001$). This effect is substantial and economically meaningful, as its magnitude is comparable to the difference in Gini coefficients between countries with very low inequality levels, like Denmark (0.27), and countries with significantly higher levels of inequality, such as the US (0.38) (OECD, 2022).

Figure 3 also shows that spectators implement significantly higher levels of inequality in the effort treatment, where the average implemented inequality is 0.480. This result is in line with previous research that shows that people have the meritocratic tendency to equalize incomes if inequality is due to brute luck and accept higher levels of inequality if it is due to effort differences (Almås et al., 2020; Cappelen et al., 2007; Durante et al., 2014). Our results, however, suggest that the distinction between luck versus effort as the source of inequality does not fully capture people’s redistributive preferences, as we see significantly higher levels of implemented inequality in the market luck treatment, which closes about half of the gap between the brute luck and the effort treatment.

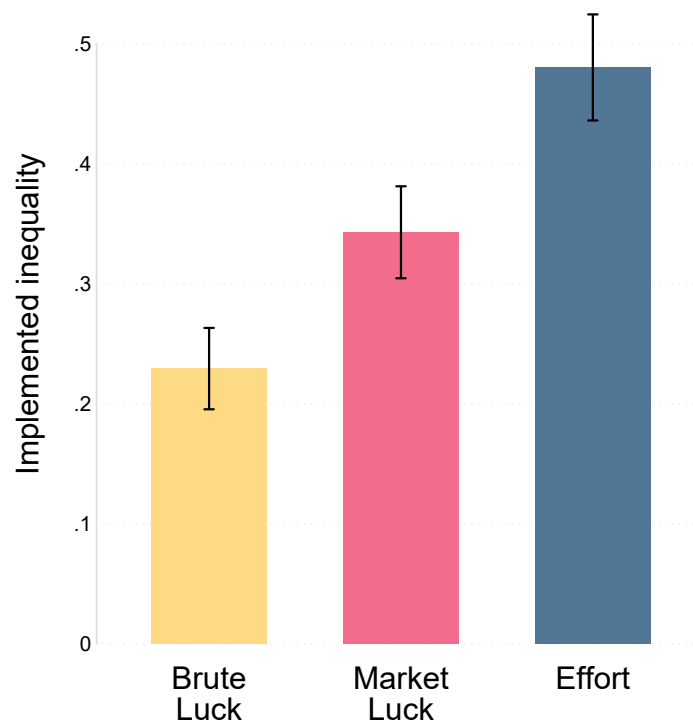
Table 2 reports the corresponding regressions of implemented inequality on indicators for the market luck and effort treatments in Column 1); the reference category is the brute luck treatment. We include a dummy variable for the wave of data collection in all regressions. The regression in Column 2) controls for characteristics of the spectators, including their age, gender, political affiliation (Democrat vs. Republican), education (high vs. low education), income (high vs. low income), and ethnicity (Black/Afro-American, Asian/Asian American, Hispanic/Latino, White/European American).

The market luck treatment effect is highly significant ($p < 0.001$ in both specifications) and robust to controlling for background characteristics of the spectators.¹² In terms of

¹¹The histograms in Appendix Figure C.1 show that there is a higher share of equal income distributions (3, 3) in the brute luck treatment. In dollar terms, spectators redistribute 32 cents less in the market luck treatment than in the brute luck treatment (Mann-Whitney $p < 0.001$).

¹²Appendix Table D.4 reports results from the heterogeneity analysis as specified in the pre-analysis plan. We find that inequality acceptance is generally lower among Democrats and females, consistent with previous research (see, e.g., Almås et al., 2020). However, we do not find significant interactions between gender,

Figure 3: Average Implemented Inequality



Notes: Implemented inequality is measured using the Gini coefficient, which ranges from 0 to 1, with higher values indicating a more unequal distribution of incomes. Error bars indicate the 95% confidence interval. (N = 1,045)

Table 2: Regression Results on Implemented Inequality

	(1)	(2)
Market Luck	0.114*** (0.026)	0.105*** (0.026)
Effort	0.233*** (0.032)	0.234*** (0.032)
Constant	0.247*** (0.023)	0.292*** (0.047)
Controls	No	Yes
F-stat p-val	0.000	0.000
Adj. R-squared	0.057	0.076
Observations	1045	1045

Notes: This table reports OLS estimates with robust standard errors in parentheses. The dependent variable is implemented inequality. Control variables include age, gender, a high-education indicator variable for having a Bachelor's or Post-graduate degree, a high-income indicator variable for having an income above USD 75,000, a Democrat indicator variable, as well as indicator variables for having an Asian, Hispanic, or Black ethnicity. Regressions include indicator variables for the wave of data collection. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

magnitude, implemented inequality increases by 0.28 standard deviations in the market luck treatment compared to the brute luck treatment. The coefficient for the market luck treatment is about half the size and statistically different from the effort treatment coefficient ($p < 0.001$).

Result 1. *Market luck instead of brute luck as the source of inequality increases spectators' implemented inequality by 50%.*

Result 1 suggests that people are more accepting of inequalities caused by market shocks, even when the source of inequality is beyond individuals' control. Spectators perceive inequality as fairer when the high-income worker meets the demand of a randomly matched buyer, generating a profit for the buyer. In the context of our conceptual framework, this suggests that people consider exogenous factors (ω) to determine the fair level of inequality (i.e., $\beta > 0$). This finding contradicts the principles of a meritocratic ideology, which assert that inequalities are only fair when they result from factors within workers' control, such as their level of effort.

5.2 Mechanisms

This result raises the question of why individuals accept income inequality between workers who had no influence over it in the market luck treatment. Is it the worker's ability to satisfy the buyer's choice, or the fact that she generates profit for the buyer, that makes her seem more deserving of a high income? Or is it simply the presence of an additional actor, the buyer, that changes the decision context for spectators? To gain a deeper understanding of the factors driving the market luck effect, we conduct additional experimental treatments and analyses.

Is the Market Luck Effect Driven by the Buyer's Choice or Profit?

In our main treatment, inequality is caused by a shock to market demand, where only one worker can satisfy a buyer's demand that i) is based on the buyer's choice and ii) generates a profit for the buyer. Both aspects could affect the spectators' redistributive behavior. To get a better understanding of the drivers of the main treatment effect, we implement the profit-only treatment. In the profit-only treatment, buyers cannot choose but are randomly assigned to the type of production. Other than that, the treatment is identical to the market luck treatment. This allows us to test whether the fact that buyers can make additional

education, income, or political affiliation and the market luck treatment, indicating that the market luck effect remains robust across various individual characteristics.

profits because they bought the sequences from a worker affects spectators’ redistribution behavior.

Figure 4 shows the treatment effect of each treatment, comparing them individually to the brute luck treatment.¹³ Focusing on the profit-only treatment, the results show that average implemented inequality is significantly higher in the profit-only treatment than in the brute luck treatment, with a coefficient of 0.092 ($p = 0.002$).¹⁴ This suggests that the mere fact that one worker can generate a profit for the buyer increases the spectators’ willingness to accept that this worker earns a high income. The coefficient of the profit-only treatment is slightly smaller than the coefficient of the market luck treatment (0.114), but the difference is not statistically significant ($p = 0.489$). The results, therefore, suggest that the buyer’s profit is the main mechanism that explains the market luck treatment effect.

Result 2. *Spectators accept significantly higher levels of inequality if the high-income worker generated a profit for the randomly matched buyer.*

Result 2 indicates that creating a profit for a buyer increases spectators’ perceptions of the workers’ deservingness of the high income, even if the worker is simply lucky to be paired with the right buyer.

We provide additional supporting evidence for this mechanism by examining how spectators reason when making redistributive decisions. In Appendix B we present evidence from analyses of open-text responses, where subjects briefly described the rationale behind their redistributive decisions (e.g., Haaland et al., 2024). The results show that a significantly larger share of responses in the market luck treatment (16.5%) mention output-based considerations — such as the worker’s output being in demand and meeting the buyer’s needs — compared to the brute luck treatment (4.3%).

More broadly, our results suggest that people perceive it as fair and are willing to accept that more productive skills receive higher rewards in the labor market, even if it is determined by external factors which skills those are.

Does the Mere Presence of a Buyer Influence Redistribution?

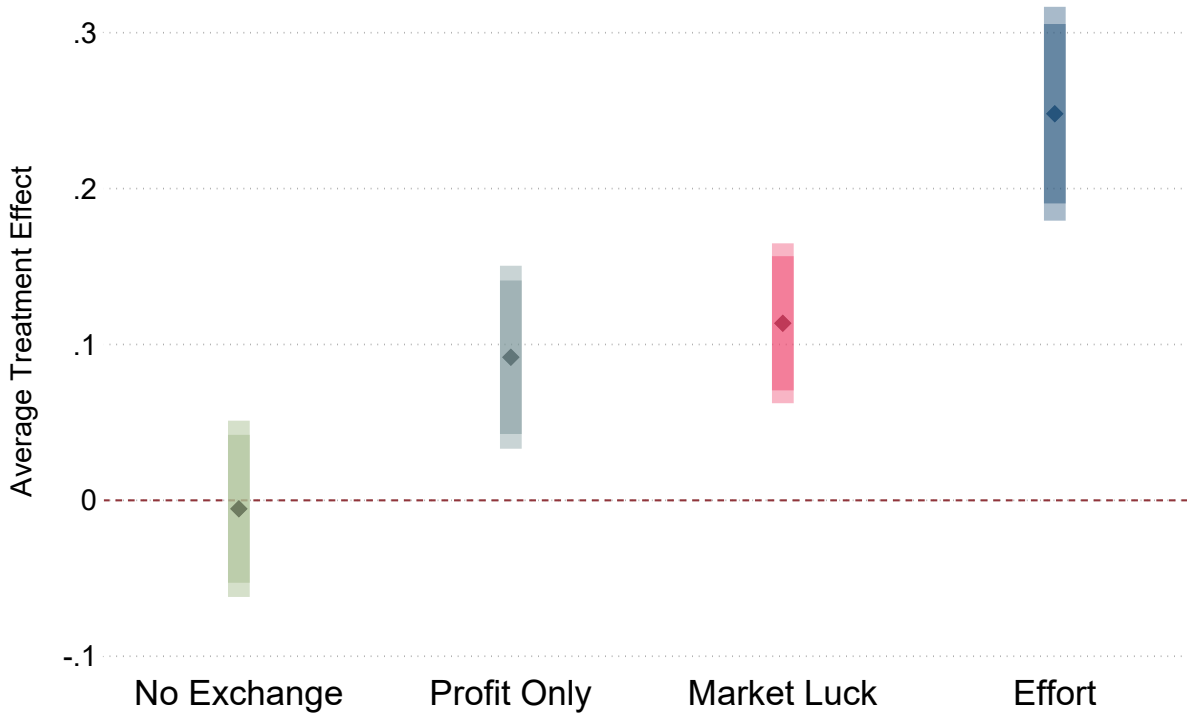
One potential confound is that the treatment effect might be driven by the presence of the buyer and the random matching process, which could make the decision context more complex and reduce the salience of the randomness underlying the inequality. Alternatively, the matching with a third player, regardless of whether that player earns a profit, might provide spectators with a justification for accepting unequal outcomes. To address this concern, we

¹³Appendix Figure C.2 shows the levels of implemented inequality across the different luck treatments.

¹⁴Appendix Table D.5 reports the corresponding regression results.

implement the no-exchange treatment, where the decision context of the spectators involves a buyer. Workers get randomly matched with a buyer, which determines their initial earnings. However, buyers do not buy the sequences from the workers and do not earn an additional income from the production. In other words, there exists no relationship between workers and buyers other than a random matching that determines the initial income inequality between the two workers.

Figure 4: Treatment Effect on Implemented Inequality Compared to Brute Luck Treatment



Notes: The figure shows the coefficients from bivariate regressions of implemented inequality on a treatment indicator for each respective treatment. In all regressions, the dependent variable is implemented inequality, with the brute luck treatment as the reference category. All regressions include indicator variables for the data collection wave. Error bars indicate the 95% and 90% confidence interval. (N = 1,922)

Figure 4 shows that implemented inequality in the brute luck and no-exchange treatments are nearly identical, with a coefficient of -0.005 ($p = 0.851$).¹⁵

Result 3. *The mere presence of a buyer and the random matching of workers with the buyer as the source of inequality do not influence the spectators' acceptance of inequality.*

¹⁵Appendix Table D.5 also shows regression results, including controls for spectators' characteristics.

Result 3 suggests that the mere presence of the buyer alone cannot explain the main effect of the market luck treatment. In other words, spectators perceive it as fairer for a worker to earn a high income only if it results from an exchange that generates a profit for the buyer.¹⁶

6 Cross-Country Comparison

Our experimental results show that people have a higher acceptance of inequalities arising from demand shocks, even when there are no differences in effort and the source of inequality is completely beyond the workers’ control. However, these findings reflect views and behaviors within a specific cultural context, the US, a country with a free market economy and liberal market views. This raises the question of whether similar patterns would emerge in other countries, especially those with different approaches to market economies or different historical experiences with free markets. To explore this, we conduct additional large-scale experiments using the main treatments in two countries that differ significantly in these aspects: France and China. While France shares many similarities with the US in terms of economic development and Western cultural values, China contrasts sharply with the US in both economic structure and cultural context. Furthermore, research shows fundamental psychological differences between people from so-called *WEIRD*¹⁷ countries, such as France and the US, and non-WEIRD countries like China (Henrich et al., 2010; Henrich, 2020).

6.1 Country Selection

France provides a valuable context for examining attitudes toward market-generated inequality, given its tradition of state intervention and extensive social safety nets. Public spending on labor markets and unemployment benefits is significantly higher in France than in the US and is among the highest in OECD countries (OECD, 2024). Moreover, data from global surveys indicate that the French tend to be more cautious about the free market economy and more supportive of government intervention compared to the Americans (Zitelmann, 2023).

China provides a distinct context due to its transition from a centrally planned economy to a hybrid economy with strong state involvement. Unlike the US, it combines market liberalization with significant government control. Together with France, it offers a valuable setting to explore how differences in market institutions and societal attitudes towards mar-

¹⁶Result 3 suggests that the market luck effect is not driven by differences in the perceived randomness of initial earnings. As an additional check, we asked spectators whether both workers were equally likely to receive the higher earnings. While perceived randomness was slightly higher in the brute luck treatment (85% vs. 75%, see Appendix Figure C.3), our main results remain robust when controlling for these perceptions or restricting the sample to those spectators who viewed the earnings as random (see Appendix Table D.6).

¹⁷*WEIRD* is an acronym for Western, Educated, Industrialized, Rich, and Democratic.

kets may shape perceptions of inequality driven by market luck. The primary aim of this cross-country comparison is to assess the robustness of the market luck effect across cultural contexts.

6.2 Implementation and Data Collection

Our abstract experimental design allows us to replicate the experiment with the brute luck, market luck, and effort treatments in other countries using an identical protocol as in our US sample. Both experiments were preregistered with the AEA RCT Registry (France: AEARCTR-0014009 and China: AEARCTR-0014144). We employed professional translators to translate the original instructions into French and Chinese. We adjusted the additional income for workers using purchasing power parity (PPP), so that the USD 6 worker income in the US corresponded to EUR 6 in France and CNY 24 in China. These amounts also allow us to maintain consistent redistribution steps across all countries, ensuring that spectators could always choose from seven possible income distributions.¹⁸

We collected the data in both countries through the panel provider Cint, with the sample being representative of the general population by gender, age, and region in France, and by gender and age in China.¹⁹ Further details about the implementation and data collection in France and China are provided in Appendix A.2.

As specified in the pre-analysis plan, the target sample size of 1,500 observations was set to detect approximately half of the market luck effect observed in the US. We collected data for France in July and August 2024, and for China in August and September 2024. We included Captcha verification and attention checks, and participants who failed the attention checks were excluded from the analysis. Our final sample sizes are 2,044 spectators for France and 1,530 spectators for China.²⁰

6.3 Results

Figure 5 shows the treatment effect for the market luck and effort treatments compared to the brute luck treatment across the US, France, and China.²¹ We find directionally consistent

¹⁸The possible income distributions were (6,0), (5,1), (4,2), (3,3), (2,4), (1,5), and (0,6) EUR in France, and (24,0), (20,4), (16,8), (12,12), (8,16), (4,20), and (0,24) CNY in China.

¹⁹We collected data from workers and buyers through Prolific from a US sample since we do not give specific information about the workers' and buyers' location in the spectators' instructions.

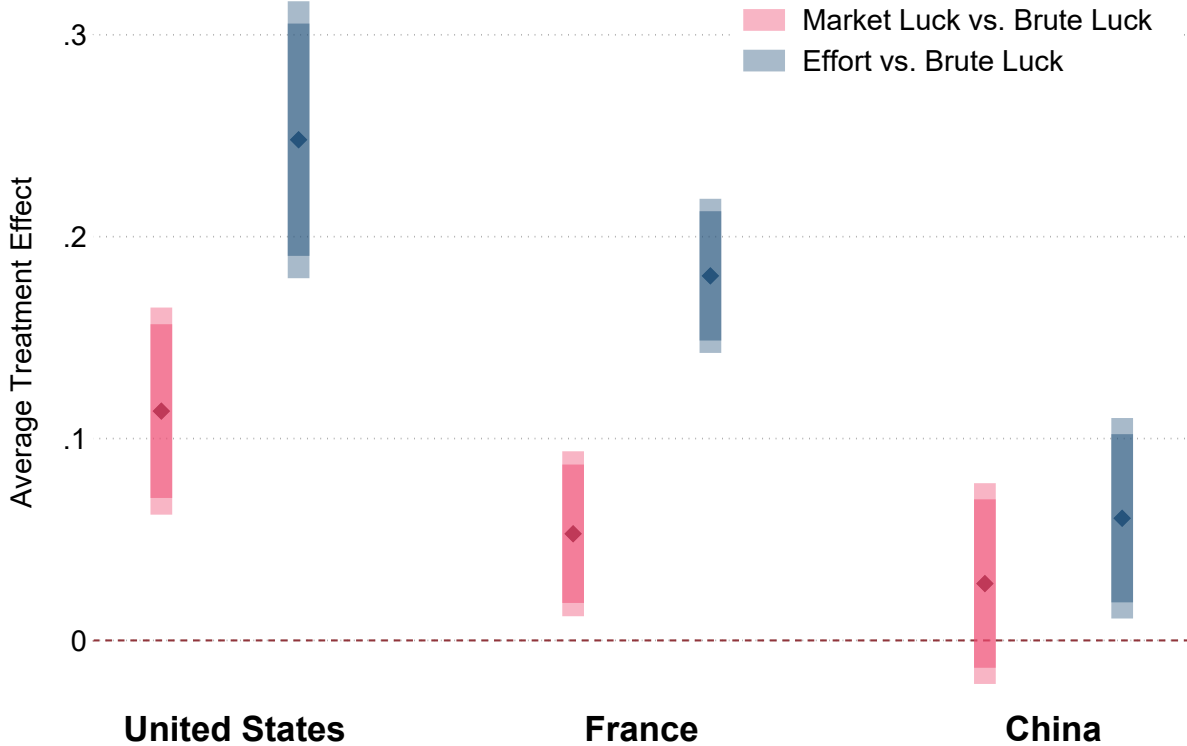
²⁰The France sample exceed the target sample size of 1,500 observations, as the survey company had to increase the sample size after failing to meet the representative demographic quotas after collecting 1,500 observations.

²¹Appendix Figure C.5 shows the levels of implemented inequality across the three countries. Histograms of the redistributive choices for each treatment are shown in Appendix Figure C.6 For France and in Appendix Figure C.7 for China. Regression results for France and China are presented in Appendix Table D.9 (columns

results across all three countries: the coefficient for the market luck treatment is always positive, and the coefficient for the effort treatment is larger than that for the market luck treatment. In other words, the ordering of implemented inequality is the same in all three countries (brute luck < market luck < effort). But the results also show that there are cross-country differences in the magnitude of treatment effects.

In France, we find a significant market luck effect, with a coefficient of 0.053 ($p = 0.011$). Spectators in France accept significantly higher levels of inequality driven by a market demand shock compared to brute luck, with an increase in implemented inequality of about 17%. The market luck coefficient is smaller in France than in the US ($p = 0.068$), which may reflect the different approaches to free markets and institutions between the two countries.

Figure 5: Treatment Effect on Implemented Inequality Across Countries



Notes: The figure shows the coefficients from bivariate regressions of implemented inequality on a treatment indicator for each respective treatment. In all regressions, the dependent variable is implemented inequality, with the brute luck treatment as the reference category. Regressions for the US include indicator variables for the data collection wave. Error bars indicate the 95% and 90% confidence interval. (US: $N = 1,045$; France: $N = 2,044$; China: $N = 1,530$)

1 and 4). Appendix Table D.9 further shows that these results are robust to controlling for the perceived randomness of the initial earnings (columns 2 and 5) and to restricting the sample to spectators who perceived the initial earnings as random (columns 3 and 6).

In China, we also observe positive coefficients for the market luck (0.028) and the effort treatments (0.061). Although we find a significant effect for the effort treatment ($p = 0.017$), the coefficient is much smaller in China than in France and the US. This reduces the scope to identify a market luck effect in China, and as a result, we do not find a significant market luck effect ($p = 0.267$). Appendix Figure C.5 shows that this is due to significantly higher baseline levels of inequality acceptance, which is consistent with findings from previous studies that document very high levels of inequality acceptance in China (Almas et al., 2021; Belguise et al., 2024). More broadly, however, there remains a significant upward trend in inequality acceptance across the three treatments in China (Cuzick $p = 0.015$).

Result 4. *The ordering of implemented inequality is the same across all three countries (brute luck < market luck < effort). In France, implemented inequality is significantly higher in the market luck treatment compared to the brute luck treatment. In China, there is a positive but non-significant difference between the brute luck and the market luck treatments. The market luck effect is most pronounced in the US.*

In summary, the results highlight cross-cultural differences in redistributive preferences across the US, France, and China. Similar to the US, we observe a market luck effect in France, where spectators accept significantly higher levels of inequality in the market luck treatment. In China, baseline inequality acceptance is already higher, and while implemented inequality is significantly greater when caused by effort rather than brute luck, we do not find a significant market luck effect. Although the cross-country comparison suggests that fairness views and redistributive preferences are sensitive to cultural differences and exposure to market institutions, we observe a broader trend of increasing inequality acceptance across the three treatments in all countries. Especially in Western societies, individuals appear to be consistently more accepting of inequalities arising from market shocks.

7 Survey Experiment

Our experimental approach to study fairness views has the advantage of a highly controlled setting, which allows for a clean identification and comparison across subject samples. However, one might question to what extent the acknowledgment of market luck as a fair source of entitlement generalizes to real-world market settings. To address this, we conduct a complementary survey experiment to elicit fairness views across different market scenarios.

The survey experiment was preregistered at the AEA RCT Registry (AEARCTR-0011869) and implemented in January 2024. We collected data from 801 subjects through the panel provider Prolific from a representative sample of the US population, cross-stratified on gender, age, and ethnicity.

7.1 Experimental Design

Subjects are shown different vignettes that describe the scenario of two similar (in terms of age, gender, and initial earnings) workers who experience an unequal income shock due to different structural changes, such as technological change, international trade, immigration, or a change in consumer taste.²² Subjects are told that these market shocks were completely unexpected and that these shocks lead to income differences between the two workers (i.e., higher or lower earnings for one of the two workers). Subjects then indicate whether they perceive such inequalities as fair or unfair. To benchmark their fairness views, we also present vignettes where inequality arises because of differences in brute luck and differences in effort. The different scenarios contained the following information:²³

Technological change: productivity gain. Income inequality between the two workers increases as technological innovations boost the productivity and, consequently, the earnings of one worker.

Technological change: productivity loss. Automation makes one worker less productive as some of the tasks can now be done by machines, which leads to lower earnings for this worker.

Trade. An unexpected increase in foreign imports decreases the earnings of one of the two workers.

Immigration. An influx of immigrants alters the workforce in the occupation of one worker, causing his earnings to decrease, while the other worker’s earnings remain unchanged.

Change in consumer taste. A change in the taste of consumers boosts the sales of the company of one worker, which leads to higher earnings for this worker.

Brute luck. Unlike the previous scenarios, in this case, the two workers have the same job but work at different branches of the same company. The company organizes a lottery to decide which branch will receive a pay raise.

Effort. The two workers have the same job but work for different companies. Because one works harder than the other, she receives a pay raise.

Each subject was shown a random selection of three vignettes and asked to indicate, on a 7-point Likert scale (0: completely unfair, 6: completely fair), whether they think it is fair or unfair that one of the two workers now earns more than the other.

Anticipation of shocks. The market shocks are deliberately characterized as completely unexpected to establish and control subjects’ beliefs regarding the anticipation of

²²Each subject was shown three randomly selected vignettes. For each vignette, the gender of the workers was also randomized, with either both being male or both being female.

²³The complete survey instructions are shown in Appendix F.3.

such shocks. Subjects learn that the workers could not have foreseen these shocks, emphasizing that, from the workers' perspective, the shocks are exogenous and beyond their control. In reality, however, individuals might have beliefs about the predictability of such shocks which could influence their fairness views. For instance, if individuals think that workers should have foreseen advancements in automation and its impact on their employment and income, they might be more inclined to accept income inequality resulting from automation. To examine the impact of anticipation on subjects' fairness views, we experimentally vary whether subjects are presented with vignettes where the market shocks are explicitly described as unexpected or vignettes where we do not explicitly state these market shocks were unexpected.

7.2 Results

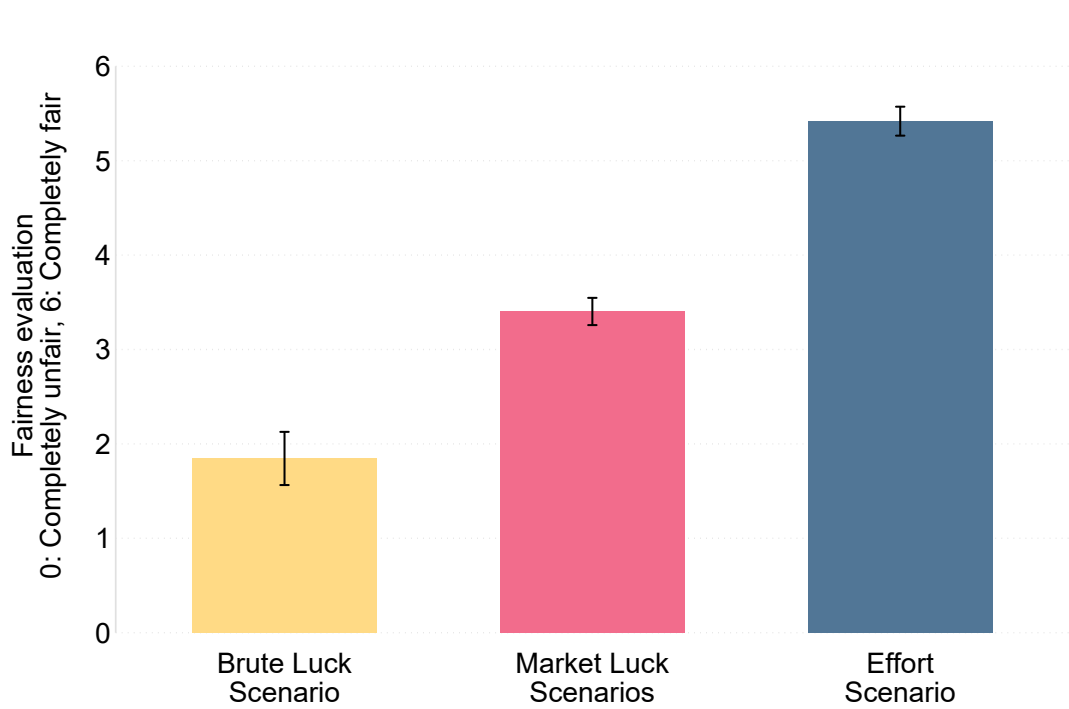
Panel (a) of Figure 6 shows the average fairness evaluation across all market luck scenarios and for the luck and effort scenario.²⁴ The pattern is strikingly similar to the results from the online experiment: Subjects view inequalities resulting from brute luck as highly unfair (mean rating = 1.85), while those arising from differences in effort are considered very fair (mean rating = 5.42). Furthermore, subjects are more accepting of inequalities if they arise due to market shocks compared to brute luck (mean rating = 3.40). We made clear to the subjects that workers do not differ in their effort and performance (except for the effort scenario), meaning that the source of inequality is completely outside the control of the workers for both the brute luck scenario and the market shock scenarios. The average fairness evaluation in the market scenarios even crosses the midpoint (3: 'neither fair nor unfair'), implying that, on average, subjects perceive income differences in the market scenarios as fair.

Panel (b) of Figure 6 reveals that there are significant differences in fairness evaluations across the different market scenarios.²⁵ Income differences due to a gain in productivity resulting from innovations (Scenario 5) or changes in consumer taste (Scenario 6) are perceived as considerably fairer than income differences due to immigration (Scenario 2), automation (Scenario 3), or trade (Scenario 4). Interestingly, income differences in Scenarios 2, 3, and 4 occur due to earnings losses for one of the two workers, whereas income differences in Scenarios 5 and 6 stem from increases in earnings for one worker. This finding suggests that individuals tend to view inequalities as fairer when a market shock benefits some workers, as opposed to cases where the market shock negatively impacts certain workers. This

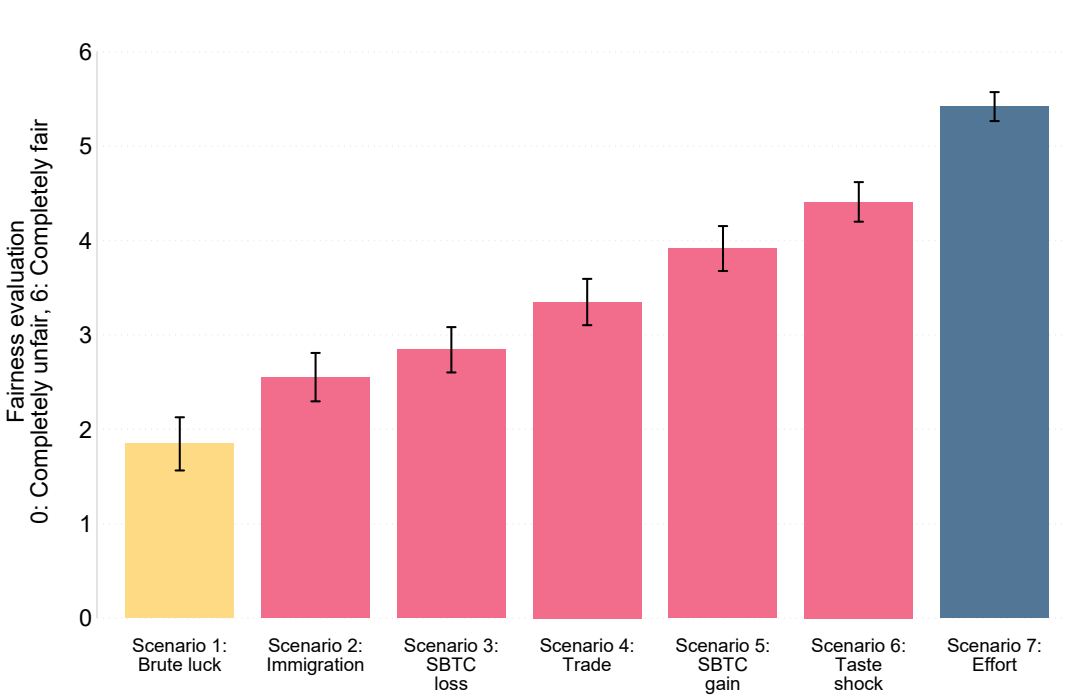
²⁴Appendix Figure C.8 shows the histograms of the fairness evaluation for each scenario separately.

²⁵Appendix Table D.11 shows that the fairness evaluations for the market shocks are, in almost all cases, strongly correlated.

Figure 6: Fairness Evaluation of Market Luck, Luck and Effort Scenarios



(a) Average across market luck scenarios



(b) Separate market luck scenarios

Notes: The figure shows the fairness evaluations. Panel (a) shows the average fairness evaluation across all different market luck scenarios. Panel (b) shows the fairness evaluations for each market luck scenario separately. Error bars indicate the 95% confidence intervals.

may indicate that people exhibit a form of loss aversion in their fairness views.²⁶ An alternative interpretation is that market shocks in Scenarios 5 and 6 increase the value of the worker’s skill to firms or customers, thus creating gains for others, which is consistent with the mechanism identified in the online experiment. Appendix Figure C.9 shows that the average fairness evaluation across market scenarios with a gain framing is significantly higher than across market scenarios with a loss framing. This finding also has important policy implications, suggesting that policies specifically targeting those most negatively affected by economic shocks may garner more support than broader, general welfare policies.

However, income differences in all market scenarios are perceived as significantly fairer than those in the brute luck scenario. Regression results in Appendix Table D.10 confirm that the corresponding coefficients are statistically significant when fairness evaluations are regressed on indicators for the different scenarios, using the brute luck scenario as the reference category. This result remains robust when controlling for subjects’ background characteristics as well as their market attitudes and experiences.

Finally, results shown in Appendix Figure C.10 indicate that the anticipation of market shocks does not significantly affect individuals’ fairness views. We do not find significant differences in fairness evaluations when varying the explicit mention of the shock being completely unexpected. These results suggest that subjects do not factor in whether shocks are anticipated or not when forming their fairness views.

Result 5. *Individuals perceive real-world income inequalities between workers that are caused by exogenous market shocks as significantly fairer than inequalities that are due to brute luck. Market shocks that create gains are perceived as fairer than market shocks that create losses, whereas the anticipation of market shocks has no significant effect on fairness views.*

Result 5 is in line with the evidence from the online experiment showing that market shocks increase the acceptance of inequalities caused by external factors and confirms that our findings extend to more real-life scenarios. Overall, findings from both the online experiment and survey experiments suggest that people perceive inequalities arising from market luck as fair.

8 Support for Social Welfare Policies

Can the experimental measures of fairness views also predict individuals’ attitudes toward real-world policies? To explore the predictive power of our experimental measures of fairness

²⁶Kahneman et al. (1986) also find asymmetries between gains and losses in fairness judgments regarding firm behavior. They find that actions of firms are perceived as more unfair if they cause losses for consumers or employees than if they reduce potential gains.

views, we elicited subjects’ support for a wide range of social welfare policies at the end of both experiments conducted in the US. We included questions about i) redistributive policies, such as a higher top income tax rate, a wealth tax, an estate tax, an increase of unemployment benefits, and a universal basic income; ii) predistributive policies, such as an increase in the minimum wage, an employment bill, and a stronger position of unions; and finally, iii) policies that specifically address market shocks, such as a robot tax, retraining and income support for workers in declining industries, and restrictions to immigration and foreign imports to protect domestic jobs. For each policy, subjects could indicate their opposition or support on a 5-point scale (0:strongly oppose, 4: strongly support).²⁷ We create indices for each of the three policy domains using the first principal component of all policies in that domain and standardize the indices to have a mean of zero and a standard deviation of one.

We conduct two different exercises to assess the predictive power of our experimental measure of redistributive preferences. First, we regress the indices of policy support on implemented inequality separately for the brute luck, market luck, and effort treatment, controlling for the spectators’ background characteristics and wave fixed effects. This exercise provides an indication of how predictive our measure of redistributive preferences is for policy support, beyond a subject’s characteristics such as age, gender, ethnicity, income, education, or political affiliation.

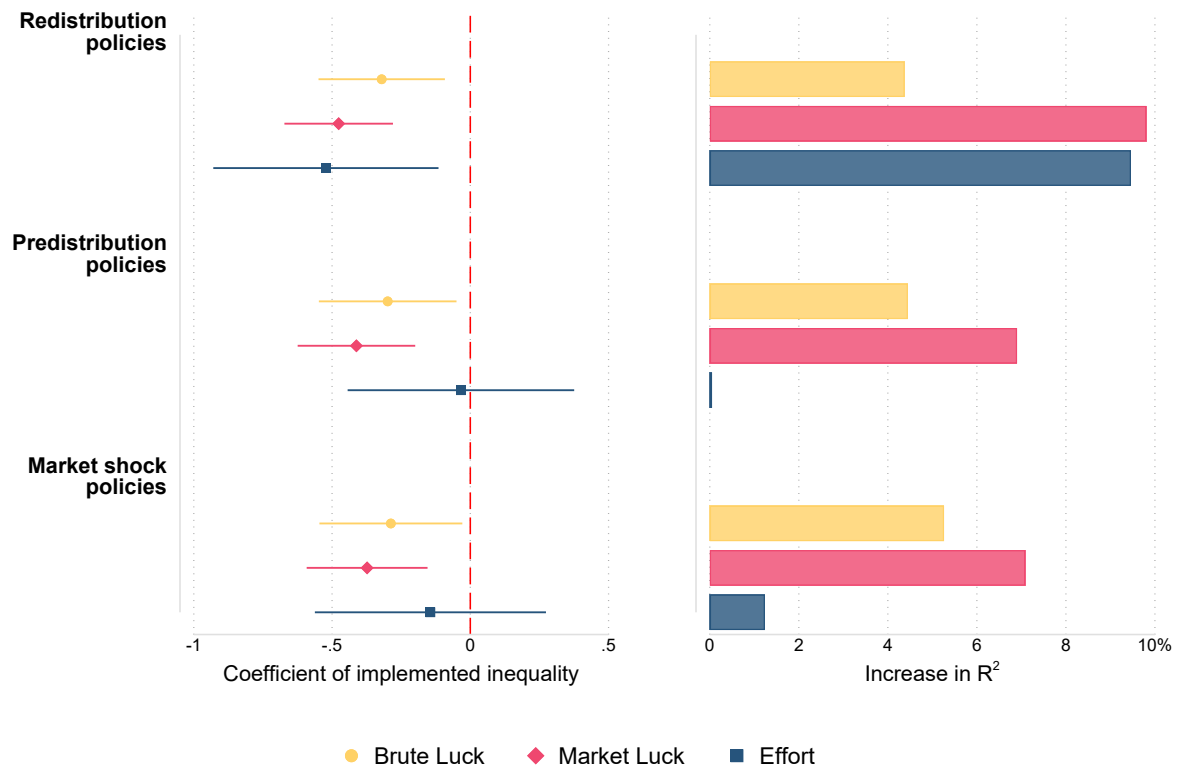
The left panel of Figure 7 reports the coefficients of these regressions and shows that implemented inequality in the market luck treatment is significantly correlated with the subjects’ support for social welfare policies across all domains ($p < 0.001$).²⁸ The coefficients suggest that a shift in redistributive choices from complete equality to complete inequality in the market luck treatment reduces support for social welfare policies by almost half a standard deviation. The coefficient for the brute luck treatment is also significant across all policy domains ($p < 0.029$), whereas the coefficient for the effort treatment is only significant for the index of redistribution policies ($p = 0.012$).

Second, we calculate the increase in the R-squared statistic to determine how much additional variation in policy support is explained by our measure of redistributive preferences. We calculate by how much percent the R-squared increases when we add our experimental measure of redistributive preferences to the regression model including controls. The right panel of Figure 7 shows the increase in the R-squared for our measure of redistributive preferences when predicting support for different social welfare policies. In the market luck treatment, adding the measure of redistributive preferences increases the R-squared by 7-10

²⁷Appendix Figures C.11, C.12, and C.13 show histograms of policy support for subjects in the US online experiment, and Appendix Figures C.15, C.16, and C.17 show histograms of policy support for subjects in the survey experiment.

²⁸Appendix figure C.14 shows the results for each policy item separately.

Figure 7: Correlation of implemented inequality and support for policies in online experiment



Notes: This figure shows results from the online experiment. The left panel shows the coefficient of regressing a policy index on implemented inequality, separately by treatment. The indices for each of the three policy domains are the first principal component of all policies in that domain and are standardized to have a mean of zero and a standard deviation of one. All regressions include controls for spectator characteristics and wave fixed effects as specified in Table 2. Error bars indicate the 95% confidence interval. The right panel shows the increase in the R-squared when including the experimental measure of redistributive preferences, given the other explanatory variables in the regression.

percent across all policy domains (with R-squared values ranging from 32 to 38 percent in the corresponding baseline regressions).

Result 6. *The experimental measure of redistributive preferences in the market luck treatment has significant predictive power for individuals’ support for social welfare policies.*

In terms of magnitude, the coefficient for implemented inequality is on average the largest in the market luck treatment across all policies. Furthermore, across all policy domains, our measure of redistributive preferences increases the R-squared the most in the market luck treatment. This suggests that the market luck treatment might offer a more accurate depiction of the source of income inequality in reality than either the brute luck or effort treatment, thereby also bolstering the external validity of our experimental paradigm.

Using the same approach, we examine whether fairness evaluations in the brute luck and effort scenarios, as well as the average fairness rating across all market scenarios, predict support for different types of welfare policies in the survey experiment.²⁹ The results, presented in Appendix Figure C.18, closely mirror the findings from the online experiment: fairness views in the market scenarios significantly predict support for social welfare policies.³⁰ Fairness views in the market scenarios are particularly predictive of support for market shock policies, increasing the R-squared by more than 18 percentage points. This may reflect a closer alignment between the context in which fairness views are elicited and the nature of the market shock policies.

Taken together, the findings from both experiments indicate that fairness views elicited in a market context are the most predictive of support for social welfare policies.

9 Conclusion

Income inequalities between people with different skills are often determined by exogenous market mechanisms over which individuals have no control. For example, structural transformations, such as globalization and radical technological change, including automation and artificial intelligence, make certain skills obsolete while other skills earn even higher rewards. We refer to these causes of income inequality as market luck. In this paper, we study the trade-off that market-driven inequalities introduce for redistributive preferences. On the one hand, such inequalities may appear justified when higher rewards reflect greater productivity and the creation of more value for firms and consumers. On the other hand, according to

²⁹The wording of the policy descriptions is identical as in the online experiment, with the exception that we no longer included the survey item for the wealth tax.

³⁰Appendix Figure C.19 reports the results separately for each policy item.

widely held principles of meritocracy, inequalities are considered fair only when they arise from differences in individual effort, not from factors beyond individuals' control.

To examine whether people perceive inequalities arising from market luck as fair, we design an experiment in which exogenous shocks to market demand increase the value of certain skills, generating inequality between workers.

We collected data from nearly 2,000 third-party spectators in the US who decided how to redistribute earnings between two workers with unequal incomes. To identify the causal effect of market luck on inequality acceptance, we compare implemented inequality in the market luck treatment to a brute luck treatment, where inequality is determined by a simple coin flip. Crucially, in both treatments, inequality results from a random process, and both workers exert the same level of effort. If individuals adhere to conventional meritocratic fairness views, we would expect similar redistribution patterns across treatments. However, we hypothesize that market-driven inequalities, even if determined by external factors, increase spectators' inequality acceptance. To examine the cultural boundaries of our findings, we conduct additional large-scale experiments with over 3,500 spectators in France and China—two countries that differ significantly from the US in their approaches to the market economy, their institutions, and their historical experiences with free markets.

We find that people are more accepting of inequalities caused by market shocks—even when these are beyond individuals' control. In the US, implemented inequality increases by 50% in the market luck treatment compared to the brute luck treatment. Our cross-country comparison shows that implemented inequality is consistently larger in the market luck than in the brute luck treatment, but the magnitudes of treatment effects vary. A complementary survey experiment confirms that these patterns extend to real-world scenarios and supports the interpretation that people view it as fair when more productive skills receive higher rewards, even if market forces arbitrarily determine which skills are valuable.

These results suggest that the conventional dichotomy of effort versus luck falls short of explaining redistributive preferences in contexts where market forces beyond individual control generate and perpetuate inequality. This finding could help to further explain the rather muted demand for redistribution despite the stark increase in inequality that can be observed in many parts of the world (Ashok et al., 2015; Kenworthy and McCall, 2008; Kuziemko et al., 2015).

We identify a specific mechanism that increases individuals' inequality acceptance: workers are seen as more deserving if their work generates a profit for a third party—even when it is determined by luck that they are in a position to do so. This mechanism appears to play a key role in shaping attitudes toward inequality and redistribution, as redistributive behavior in the market luck treatment strongly predicts support for real-world social welfare policies.

Consistent with this finding, evidence from the survey experiment shows that people are more accepting of inequality when the gains to workers, firms, or consumers are salient—for example, through increased productivity—but perceive inequality as unfair when losses are emphasized. This suggests that policymakers may garner greater public support for programs targeting those most adversely affected by market shocks, such as retraining or income support for workers in declining industries, compared with broader, less targeted redistributive policies.

In this paper, we present a parsimonious experimental paradigm in which skills are assigned exogenously. While we interpret our results as a lower bound on inequality acceptance, future research could examine settings with endogenous skill acquisition where workers choose their skills under uncertainty in a dynamic environment. Such designs would allow researchers to study how human capital investments and the associated risks shape spectators’ fairness views. Our results also highlight the value generated by a worker’s output as an important driver of inequality acceptance. Future work could further investigate which forms of value creation—such as gains to firms, benefits to consumers, or contributions to society at large—are perceived as most deserving of higher incomes. More broadly, an important challenge is to deepen our understanding of when and why people accept inequalities arising from exogenous factors, also beyond market contexts, and to identify the specific mechanisms behind such acceptance.

References

- Acemoglu, Daron and Pascual Restrepo (2022) “Tasks, automation, and the rise in us wage inequality,” *Econometrica*, 90 (5), 1973–2016.
- Alesina, Alberto and Paola Giuliano (2011) “Preferences for redistribution,” in *Handbook of social economics*, 1, 93–131: Elsevier.
- Alesina, Alberto and Eliana La Ferrara (2005) “Preferences for redistribution in the land of opportunities,” *Journal of public Economics*, 89 (5-6), 897–931.
- Alesina, Alberto, Stefanie Stantcheva, and Edoardo Teso (2018) “Intergenerational mobility and preferences for redistribution,” *American Economic Review*, 108 (2), 521–54.
- Almas, Ingvid, Alexander W Cappelen, EO Sorensen, and Bertil Tungodden (2021) “Fairness across the World: Preferences and Beliefs.”
- Almås, Ingvid, Alexander W Cappelen, and Bertil Tungodden (2020) “Cutthroat capitalism versus cuddly socialism: Are Americans more meritocratic and efficiency-seeking than Scandinavians?” *Journal of Political Economy*, 128 (5), 1753–1788.
- Andre, Peter (2024) “Shallow meritocracy,” *Review of Economic Studies*, rdae040.
- Ashok, Vivekinan, Ilyana Kuziemko, and Ebonya Washington (2015) “Support for redistribution in an age of rising inequality: New stylized facts and some tentative explanations,” *Brookings Papers on Economic Activity*, 367–405.
- Autor, David and David Dorn (2013) “The growth of low-skill service jobs and the polarization of the US labor market,” *American economic review*, 103 (5), 1553–97.
- Bartling, Björn, Ernst Fehr, and Yagiz Özdemir (2020) “Does market interaction erode moral values?” *The Review of Economics and Statistics*, 1–32.
- Bartling, Björn, Roberto A Weber, and Lan Yao (2015) “Do markets erode social responsibility?” *The Quarterly Journal of Economics*, 130 (1), 219–266.
- Belguise, Margot, Yuchen Huang, and Zhexun Mo (2024) “The Non-Meritocrats or Conformist Meritocrats? A Redistribution Experiment in China and France,” *Working Paper*.
- Benabou, Roland and Jean Tirole (2006) “Belief in a just world and redistributive politics,” *The Quarterly journal of economics*, 121 (2), 699–746.

- Bhattacharya, Puja and Johanna Mollerstrom (2022) “Lucky to Work,” *Working paper*.
- Bolton, Gary E and Axel Ockenfels (2000) “ERC: A theory of equity, reciprocity, and competition,” *American economic review*, 91 (1), 166–193.
- Cappelen, Alexander, Yiming Liu, Hedda Nielsen, and Bertil Tungodden (2024) “Fairness in a Society of Unequal Opportunities.”
- Cappelen, Alexander W, Astri Drange Hole, Erik Ø Sørensen, and Bertil Tungodden (2007) “The pluralism of fairness ideals: An experimental approach,” *American Economic Review*, 97 (3), 818–827.
- Cappelen, Alexander W, James Konow, Erik Ø Sørensen, and Bertil Tungodden (2013) “Just luck: An experimental study of risk-taking and fairness,” *American Economic Review*, 103 (4), 1398–1413.
- Cappelen, Alexander W, Johanna Mollerstrom, Bjørn-Atle Reme, and Bertil Tungodden (2022) “A meritocratic origin of egalitarian behaviour,” *The Economic Journal*, 132 (646), 2101–2117.
- Cohn, Alain, Lasse J Jessen, Marko Klašnja, and Paul Smeets (2023) “Wealthy Americans and redistribution: The role of fairness preferences,” *Journal of Public Economics*, 225, 104977.
- Cruces, Guillermo, Ricardo Perez-Truglia, and Martin Tetaz (2013) “Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment,” *Journal of Public Economics*, 98, 100–112.
- Dong, Lu, Dong Huang, and Jaimie Lien (2022) ““They Never Had a Chance”: Unequal Opportunities and Fair Redistributions,” *Working paper*.
- Durante, Ruben, Louis Putterman, and Joël Van der Weele (2014) “Preferences for redistribution and perception of fairness: An experimental study,” *Journal of the European Economic Association*, 12 (4), 1059–1086.
- Epper, Thomas (R) Ernst Fehr (R) Julien Senn (2020) “Other-regarding preferences and redistributive politics,” Technical report, Working Paper.
- Falk, Armin and Nora Szech (2013) “Morals and markets,” *science*, 340 (6133), 707–711.
- Fehr, Dietmar, Johanna Mollerstrom, and Ricardo Perez-Truglia (2022) “Your place in the world: Relative income and global inequality,” *American Economic Journal: Economic Policy*, 14 (4), 232–268.

- Fehr, Dietmar and Martin Vollmann (2022) “Misperceiving economic success: Experimental evidence on meritocratic beliefs and inequality acceptance,” *CESifo Working Paper*.
- Fehr, Ernst and Klaus M Schmidt (1999) “A theory of fairness, competition, and cooperation,” *The quarterly journal of economics*, 114 (3), 817–868.
- Fisman, Raymond, Pamela Jakiela, and Shachar Kariv (2017) “Distributional preferences and political behavior,” *Journal of Public Economics*, 155, 1–10.
- Frank, Robert H (2016) *Success and luck: Good fortune and the myth of meritocracy*: Princeton University Press.
- Gallup (2022) “Average American Remains OK for Higher Taxes on Rich,” *Gallup*, August 12, 2022, <https://news.gallup.com/opinion/polling-matters/396737/average-american-remains-higher-taxes-rich.aspx>, Accessed: 2024-07-15.
- Goos, Maarten, Alan Manning, and Anna Salomons (2014) “Explaining job polarization: Routine-biased technological change and offshoring,” *American economic review*, 104 (8), 2509–26.
- Guardian (2023) “AI is Coming for Our Jobs. Could Universal Basic Income Be the Solution?,” <https://www.theguardian.com/global-development/2023/nov/16/ai-is-coming-for-our-jobs-could-universal-basic-income-be-the-solution>, Accessed: 2024-09-23.
- Haaland, Ingar, Christopher Roth, Stefanie Stantcheva, and Johannes Wohlfart (2024) “Measuring what is top of mind,” *Harvard University Working Paper*.
- Harrs, Sören and Maj-Britt Sterba (2023) “Fairness and Support for Welfare Policies,” *Working Paper*.
- Henrich, Joseph (2020) *The WEIRDest People in the World: How the West Became Psychologically Peculiar and Particularly Prosperous*, New York: Farrar, Straus and Giroux.
- Henrich, Joseph, Steven J Heine, and Ara Norenzayan (2010) “The weirdest people in the world?” *Behavioral and brain sciences*, 33 (2-3), 61–83.
- Hvidberg, Kristoffer B, Claus Kreiner, and Stefanie Stantcheva (2023) “Social Positions and Fairness Views on Inequality,” *Review of Economic Studies*.
- Kahneman, Daniel, Jack L Knetsch, and Richard Thaler (1986) “Fairness as a constraint on profit seeking: Entitlements in the market,” *The American economic review*, 728–741.

- Karadja, Mounir, Johanna Mollerstrom, and David Seim (2017) “Richer (and holier) than thou? The effect of relative income improvements on demand for redistribution,” *Review of Economics and Statistics*, 99 (2), 201–212.
- Kenworthy, Lane and Leslie McCall (2008) “Inequality, public opinion and redistribution,” *Socio-Economic Review*, 6 (1), 35–68.
- Kerschbamer, Rudolf and Daniel Müller (2020) “Social preferences and political attitudes: An online experiment on a large heterogeneous sample,” *Journal of Public Economics*, 182, 104076.
- Kuziemko, Ilyana, Michael I Norton, Emmanuel Saez, and Stefanie Stantcheva (2015) “How elastic are preferences for redistribution? Evidence from randomized survey experiments,” *American Economic Review*, 105 (4), 1478–1508.
- Marechal, Michel (R) Alain Cohn (R) Jeffrey Yusof (R) Raymond Fisman (2023) “Whose preferences matter for redistribution: Cross-country evidence,” *NBER Working Paper*.
- Moll, Benjamin, Lukasz Rachel, and Pascual Restrepo (2022) “Uneven growth: automation’s impact on income and wealth inequality,” *Econometrica*, 90 (6), 2645–2683.
- Mongin, Philippe (2001) “The Impartial Observer Theorem of Social Ethics,” *Economics and Philosophy*, 17 (2), 147–179, 10.1017/s0266267101000219.
- Nathan, Brad C, Ricardo Perez-Truglia, and Alejandro Zentner (2024) “Paying Your Fair Share: Perceived Fairness and Tax Compliance,” *National Bureau of Economic Research Working Paper*.
- NBC News (2022) “Thousands of workers have lost access to trade assistance weeks after Congress allowed it to expire,” <https://www.nbcnews.com/news/us-news/thousands-workers-lost-access-trade-assistance-weeks-congress-rcna34574>, Accessed: 2024-09-23.
- New York Times (2022) “America’s Safety Net for Workers Hurt by Globalization Is Falling Apart,” <https://www.nytimes.com/2022/07/20/business/economy/trade-adjustment-assistance-jobs.html>, Accessed: 2024-09-23.
- OECD (2022) “Income inequality (indicator),” <https://data.oecd.org/inequality/income-inequality.htm>, Accessed: 2023-11-02.
- OECD (2024) “Public spending on labour markets,” <https://data.oecd.org/socialexp/public-spending-on-labour-markets.htm>, Accessed: 2024-06-12.

Perez-Truglia, Ricardo and Jeffrey Yusof (2024) “Billionaire Superstar: Public Image and Demand for Taxation,” *National Bureau of Economic Research*.

Petrova, Maria, Gregor Schubert, Bledi Taska, and Pinar Yildirim (2024) “Automation, Career Values, and Political Preferences,” *National Bureau of Economic Research Working Paper*.

Pew Research Center (2014) “Emerging and Developing Economies Much More Optimistic than Rich Countries about the Future,” <https://www.pewresearch.org/global/2014/10/09/emerging-and-developing-economies-much-more-optimistic-than-rich-countries-about-the-future/>, Accessed: 2024-09-19.

——— (2020) “70% of Americans Say U.S. Economic System Unfairly Favors the Powerful,” *Pew Research Center, January 9, 2020*, <https://www.pewresearch.org/short-reads/2020/01/09/70-of-americans-say-u-s-economic-system-unfairly-favors-the-powerful/>, Accessed: 2024-07-15.

Preuss, Marcel, Germán Reyes, Jason Somerville, and Joy Wu (2022) “Inequality of Opportunity and Income Redistribution,” *Working paper*.

Saez, Emmanuel and Stefanie Stantcheva (2016) “Generalized social marginal welfare weights for optimal tax theory,” *American Economic Review*, 106 (01), 24–45.

Sandel, Michael J (2012) *What money can’t buy: the moral limits of markets*: Macmillan.

——— (2020) *The tyranny of merit: What’s become of the common good?*: Penguin UK.

Stantcheva, Stefanie (2021) “Understanding tax policy: How do people reason?” *The Quarterly Journal of Economics*, 136 (4), 2309–2369.

Wall Street Journal (2020) “The ‘Robot Tax’ Debate Heats Up,” <https://www.wsj.com/articles/the-robot-tax-debate-heats-up-11578495608>, Accessed: 2024-09-23.

Zitelmann, Rainer (2023) “Attitudes towards capitalism in 34 countries on five continents,” *Economic Affairs*, 43 (3), 353–371.

Appendices

A Data Collection

A.1 US Sample

We specified in the pre-analysis plan that we collect data in two waves. Data collection for wave 1 took place in August 2023. We collected data from 600 spectators for the brute luck, market luck, and effort benchmark treatment. As only 10% of the spectators are matched with a worker pair, we recruited 120 workers and 30 buyers through Prolific. We specified in the pre-analysis plan that we would implement data collection in wave 2 conditional on the results of wave 1. Since we found a significant effect of the market luck treatment in wave 1 (see column 1) and 2) of Appendix Table D.1), we collected data for the mechanism and the robustness treatment in wave 2 in September 2023. We chose sample sizes for these treatments such that it would allow us to detect half of the main treatment effect from wave 1 at the conventional level of significance (5%) and power (80%), as we expected the treatment effect of the mechanism to be smaller. We therefore collected data from about 450 spectators in the mechanism treatment and the robustness treatment. We further replicated the brute luck and the market luck treatment with about 250 spectators per treatment in wave 2 in order to have similar sample sizes for these four treatments across both waves of data collection. In addition, we recruited 150 buyers and 285 workers in wave 2.

We also specified in the pre-analysis plan that we would pool the data from wave 1 and wave 2 for the analysis if the implemented inequality in the brute luck and the market luck treatment are not statistically different from each other. The implemented inequality in the brute luck treatment was very similar across the two waves (Mann-Whitney $p = 0.851$), whereas implemented inequality in the market luck treatment was slightly lower in wave 2 but not significantly different from wave 1 (Mann-Whitney $p = 0.195$). As shown in column 3) and 4) of Appendix Table D.1, we find a significant effect of the market luck treatment also in wave 2. We, therefore, pooled the data and excluded spectators with a completion time that deviated by more than two standard deviations from the mean completion time, as specified in the pre-analysis plan. Table D.2 gives an overview of the final sample, reporting the background characteristics of the spectators for each treatment.

A.2 France and China Sample

Data collection in France and China was conducted by the panel provider Cint. As specified in the pre-analysis plan, the target sample size of 1,500 observations was set to detect approximately half of the market luck effect observed in the US. The survey instructions for the three treatments — brute luck, market luck, and effort — were identical to the original instructions used in the US experiment. Additionally, we included country-specific demographic questions and survey items to assess fairness beliefs and attitudes toward the free market economy. To ensure high-quality translations, we employed forward and backward translation and hired professional translators via the online freelancing platform Upwork. In the final step, we had several native speakers test the survey and revised the instructions based on their feedback.

We collected data for France in July and August 2024, using demographic quotas for gender, age, and region to make the sample more representative of the general population. After excluding participants who failed the attention check, the final sample consisted of 2,044 spectators. The final number of observations exceeds the target sample size, as the survey company had to increase the sample after initially failing to meet the representative demographic quotas with 1,500 observations. Appendix Table D.7 provides information on the characteristics of the spectators in the French sample. The share of spectators with a gross household income above EUR 50,000 is about 30% and the share of spectators with a college degree is relatively large (58%).

Data for China was collected in August and September 2024. After excluding participants who failed the attention check, the final sample consisted of 1,530 spectators. We applied demographic quotas for gender and age to make the sample more representative of the general population. However, Appendix Table D.8 shows that a large proportion of Chinese subjects reported an income above CNY 100,000 (60%), and almost all subjects have a college degree (93%). Therefore, the China sample appears to be highly selective, consisting mostly of individuals with a high socioeconomic status.

B Analysis of Open-Ended Responses

To gain deeper insight into the considerations driving participants’ redistributive choices in the online experiment, we asked them to briefly describe the reasoning behind their decisions in response to an open-ended question presented immediately after their redistribution choice (e.g., Haaland et al., 2024).

We analyzed the responses to the open-ended question in two steps. First, we defined two potential answer categories corresponding to the channels we aimed to study. Our primary

goal was to determine whether subjects redistributed earnings between workers based on fairness considerations that accounted for the effort workers provided, or rather, based on fairness considerations that took into account the value of workers' output. To achieve this, we defined the two categories as follows:

Effort-based fairness: This rationale supports compensating workers based on the effort invested, advocating for equal pay when work input is comparable, regardless of the output's utility. This perspective values fairness in rewarding labor itself, emphasizing equity in effort over the end results.

Output-based fairness: This reasoning holds that a worker who produced a result of greater utility or value, regardless of equal effort, is more deserving of compensation. Here, merit is tied to the tangible impact or productivity of the worker's contribution, emphasizing the value of results over effort alone.

In the second step, we used a Large Language Model to classify each response into one of the two predefined categories, or an *Other* category if the response did not fit either category. We implemented this procedure separately for the brute luck and market luck treatments.

Figure C.4 shows the share of responses classified into each category for the two treatments. The results show that in the brute luck treatment, a significantly higher share of responses (63.7%) argued based on (equal) effort considerations compared to the market luck treatment (51.0%). Conversely, a significantly larger share of responses mentioned output-based considerations in the market luck treatment (16.5%) than in the brute luck treatment (4.3%). The share of answers classified into the 'Other' category is the same for both treatments.

These results support the interpretation that the market luck effect arises because the lucky worker's output, which generated a profit for the buyer, made the worker appear more deserving of the higher income.

C Figures

Figure C.1: Distribution of Spectator Decisions by Treatment

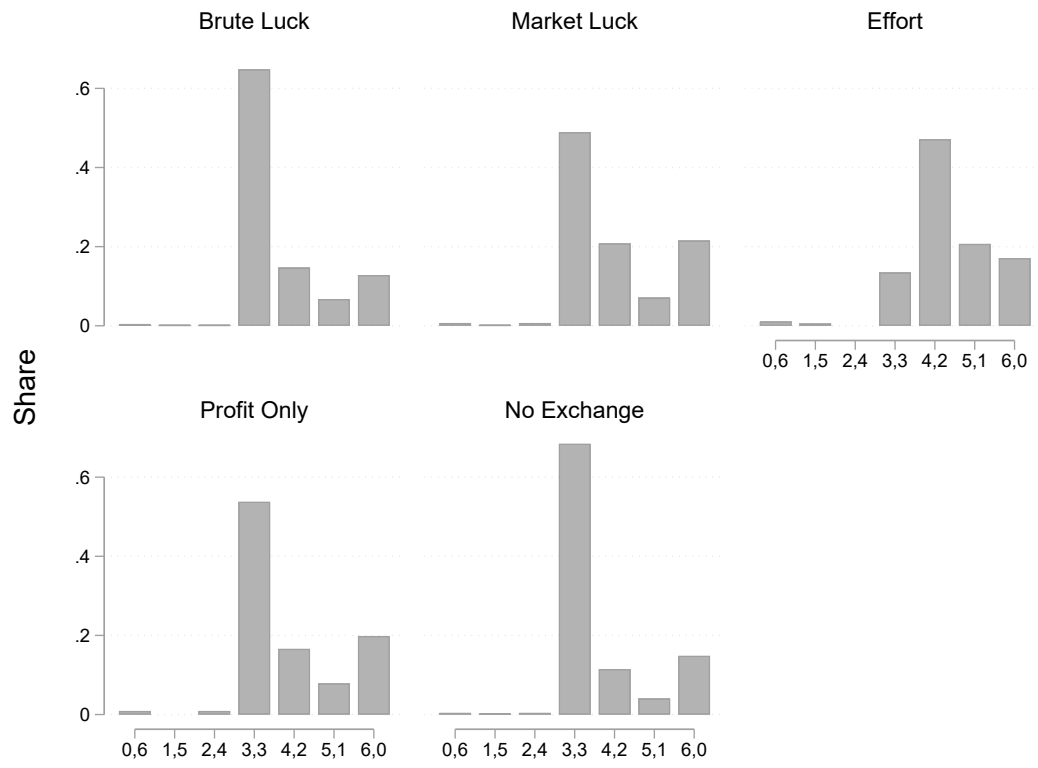
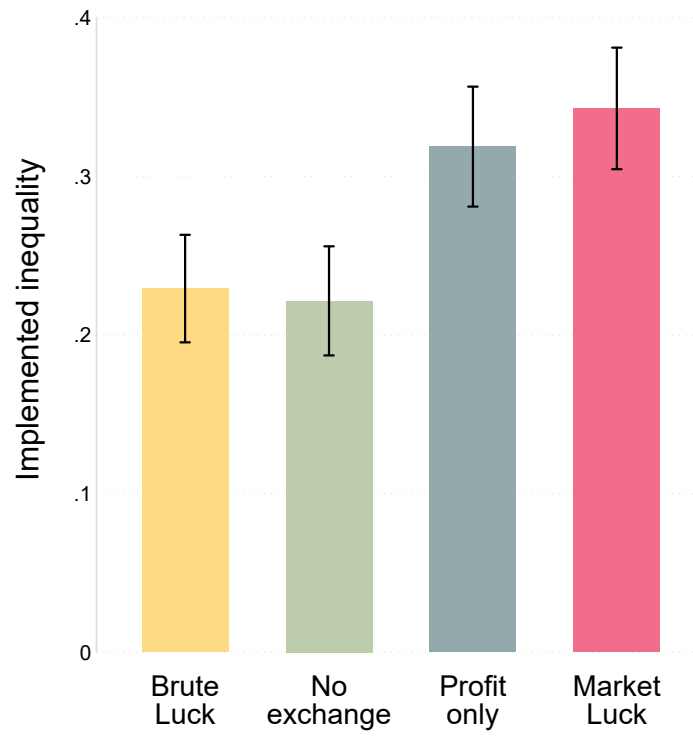
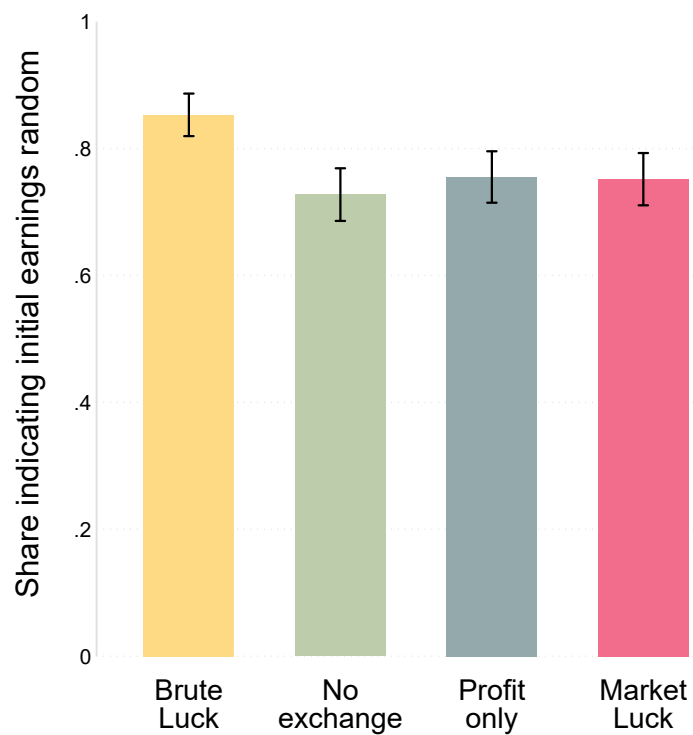


Figure C.2: Average Implemented Inequality in the Luck Treatments



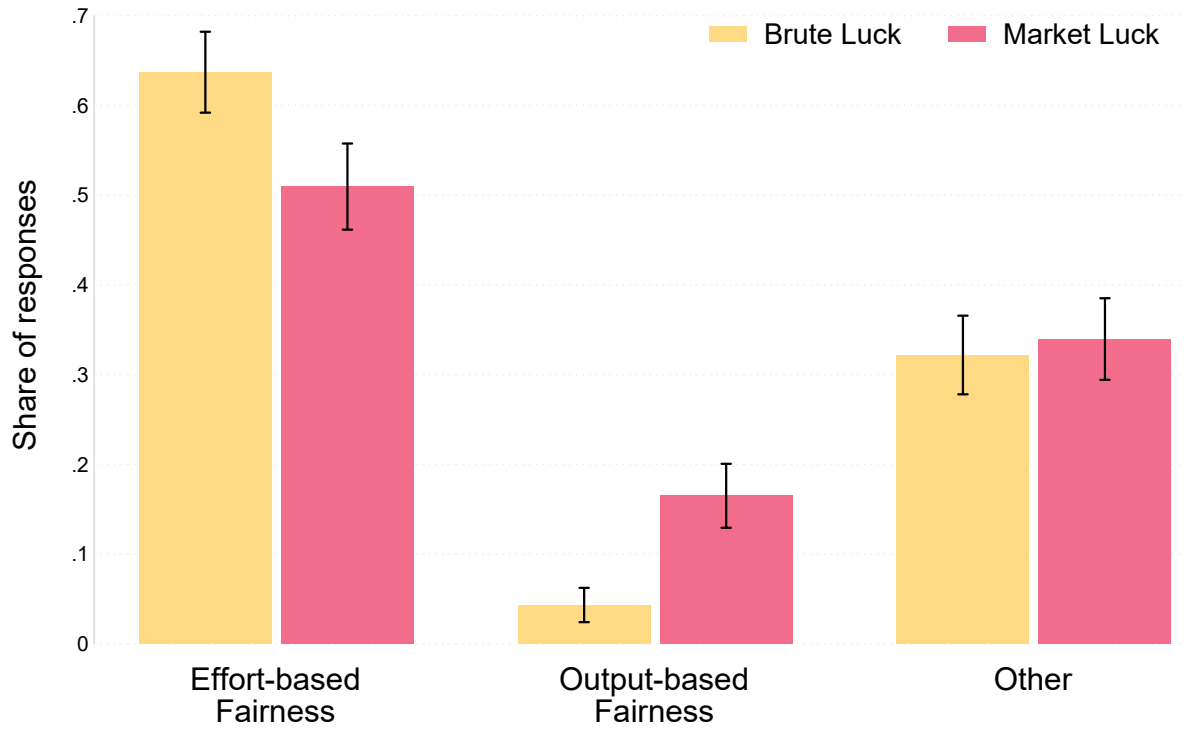
Notes: Error bars the indicate 95% confidence interval. (N = 1,729)

Figure C.3: Perceived Randomness of Initial Earnings



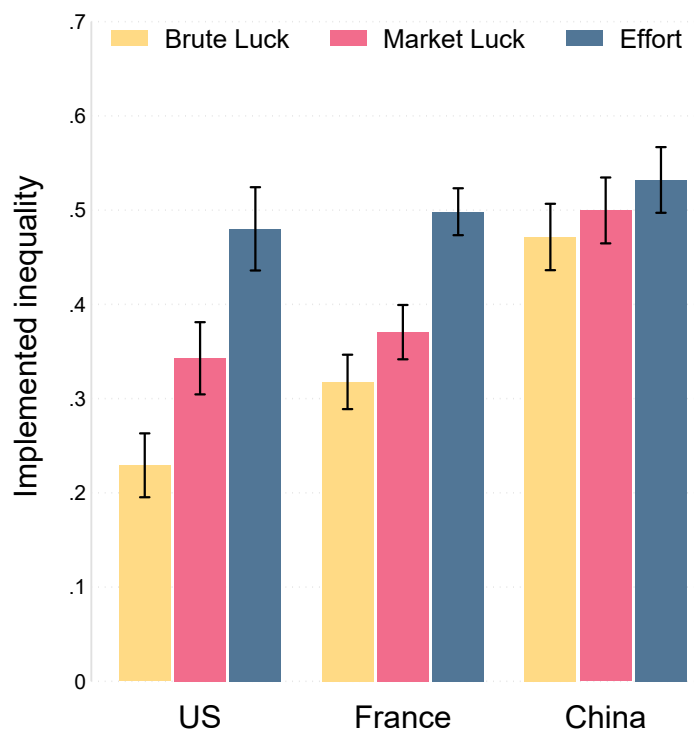
Notes: Error bars indicate the 95% confidence intervals. ($N = 1,729$)

Figure C.4: Analysis of Open-Ended Responses



Notes: This figure shows, for each treatment, the share of open-text responses classified into each corresponding category. Responses were coded with an LLM - see Section B for details. Error bars indicate the 95% confidence intervals.

Figure C.5: Average Implemented Inequality Across Countries



Notes: Error bars indicate the 95% confidence interval.
(US: N = 1,045; France: N = 2,044; China: N = 1,530)

Figure C.6: Distribution of Spectator Decisions by Treatment in France Sample

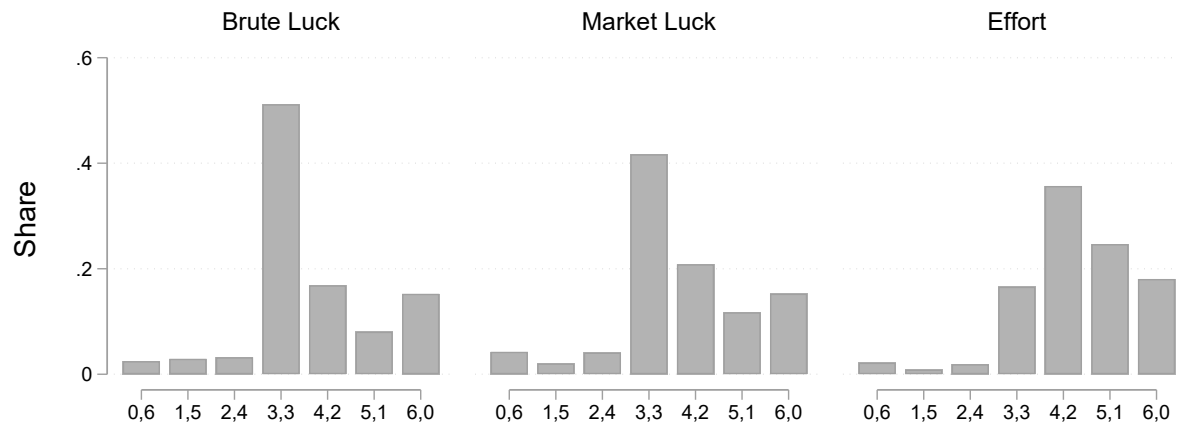


Figure C.7: Distribution of Spectator Decisions by Treatment in China Sample

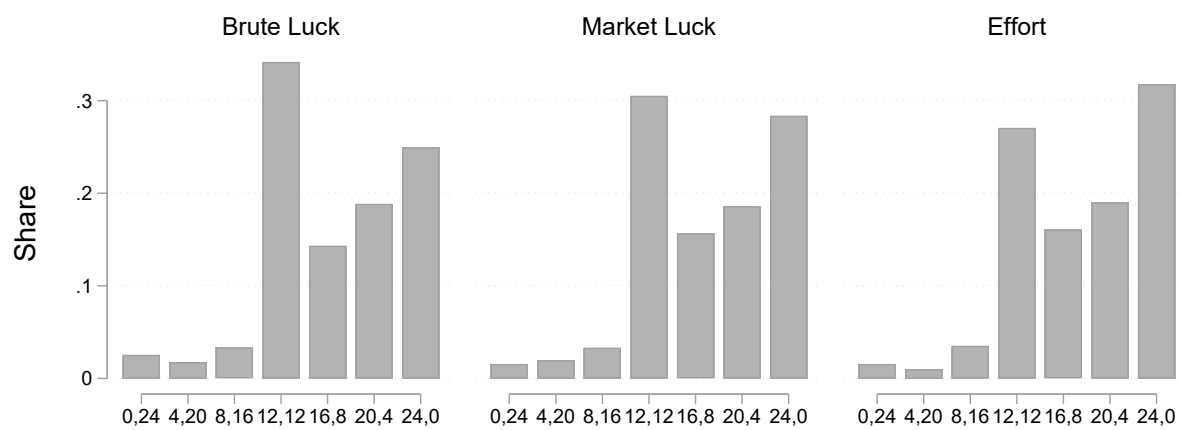
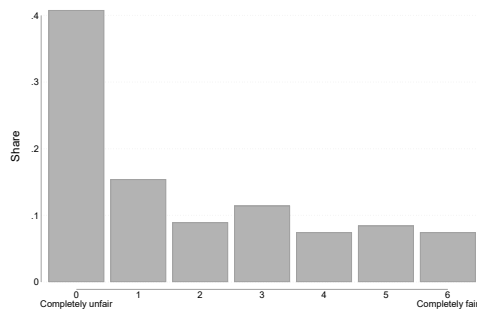
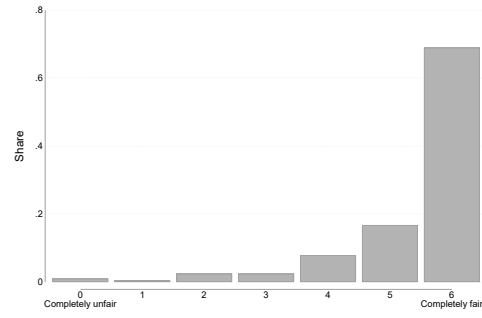


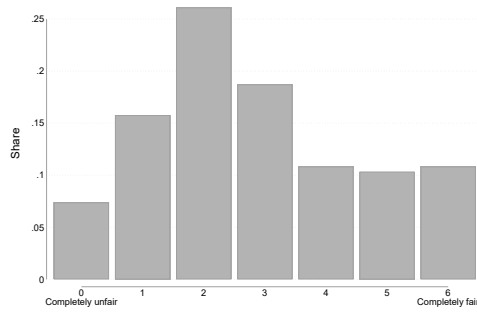
Figure C.8: Histogram of Fairness Evaluations by Scenario



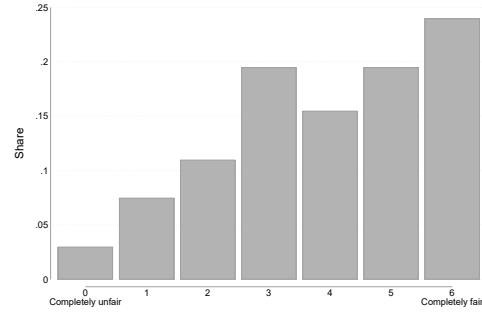
(a) Luck



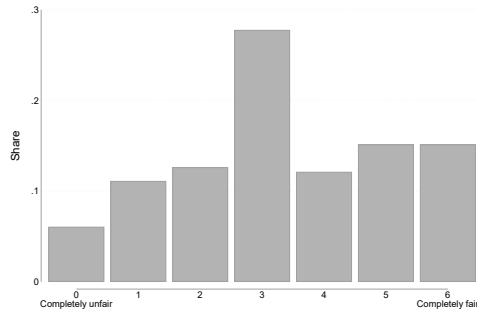
(b) Effort



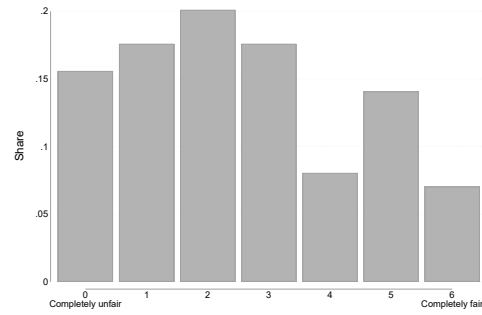
(c) SBTC loss



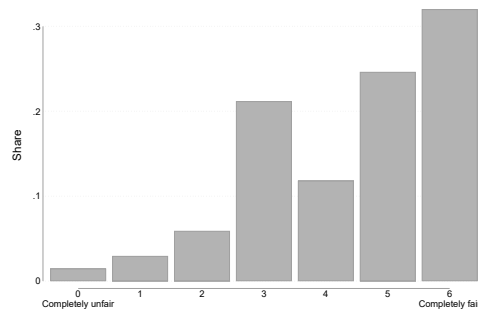
(d) SBTC gain



(e) Trade

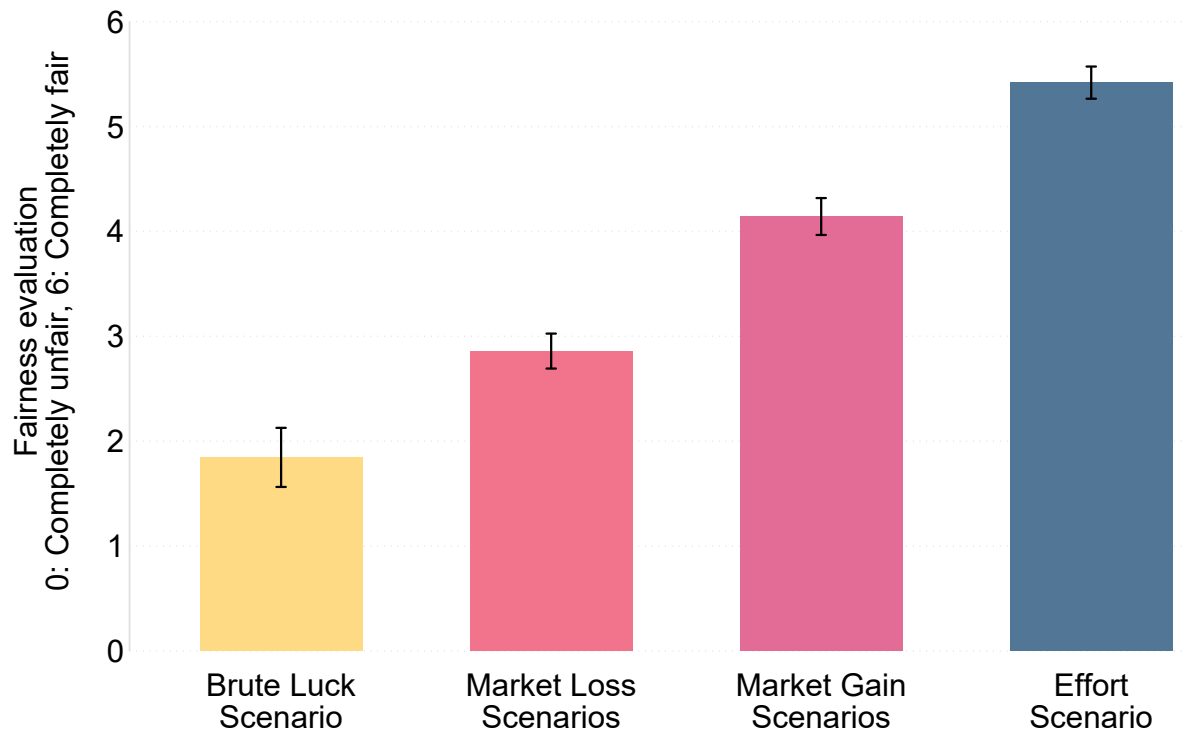


(f) Immigration



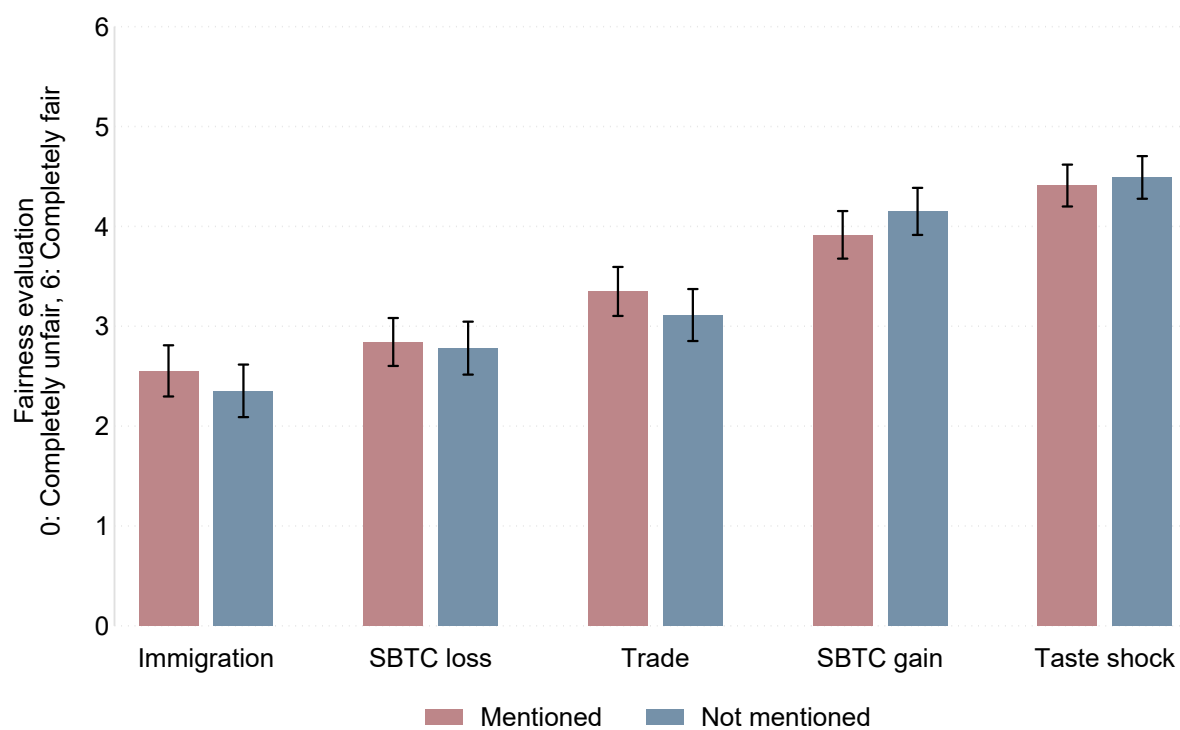
(g) Taste shock

Figure C.9: Average Fairness Evaluation in Gain and Loss Market Scenarios



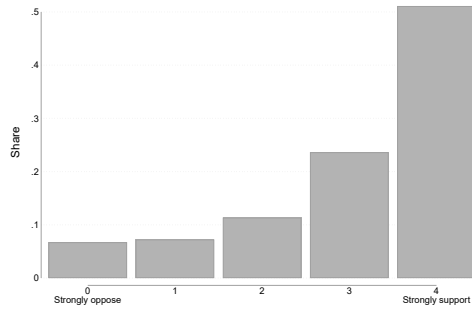
Notes: Error bars indicate the 95% confidence intervals.

Figure C.10: Anticipation of Market Shocks and Fairness Evaluations

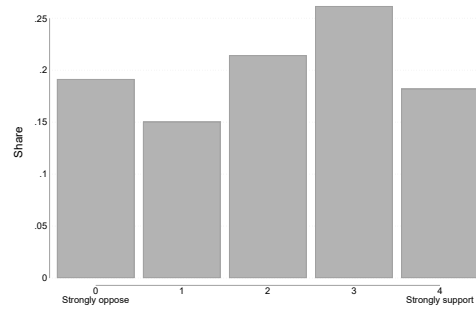


Notes: Error bars indicate the 95% confidence intervals.

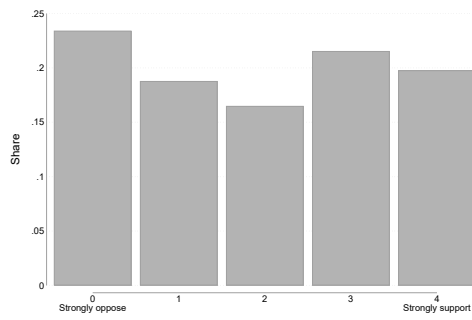
Figure C.11: Histogram of Support for Redistributive Policies in Online Experiment



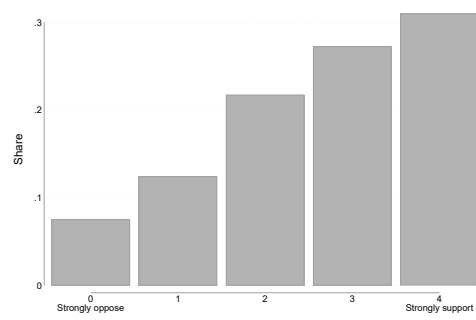
(a) Top Income Tax Rate



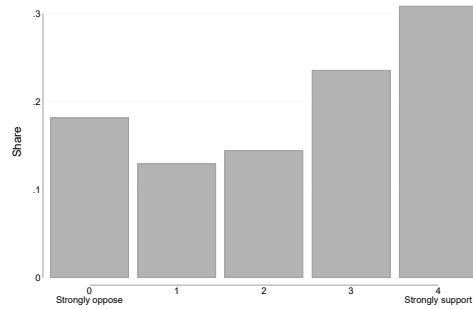
(b) Wealth Tax



(c) Estate Tax

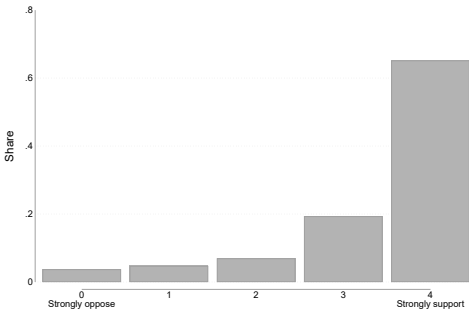


(d) Unemployment Benefits

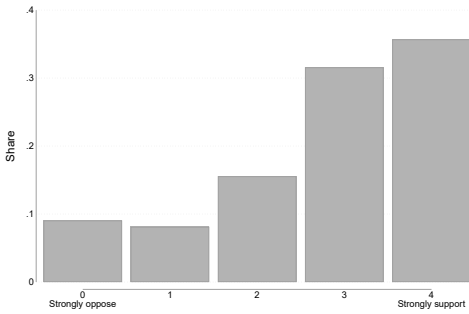


(e) Universal Basic Income

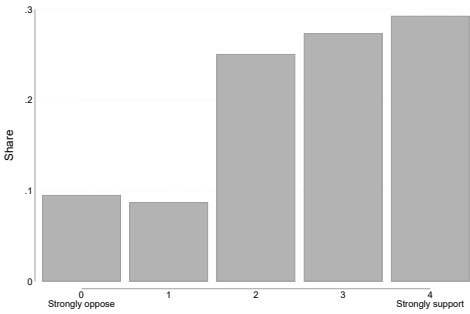
Figure C.12: Histogram of Support for Predistributive Policies in Online Experiment



(a) Minimum Wage

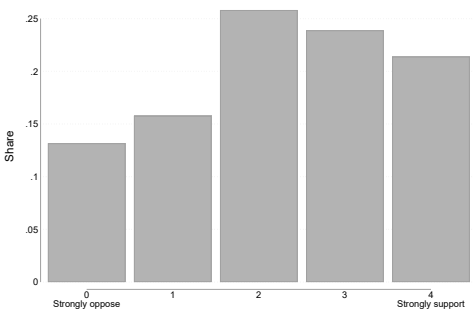


(b) Employment Bill

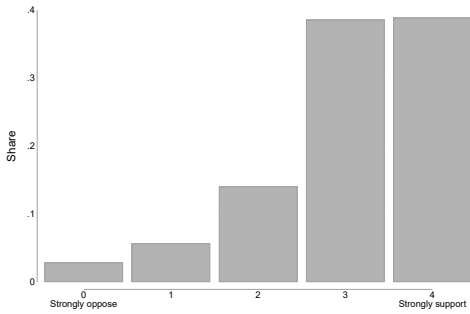


(c) Role of Unions

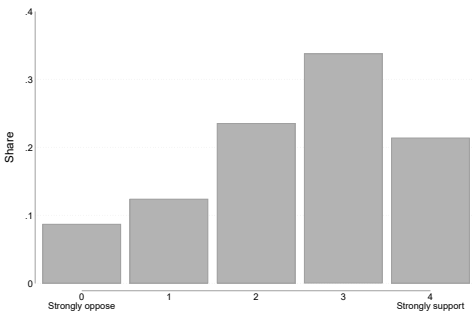
Figure C.13: Histogram of Support for Market Shock Policies in Online Experiment



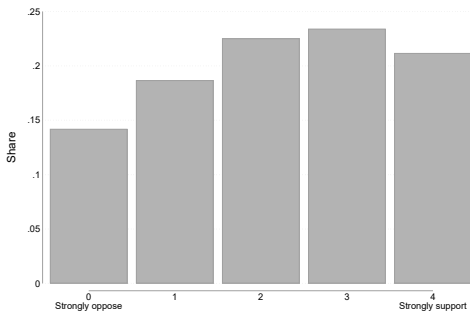
(a) Robot Tax



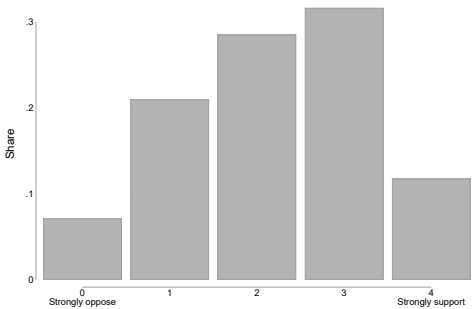
(b) Retraining



(c) Income Support

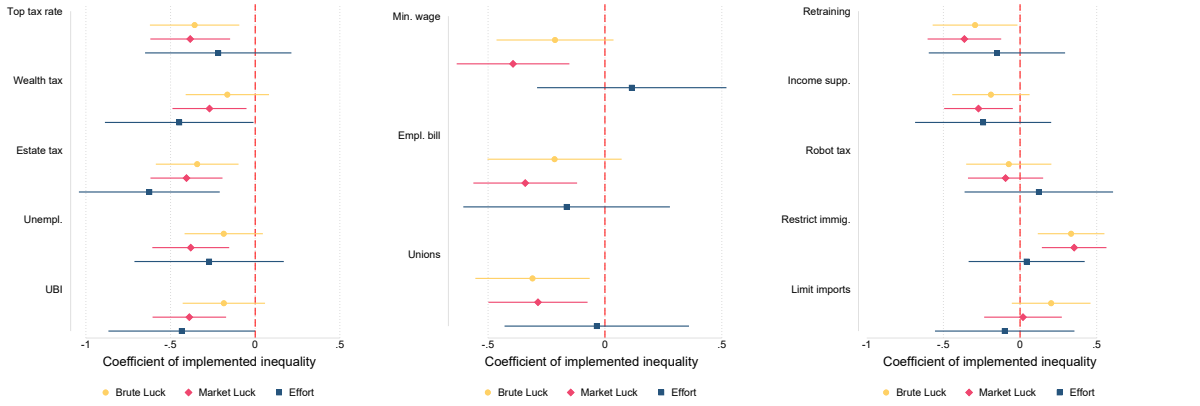


(d) Restriction of Immigration



(e) Limits to Foreign Imports

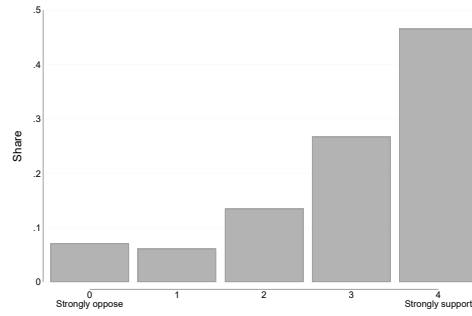
Figure C.14: Correlation of Implemented Inequality and Support for Policies (Single Items)



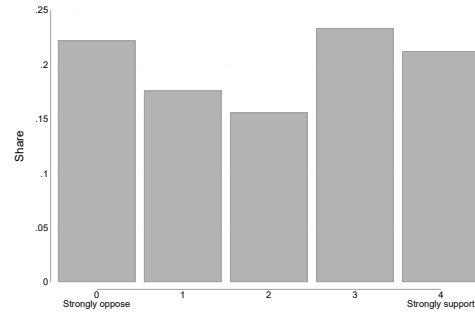
(a) Redistribution policies (b) Predistribution policies (c) Market shock policies

Notes: The figure shows the coefficient of regressing support for a policy on implemented inequality, separately by treatment. All regression include controls for spectator characteristics and wave fixed effects. Error bars indicate the 95% confidence interval.

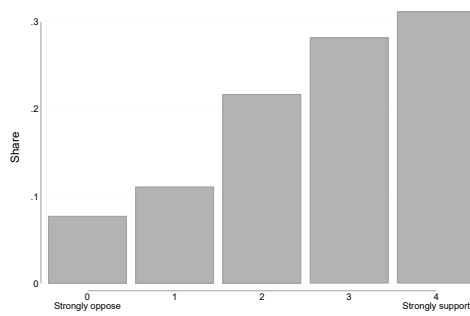
Figure C.15: Histogram of Support for Redistributive Policies in Survey Experiment



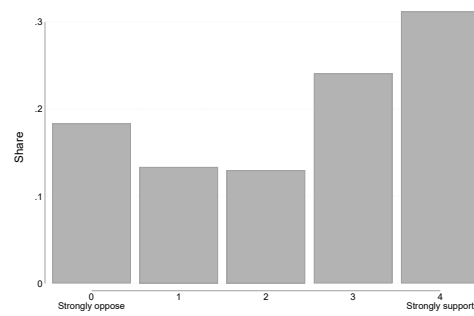
(a) Top Income Tax Rate



(b) Estate Tax

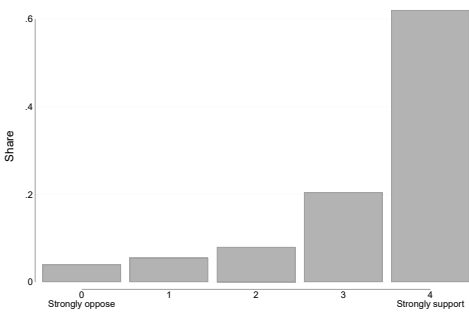


(c) Unemployment Benefits

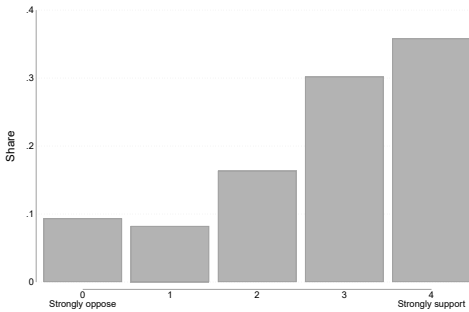


(d) Universal Basic Income

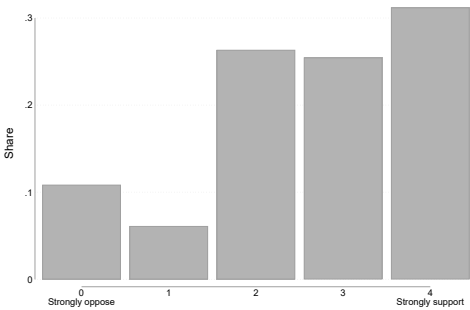
Figure C.16: Histogram of Support for Predistributive Policies in Survey Experiment



(a) Minimum Wage

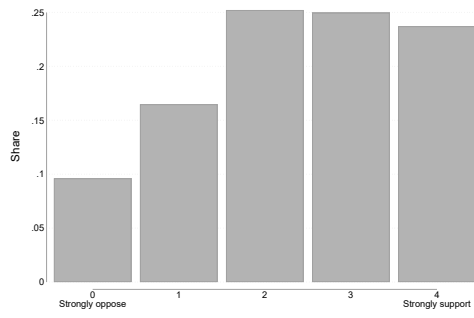


(b) Employment Bill

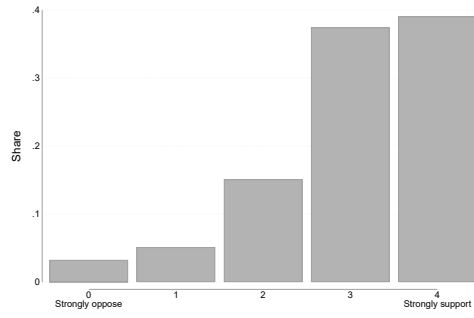


(c) Role of Unions

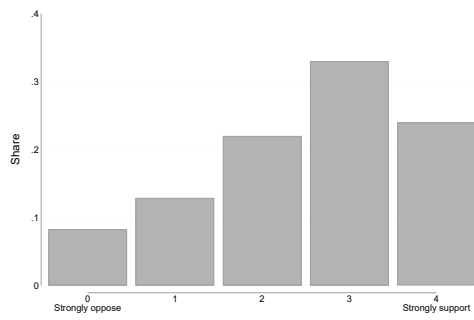
Figure C.17: Histogram of Support for Market Shock Policies in Survey Experiment



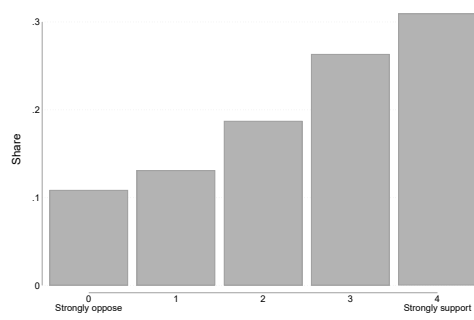
(a) Robot Tax



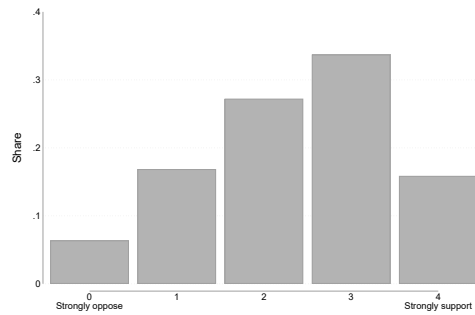
(b) Retraining



(c) Income Support

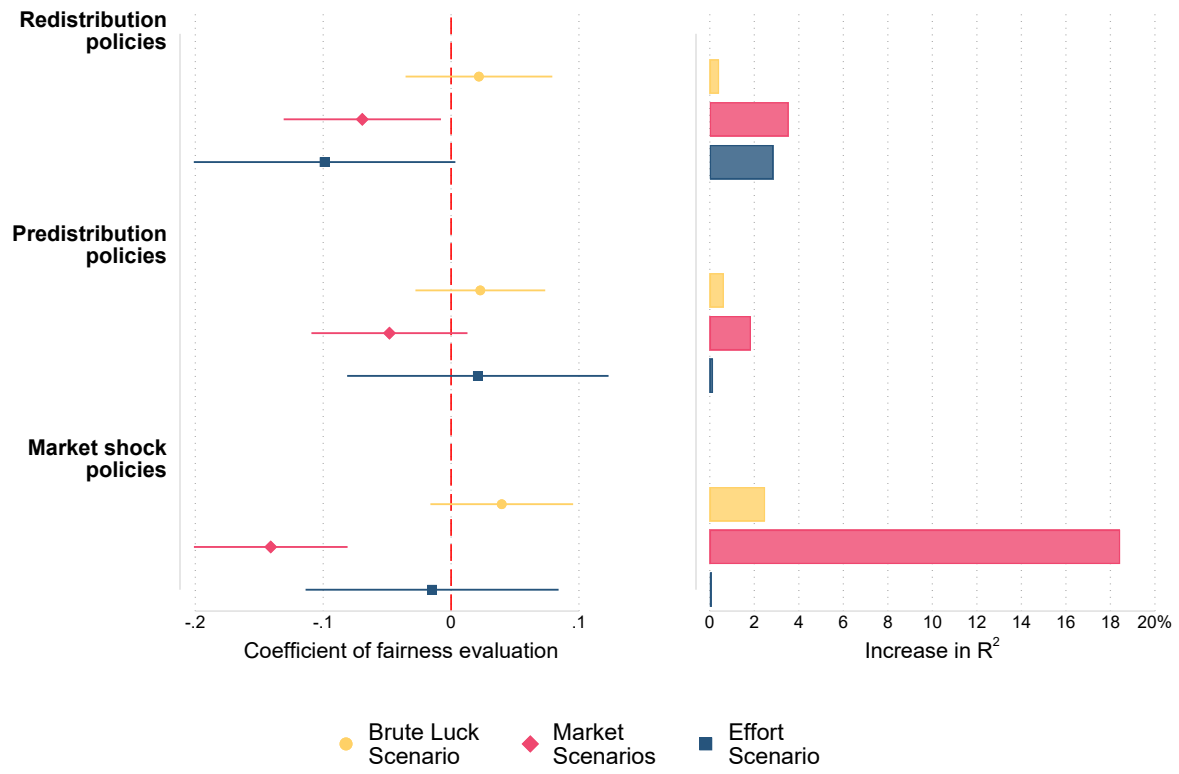


(d) Restriction of Immigration



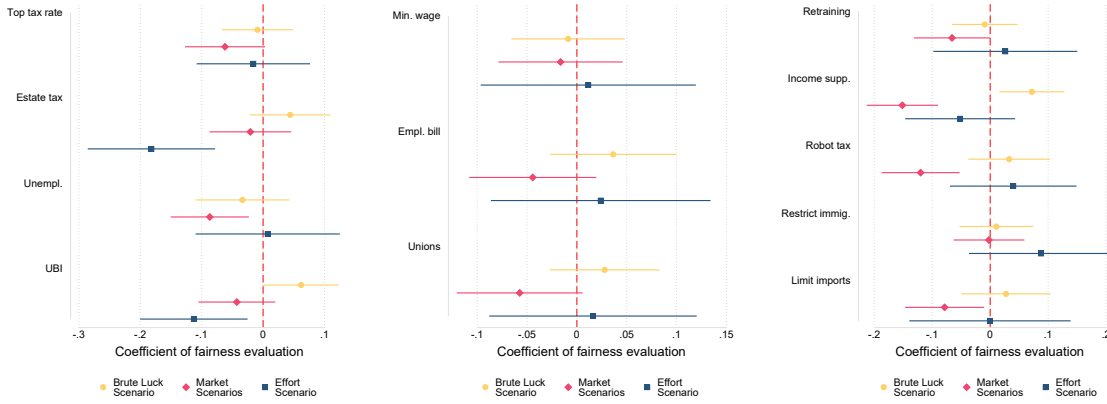
(e) Limits to Foreign Imports

Figure C.18: Correlation of fairness evaluations and support for policies in survey experiment



Notes: This figure shows results from the survey experiment. The left panel shows the coefficient of regressing a policy support index on fairness evaluations, separately for the brute luck scenario, the average of the market scenarios, and the effort scenario. The indices for each of the three policy domains are the first principal component of all policies in that domain and are standardized to have a mean of zero and a standard deviation of one. All regressions include controls for subject characteristics as specified in Table D.10. Error bars indicate the 95% confidence interval. The right panel shows the increase in the R-squared when including the experimental measure of redistributive preferences, given the other explanatory variables in the regression.

Figure C.19: Correlation of Fairness Evaluations and Support for Policies (Single Items)



(a) Redistribution policies (b) Predistribution policies (c) Market shock policies

Notes: The figure shows the coefficient of regressing policy support on fairness evaluations, separately for the brute luck scenario, the average over all market scenarios, and the effort scenario. All regressions include controls for subject characteristics as specified in Table D.10. Error bars indicate the 95% confidence interval.

D Tables

Table D.1: Average Treatment Effect by Wave

	Wave 1		Wave 2	
	(1)	(2)	(3)	(4)
Market Luck	0.144*** (0.041)	0.137*** (0.041)	0.089*** (0.034)	0.083** (0.034)
Constant	0.232*** (0.027)	0.310*** (0.077)	0.227*** (0.023)	0.312*** (0.065)
Controls	No	Yes	No	Yes
F-stat p-val	0.000	0.000	0.009	0.003
Adj. R-squared	0.030	0.082	0.012	0.032
Observations	379	379	473	473

Notes: This table reports OLS estimates with robust standard errors in parentheses. The dependent variable is implemented inequality. Control variables include age, a female dummy, a high education dummy variable for having a Bachelor's or Post-graduate degree, a high-income dummy variable for having an income above USD 75,000, a Democrat dummy, as well as dummy variables for having an Asian, Hispanic, or Black ethnicity. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D.2: Background Characteristics of Spectators by Treatment

	(1) Brute Luck Mean/(SD)	(2) Market Luck Mean/(SD)	(3) Effort Mean/(SD)	(4) Profit Only Mean/(SD)	(5) No Exchange Mean/(SD)	F-test for balance across all groups F-stat/P-value
Female	54.78 (49.83)	45.86 (49.89)	51.30 (50.11)	52.89 (49.97)	47.52 (49.99)	2.35* 0.05
Age ≥ 35	67.83 (46.77)	67.14 (47.03)	68.91 (46.41)	68.59 (46.47)	69.82 (45.96)	0.20 0.94
College degree	55.94 (49.70)	54.85 (49.82)	56.99 (49.64)	56.81 (49.59)	59.23 (49.20)	0.46 0.76
Income \geq USD 75k	38.46 (48.71)	39.95 (49.04)	43.01 (49.64)	39.72 (48.99)	43.02 (49.57)	0.64 0.63
Democratic	62.00 (48.59)	60.52 (48.94)	65.28 (47.73)	67.67 (46.83)	61.04 (48.82)	1.63 0.16
Black	11.19 (31.56)	12.06 (32.60)	9.33 (29.16)	11.32 (31.72)	15.32 (36.05)	1.56 0.18
Asian	4.66 (21.11)	5.91 (23.61)	7.77 (26.84)	4.62 (21.01)	5.63 (23.08)	0.83 0.51
Hispanic	5.36 (22.55)	5.91 (23.61)	5.70 (23.24)	5.08 (21.99)	4.73 (21.25)	0.18 0.95
Number of observations	429	423	193	433	444	1,922

Notes: This table reports information on the characteristics of spectators in the main sample (US). All characteristics are reported in shares (percent). The last column shows the F-statistic and the p-value testing for joint significance across all treatments. Standard deviations are reported in parentheses.

Table D.3: Background Characteristics: Representative vs. Experimental Sample

	ACS	Sample
Female	50.9%	50.4%
Age ≤ 35	31.0%	33.5%
High education	33.0%	56.8%
High income	56.8%	40.6%
White	63.3%	75.6%
Black	11.9%	12.2%
Asian	6.3%	5.5%
Hispanic	17.2%	5.3%
Observations	2,727,672	1,922

Notes: Column “ACS” presents data from the American Community Survey (ACS) 2022. The column “Sample” describes the experimental sample. *High education* is a dummy variable for having a Bachelor’s or higher, *high income* is a dummy variable for having an income above USD 75,000.

Table D.4: Heterogeneity Analysis on Implemented Inequality

	(1) Income	(2) Education	(3) Female	(4) Democratic
Market Luck	0.117*** (0.033)	0.139*** (0.040)	0.085** (0.039)	0.086* (0.045)
Characteristic	0.052 (0.036)	-0.020 (0.035)	-0.074** (0.035)	-0.073** (0.036)
Market Luck \times Characteristic	-0.030 (0.054)	-0.062 (0.052)	0.041 (0.052)	0.031 (0.055)
Effort	0.246*** (0.039)	0.202*** (0.045)	0.221*** (0.047)	0.226*** (0.054)
Effort \times Characteristic	-0.029 (0.058)	0.055 (0.057)	0.024 (0.058)	0.013 (0.062)
Constant	0.285*** (0.048)	0.286*** (0.050)	0.303*** (0.050)	0.301*** (0.051)
Controls	Yes	Yes	Yes	Yes
F-stat p-val	0.000	0.000	0.000	0.000
Adj. R-squared	0.074	0.077	0.074	0.074
Observations	1045	1045	1045	1045

Notes: This table reports OLS estimates with robust standard errors in parentheses. The dependent variable is implemented inequality. *Characteristic* is an indicator variable taking the value 1 if the spectator has an income above USD 75,000 (Column 1) or a Bachelor's or Post-graduate degree (Column 2), is female (Column 3), or Democratic (Column 4). In all regressions, we include the control variables reported in Table 2, except the variable captured by *Characteristic*. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D.5: Regression Results for Luck Treatments

	(1)	(2)	(3)	(4)	(5)	(6)
No Exchange	-0.005 (0.029)	-0.020 (0.029)			0.007 (0.027)	-0.006 (0.027)
Profit Only			0.092*** (0.030)	0.095*** (0.030)	0.104*** (0.028)	0.107*** (0.028)
Market Luck					0.114*** (0.026)	0.105*** (0.026)
Constant	0.232*** (0.027)	0.317*** (0.052)	0.232*** (0.027)	0.315*** (0.053)	0.247*** (0.023)	0.362*** (0.040)
Controls	No	Yes	No	Yes	No	Yes
F-stat p-val	0.943	0.000	0.003	0.000	0.000	0.000
Adj. R-squared	-0.002	0.051	0.011	0.057	0.018	0.053
Observations	873	873	862	862	1729	1729

Notes: This table reports OLS estimates with robust standard errors in parentheses. The dependent variable is implemented inequality. Control variables include age, a female dummy, a high education dummy variable for having a Bachelor's or Post-graduate degree, a high-income dummy variable for having an income above USD 75,000, a Democrat dummy, as well as dummy variables for having an Asian, Hispanic, or Black ethnicity. All regressions include dummy variables for the wave of data collection. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D.6: Regression Results Controlling for Perceived Randomness

	(1)	(2)	(3)	(4)
Market Luck	0.113*** (0.026)	0.106*** (0.026)	0.104*** (0.030)	0.092*** (0.030)
Constant	0.248*** (0.036)	0.325*** (0.059)	0.247*** (0.026)	0.319*** (0.059)
Control random	Yes	Yes	No	No
Excl. random	No	No	Yes	Yes
Controls	No	Yes	No	Yes
F-stat p-val	0.000	0.000	0.002	0.000
Adj. R-squared	0.020	0.046	0.016	0.040
Observations	852	852	684	684

Notes: This table reports OLS estimates with robust standard errors in parentheses. The dependent variable is implemented inequality. Control variables include age, gender, a high-education indicator variable for having a Bachelor's or Post-graduate degree, a high-income indicator variable for having an income above USD 75,000, a Democrat indicator variable, as well as indicator variables for having an Asian, Hispanic, or Black ethnicity. *Control random* indicates if we include a dummy variable for the perceived randomness of the initial earnings. *Excl. random* indicates if we restrict the sample to spectators who perceived the initial earnings as random. All regressions include indicator variables for the wave of data collection. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D.7: Background Characteristics of Spectators in France

	(1) Brute Luck Mean/(SD)	(2) Market Luck Mean/(SD)	(3) Effort Mean/(SD)	F-test for balance across all groups F-stat/P-value
Female	50.59 (50.03)	49.93 (50.04)	52.28 (49.98)	0.40 0.67
Age ≥ 35	56.89 (49.56)	58.00 (49.39)	58.59 (49.29)	0.21 0.81
Income \geq EUR 50k	28.30 (45.08)	27.17 (44.51)	30.98 (46.28)	1.28 0.28
College degree	58.06 (49.38)	54.33 (49.85)	58.44 (49.32)	1.43 0.24
Parents French	96.19 (19.16)	96.04 (19.53)	96.04 (19.53)	0.01 0.99
Political right	39.74 (48.97)	42.00 (49.39)	44.64 (49.75)	1.68 0.19
Number of observations	682	681	681	2,044

Notes: This table reports information on the characteristics of spectators in the France sample. All characteristics are reported in shares (percent). The last column shows the F-statistic and the p-value testing for joint significance across all treatments. Standard deviations are reported in parentheses.

Table D.8: Background Characteristics of Spectators in China

	(1) Brute Luck Mean/(SD)	(2) Market Luck Mean/(SD)	(3) Effort Mean/(SD)	F-test for balance across all groups F-stat/P-value
Female	47.35 (49.98)	45.01 (49.80)	47.06 (49.96)	0.33 0.72
Age ≥ 35	60.51 (48.93)	60.08 (49.02)	59.22 (49.19)	0.09 0.91
Income \geq CYN 100k	60.12 (49.01)	58.71 (49.28)	62.94 (48.34)	0.99 0.37
College degree	93.91 (23.94)	93.15 (25.28)	92.55 (26.29)	0.37 0.69
Population $\geq 1M$	42.63 (49.50)	41.10 (49.25)	41.57 (49.33)	0.13 0.88
East\South Central	49.51 (50.05)	48.34 (50.02)	48.43 (50.02)	0.09 0.92
Number of observations	509	511	510	1,530

Notes: This table reports information on the characteristics of spectators in the China sample. All characteristics are reported in shares (percent). The last column shows the F-statistic and the p-value testing for joint significance across all treatments. Standard deviations are reported in parentheses.

Table D.9: Regression Results for France and China

	France			China		
	(1)	(2)	(3)	(4)	(5)	(6)
Market Luck	0.049** (0.021)	0.051** (0.021)	0.063*** (0.023)	0.026 (0.025)	0.021 (0.024)	0.025 (0.027)
Effort	0.179*** (0.019)	0.181*** (0.020)	0.182*** (0.021)	0.059** (0.024)	0.053** (0.024)	0.058** (0.027)
Constant	0.431*** (0.053)	0.414*** (0.055)	0.410*** (0.062)	0.372*** (0.049)	0.458*** (0.047)	0.241*** (0.060)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Control random	No	Yes	No	No	Yes	No
Excl. random	No	No	Yes	No	No	Yes
F-stat p-val	0.000	0.000	0.000	0.000	0.000	0.000
Adj. R-squared	0.053	0.053	0.049	0.080	0.100	0.100
Observations	2044	2044	1655	1530	1530	1303

Notes: This table reports OLS estimates with robust standard errors in parentheses. The dependent variable is implemented inequality in the France and China sample. Control variables include age categories, a female dummy, a high education dummy variable for having a college degree, a high-income dummy variable for having an income above EUR 50,000 in France and CNY 100,000 in China. In France, we further control for the subjects' parents being French and subjects' political orientation, measured on a left-right scale (left = 1, right = 10). *Control random* indicates if we include a dummy variable for the perceived randomness of the initial earnings. *Excl. random* indicates if we restrict the sample to spectators who perceived the initial earnings as random. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D.10: Regression Results on Fairness Evaluations

	(1)	(2)	(3)	(4)	(5)	(6)
Immigration	0.707*** (0.194)	0.664*** (0.193)	0.654*** (0.190)	0.651*** (0.197)	0.731*** (0.232)	0.266* (0.157)
SBTC loss	0.997*** (0.183)	0.993*** (0.183)	0.983*** (0.183)	1.004*** (0.186)	1.161*** (0.223)	0.583*** (0.155)
Trade	1.503*** (0.191)	1.489*** (0.191)	1.449*** (0.187)	1.474*** (0.194)	1.646*** (0.232)	0.855*** (0.163)
SBTC gain	2.069*** (0.182)	2.048*** (0.181)	2.075*** (0.180)	2.030*** (0.187)	2.247*** (0.229)	1.036*** (0.157)
Taste change	2.563*** (0.177)	2.563*** (0.178)	2.545*** (0.175)	2.541*** (0.182)	2.601*** (0.232)	1.586*** (0.172)
Effort	3.573*** (0.164)	3.567*** (0.166)	3.528*** (0.166)	3.532*** (0.171)	3.619*** (0.269)	1.652*** (0.176)
Constant	1.846*** (0.144)	1.771*** (0.256)	1.864*** (0.250)	1.052*** (0.323)	1.727*** (0.194)	0.874*** (0.213)
Controls	No	Yes	Yes	Yes	No	Yes
Market attitudes	No	No	Yes	No	No	No
Shock exposure	No	No	No	Yes	No	No
Individual FE	No	No	No	No	Yes	No
Efficiency	No	No	No	No	No	Yes
R-squared	0.305	0.323	0.350	0.328	0.698	0.519
Observations	1407	1407	1407	1360	1206	1407

Notes: This table reports OLS estimates with clustered standard errors in parentheses. The dependent variable is the fairness evaluation. *Immigration*, *SBTC loss*, *Trade*, *SBTC gain*, *Taste change* and *Effort* are dummy variables for the different scenarios (the *Brute luck* scenario is the reference category). Control variables include age, a female dummy, a high education dummy variable for having a Bachelor's or Post-graduate degree, a high-income dummy variable for having an income above USD 75,000, a Democrat dummy, as well as dummy variables for having an Asian, Hispanic, or Black ethnicity. *Market attitudes* is an index consisting of four variables measuring whether subjects believe that i) people get what they deserve in free markets; ii) free markets are efficient and promote economic growth; iii) the government should intervene and regulate markets as little as possible; and iv) private ownership of business is essential for a strong economy. *Shock exposure* are separate variables that measure whether subjects' occupations have been positively or negatively affected by immigration, technological change, trade, or changes in consumer taste. Finally, after each vignette, we asked subjects whether they thought that these income differences were an effective way to motivate people to work harder. Subjects' answers to these questions are captured in the *efficiency* variable. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D.11: Correlation of Fairness Evaluations for Market Scenarios

	SBTC gain	SBTC loss	Trade	Immigration	Taste change
SBTC gain	1.000				
SBTC loss	0.496***	1.000			
Trade	0.548***	0.455***	1.000		
Immigration	0.206	0.551***	0.628***	1.000	
Taste change	0.674***	0.340**	0.583***	0.353***	1.000

Notes: This table reports the correlation coefficients of the fairness evaluations for the different scenarios. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

E Conceptual Framework of Labor Demand and Supply

To convey the intuition of our experiment, we present a very simple conceptual framework of labor supply and demand. The model shows how income inequality can arise due to exogenous labor demand shocks for different skills. For that, we assume that workers differ in their skill s_j . Skills can be viewed as multidimensional, where an individual could have for example art, language, or computer skills. This stands in contrast with the representation of skill as unidimensional, where workers typically are either of high or low skill but do not explicitly differ with respect to the type of skill. We abstract from the fact that there might be an exogenous (innate talent) and endogenous component (human capital investments) of skill, it is yet important that we assume that workers cannot anticipate and adapt their skills to changes in labor demand. This reflects, for example, the situation of older workers who cannot easily participate in retraining programs and change occupations. For simplicity, we also assume that there are only two types of skills, odd and even ($j \in \{\text{odd}, \text{even}\}$), and that workers are endowed with one type of skill. At the same time, j represents the type of product that is produced by a firm, and workers provide labor input L_j to produce a certain type of product. Labor input is then a function of both skill s_j and effort e :

$$L_j = f(s_j, e)$$

This definition of labor input implies that effort can be chosen independently of skill and that only workers with a specific skill can produce a particular product. Products are produced by firms using product-specific technology A_j and labor input L_j according to a simple production function:

$$Y_j = A_j f(s_j, e)^\alpha$$

This production function implies that there is a direct relationship between the final product and the skill of the worker, meaning that the skill of a worker can be inferred from the product she produces and vice versa. For example, we might imagine a factory worker and a researcher each working for a day, providing the same amount of effort. The factory worker builds a car during that time, while the researcher writes a paper. The relative wages of workers with different skills are then given by the following equation:

$$\frac{w_{\text{odd}}}{w_{\text{even}}} = \underbrace{\frac{A_{\text{odd}}}{A_{\text{even}}}}_{\text{exogenous}} \underbrace{\left(\frac{f(s_{\text{even}}, e)}{f(s_{\text{odd}}, e)} \right)^{1-\alpha}}_{\text{endogenous}}$$

As shown in the equation, relative wages are determined by differences in technology, which are exogenous from the perspective of the worker, and differences in labor input.

Structural developments, such as globalization and skill-biased technological change, can then be interpreted as shocks to labor demand caused by a change in the technology ratio. In this framework, such changes represent market luck.

Turning to fairness views, following the traditional way of modeling meritocratic fairness, one could argue that income inequalities are only justified if they are due to the endogenous part, that is, from differences in labor input. Inequalities arising from market luck, by contrast, are not considered fair, as they are driven by exogenous shifts in labor demand. In our experiment, income differences between two workers with different skills are caused by the exogenous demand of a buyer, while effort, or labor input, remains constant across workers. This setup allows us to identify the causal effect of market luck on individuals' acceptance of inequality.

F Experimental Instructions


F.1 Online Experiment - Wave 1

1 Instructions for Spectators

Captcha

Please check the box below to proceed.

☐ I'm not a robot


reCAPTCHA
[Privacy](#) - [Terms](#)

Consent Form

Thank you for participating in this study.

This is a survey conducted by researchers at the University of Zurich. All data collected in this survey are for research purposes only.

Task and Duration:

The study should last 20 minutes or less. You will make decisions that can have real-life consequences. It is therefore important that you read and follow the instructions carefully.

Compensation:

For your participation, you will be paid a participation compensation of USD 4.

Risk and Benefits:

The risks to you from participating in this study are those associated with basic computer tasks, including boredom, fatigue, or mild stress. The benefit to you is that you contribute to the advancement of scientific knowledge.

Confidentiality:

We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subject's Rights:

Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money.

For additional questions about this research, you may contact spectator-study@econ.uzh.ch.

Please indicate, in the box below, that you are at least 18 years old, a resident of the United States of America, have read and understood this consent form, and that you agree to participate in this study.

- I agree to participate in this study, am at least 18 years of age and a US resident, and have read this consent form.
- I do not want to participate in this study.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. ____

Attention Check

This study should take 20 minutes or less to complete. It is important that you take the time to read all instructions and that you read questions carefully before you answer them. Previous research has found that some people do not take the time to read everything that is displayed. To show that you read our questions carefully, please choose both 'Monday' and 'Tuesday' as your answer in the first question and type 'darts' into the 'Other' field of the second question.

Given the above, what are your preferred days to do sports? (Click all that apply)

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

Given the above, what is your favorite sport?

- American football
- Baseball
- Ice hockey
- Tennis
- Golf
- Wrestling
- Soccer
- Other: ____

Intro

In this study we will ask you to make a **decision** that might have **real financial consequences for two other people**.

These two people have worked on a task for which they can earn money. We will explain to you in detail what the task looked like and how the earnings will be determined.

You will then have the opportunity to redistribute earnings between these two people.

Please read the following pages very carefully. A quiz will test your understanding.

The context of your decision (**Brute Luck Treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → **73159**

Worker B: **HBKMS** → **62048**

Both workers had to translate 10 letter sequences correctly. Whereas **worker A** translated 10 letter sequences into **sequences of odd digits**, **worker B** translated 10 letter sequences into **sequences of even digits**. The amount of **effort** required to complete the task **did not differ between the two tasks**.

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

After completing the task, they were told that their **earnings from the task would be determined by a lottery** where each worker has the **same chance** of winning the lottery. The worker **winning the lottery would earn 6 USD** for the task and the **other worker would earn nothing** for the task.

The workers were not informed about the outcome of the lottery. However, they were told that a third person – the **spectator** – is informed about the translation task and the lottery outcome. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task.

You are the third person, the spectator, who can decide whether to redistribute earnings.

Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, 1 in 10 spectators is selected at random to determine final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take each decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**. You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The amount of effort required to complete the task differs between tasks. (True, **False**)

Workers A and B are equally likely to win the lottery. (**True**, False)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated the number sequences. **Worker A won the lottery**. Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.
- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

We are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers A and B? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

The context of your decision (**Market Luck Treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → 73159

Worker B: **HBKMS** → 62048

Both workers had to translate 10 letter sequences correctly. Whereas **worker A** translated 10 letter sequences into **sequences of odd digits**, **worker B** translated 10 letter sequences into **sequences of even digits**. The amount of **effort** required to complete the task **did not differ between the two tasks**.

The role of the producers

Separately, we recruited other individuals who carried out a separate task for which they could earn additional money. Let us call these individuals the **producers**.

Producers could earn money if they entered and uploaded **number sequences that they bought from the workers**.

Each producer decided, at the beginning of the study, whether he or she preferred to work with odd or even numbers. According to this choice, we classify each producer as either an “odd” producer or an “even” producer. For that, we told producers that they are going to work on a task that involves numbers. We then asked producers whether they want to work with odd or even numbers.

Odd producers have chosen odd numbers and therefore **only earned money if they uploaded odd** number sequences; **even producers** have chosen even numbers and therefore **only earned money if they uploaded even** number sequences.

A producer had to buy the chosen type of number sequences from a worker and then **earned 8 USD** by uploading the sequences.

Payment of producers

Producers were offered a participation compensation of 1 USD. In addition, each producer was randomly matched with a pair of workers A and B. The producer bought the number sequences and **paid 6 USD to the worker** who translated the number sequences **that the producer has chosen at the beginning and therefore needed**. The producer then received the number sequences and earned 8 USD by uploading them.

Hence, the producer got total additional earnings of 2 USD. **In other words, the sequences of this worker created an additional income of USD 2 for the producer.**

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

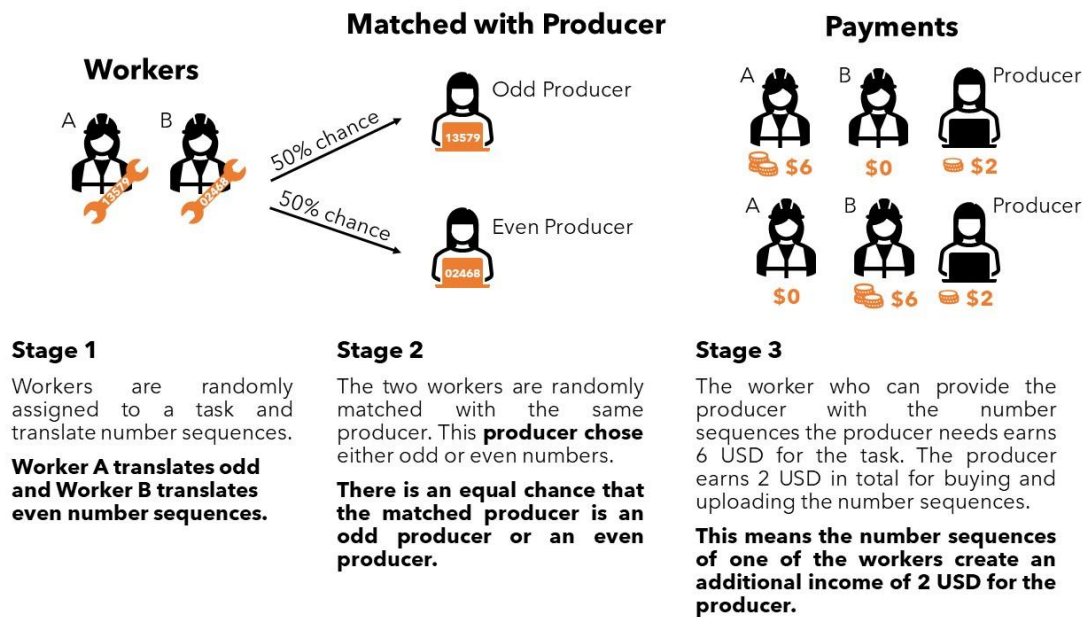
After completing the task, the workers were told that we recruited additional individuals, which we call the producers. Furthermore, the workers were told that the two of them **together are randomly matched with a producer who has chosen either odd or even numbers**. There was an equal chance that the matched producer was an odd producer or an even producer.

One worker could provide the producer with the number sequences that the producer needed. This worker earned 6 USD in addition to the participation compensation of 1 USD. The **other worker earned nothing** in addition for the task.

That is, if the workers were matched with a producer who has chosen and therefore needed odd numbers (odd producer), only the odd worker could sell his or her number sequences. Vice versa, if the workers were matched with a producer who has chosen and therefore needed even numbers (even producer), only the even worker could sell his or her number sequences.

The workers do not know whether they are matched with an odd or even producer. However, they were told that a third person – the **spectator** – is informed about the translation task, the task of the producer, and the matching with the producer. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task. **You are the third person, the spectator**, who can decide whether to redistribute earnings.

The figure below again illustrates how the earnings of the workers are determined.



Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, 1 in 10 spectators is selected at random to determine final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take each decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**. You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The amount of effort required to complete the task differs between tasks. (True, **False**)

Workers A and B are equally likely to be matched with an odd producer or with an even producer. (**True**, False)

The producers cannot choose whether they prefer to work with odd or even numbers. (True, **False**)

Even producers can only make additional earnings if they buy the number sequences from the worker who translated even numbers. (**True**, False)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated the number sequences. They were matched with a producer who needed the number sequences that worker A generated. **Worker A sold her number sequences and was paid by the producer.** Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.
- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

Finally, we are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers A and B? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

The context of your decision (**Effort Treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → **73159**

Worker B: **HBKMS** → **62048**

Both workers had to translate letter sequences for the same amount of time.

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

After completing the task, they were told that their **earnings from the task would be determined by their productivity**. That is, the **worker who translated more number sequences correctly would earn 6 USD** for the task, and the **other worker would earn nothing** for the task.

The workers were not informed about their performance. However, they were told that a third person – the **spectator** – is informed about the translation task and their performance. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task.

You are the third person, the spectator, who can decide whether to redistribute earnings.

Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study, there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, 1 in 10 spectators is selected at random to determine final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take each decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**. You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The number of correctly translated sequences measures the workers' productivity. (**True**, False)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated number sequences. **Worker A was more productive and generated more number sequences.** Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.
- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

We are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

Demographics

Please tell us about yourself so we can put your other replies in greater context:

- What is your age?
- What is your gender?
 - Male
 - Female
 - Other: ____
 - Rather not say
- What is the primary ethnicity or race you identify with?
 - Asian/Asian American
 - Black/African American
 - White/European American
 - Hispanic/Latino
 - Other: ____
 - Rather not say
- Were you born in the United States?
 - Yes
 - No
- What was your yearly household income in 2022 in US dollars before taxes and deductions?
(Note: the household income is the total amount of money earned by all members of your household)
 - Less than 15,000
 - Between 15,000 and 25,000
 - Between 25,000 and 50,000
 - Between 50,000 and 75,000
 - Between 75,000 and 100,000
 - Between 100,000 and 150,000
 - Between 150,000 and 200,000
 - More than 200,000
- What is the highest educational level that you have attained?
 - 12th grade or less
 - Graduated high school or equivalent
 - Some college, no degree
 - Associate degree
 - Bachelor's degree
 - Post-graduate degree
- What is your current employment status?
 - Full-time employee
 - Part-time employee
 - Self-employed or small business owner
 - Unemployed
 - Student
 - Not in labor force (for example: retired, or full-time parent)
- In political matters, people talk of “the left” and “the right.” How would you place your views on this scale, generally speaking?
(10-point Scale: 1: Left to 10: Right)

- Do you think of yourself as closer to the Republican or Democratic party?
 - Democrat
 - Republican
 - Other: __

Support for Policies, Attitudes toward Government, and Beliefs about Inequality

In this part of the survey, we would like to know your opinion on different government policies.

In the following, you will see a list of different government policies. The list includes both policies that might already be in place and policies that are only being discussed but have not been implemented yet. Indicate for each of these policies, how strongly you support or oppose them.

- An increase in the top federal income tax rate for high-income households.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A tax on the wealth that people inherit from deceased family members (often called an estate tax).
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A tax on people's net wealth, this means on the value of all their assets minus their debt.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A full employment bill in which the government guarantees a job to everyone who wants to work.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- An increase in the federal minimum wage. (The current level is 7.25 USD.)
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- An increase of unemployment benefits.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A universal basic income, where every citizen regularly receives a cash transfer unconditional on his or her employment status.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose

In this part of the survey, we are interested in your opinion about the role of the government. Indicate for each of the following statements, how strongly you agree or disagree with them:

- In general, I trust the federal government to do what is right.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should limit the import of foreign products in order to protect its domestic economy.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should control its borders and impose restrictions on immigration in order to protect domestic jobs.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should raise a tax on robots in order to prevent workers to be replaced by machines.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should provide retraining programs for workers in declining industries.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should provide income support for workers in declining industries.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should strengthen the position of unions.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

Finally, please tell us how strongly you agree or disagree with the following statements.

- Income differences between individuals are acceptable if they result from differences in hard work and are not acceptable if they result from differences in luck.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Income differences between individuals are necessary because they incentivize individual effort and thereby increase overall wealth.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- In reality, hard work doesn't generally bring success - it's more a matter of luck.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

End of Survey

Thank you very much for participating in this study!


Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you had wished we asked? Please let us know what you think.

2 Instructions for Workers

Captcha

Please check the box below to proceed.

☐ I'm not a robot


reCAPTCHA
[Privacy](#) - [Terms](#)

Consent Form

Thank you for participating in this study.

Please read and follow all instructions carefully. Note that you will remain anonymous throughout the study. We will only use your Prolific ID to assign payment and check that you have not participated in this study before.

Task and duration. The study should last approximately 5 minutes. As part of the study, you will be working on a simple task. You will be given detailed instructions about the task. Please read the instructions carefully.

Payment. If you participate in this study, you will be paid a participation fee of 1 USD. In addition, you may earn additional money, depending on the actions you and others take. We need some time to transfer the additional payments. You will receive these payments within the next 4 weeks via a Prolific bonus transfer. We will try to be as fast as possible.

Confidentiality. We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subjects' rights. Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money. If you have any questions regarding this study, you may contact spectator-study@econ.uzh.ch.

Please indicate, in the box below, that you are at least 18 years old, a resident of the United States of America, have read and understood this consent form, and that you agree to participate in this study.

- I agree to participate in this study, am at least 18 years of age and a US resident, and have read this consent form.
- I do not want to participate in this study.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. _____

Your task (Brute Luck and Market Luck Treatment)

- You will be given 10 sequences of 5 letters which you have to translate into 10 sequences of digits with the help of a decryption key.
- The decryption key tells you which letter corresponds to which even/odd number and looks as follows:

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

- Please enter the number sequence in the field below the letter sequence.
- For example, if you are given the letter sequence **HMSKB**, you should enter the number sequence **75913**.
- There will be an error message if the translated sequence is incorrect. In this case, you can reenter another sequence. Once you translated the sequence correctly, you can advance to the next sequence on the next page.
- The decryption key will be displayed on every page.
- To complete the task, you have to translate 10 sequences correctly.
- You can withdraw from the task at any point in time, but you will not receive any money in this case.

Make sure that you have read and understood the instructions. The task will start once you go to the next page.

➔ *Task: 10 letter sequences (one sequence per page with decryption key on every page)*

Congratulations, you have finished the task! Please continue to the next page to get information about your earnings.

Your task (Effort Treatment)

- You will be given sequences of 5 **letters which you have to translate into** sequences of **digits** with the help of a decryption key.
- The **decryption key tells you which letter corresponds to which even/odd number** and looks as follows:

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

- **Please enter the number sequence in the field below the letter sequence.**
- For example, if you are given the letter sequence **HMSKB**, you should enter the number sequence **75913**.
- There will be an error message if the translated sequence is incorrect. In this case, you can reenter another sequence. Once you translated the sequence correctly, you can advance to the next sequence on the next page.
- The decryption key will be displayed on every page.
- You will work on this task for 3 minutes. We will measure your performance by the number of correctly translated sequences.
- You can withdraw from the task at any point in time, but you will not receive any money in this case.

Make sure that you have read and understood the instructions. The task will start once you go to the next page.

➔ *Task: Letter sequences for 3 minutes (one sequence per page with decryption key on every page)*

Congratulations, you have finished the task! Please continue to the next page to get information about your earnings.

Your earnings

We will now explain how you will be paid for your work. After you have completed this study, we will match you with another participant who has completed a similar task. The other participant decrypted the same letter sequences but with a decryption key that translates letters into odd/even numbers instead of odd/even numbers, as in your case. The payment to you and the other participant is determined by a two-stage process. Below we explain this process in more detail.

First stage: Market Luck. To determine your earnings for the task, we recruit some additional participants, whom we call the “producers”. A producer can earn additional money if he or she acquires number sequences. Producers differ in that some producers can only earn money if they acquire odd numbers, and other producers can only earn money if they acquire even numbers.

You and the other participant will be matched with a randomly selected producer. The producer will not know the identity of you or the other participant but will be informed that there is a worker who translated the sequences that he or she needs.

The producer buys the number sequences either from you or the other participant. If the producer needs odd/even numbers, you earn 6 USD, and the other participant earns 0 USD. If the producer needs even/odd numbers, you earn 0 USD, and the other participant earns 6 USD.

First stage: Brute Luck. For this task, the earnings of you and the other participant are determined by a lottery. Each of you has the same chance to earn 6 USD or 0 USD.

First stage: Effort. For this task, the earnings of you and the other participant are determined by how productive you are. The participant who translated more sequences correctly earns 6 USD and the other participant earns 0 USD.

Second stage. For this part of the study, we again recruit other additional participants, whom we will call the “Spectators”. A randomly selected Spectator will be given the opportunity to redistribute the earnings between you and the other participant: increasing the payment of the participant with the low earnings by 1 USD decreases the other participant’s payment by 1 USD.

The spectator will not know the identity of you or the other participant but will be informed about the nature of the task and the allocation of earnings in the first stage.

If the spectator chooses not to redistribute earnings, each of you will be paid your earnings as determined in the first stage.

If the spectator chooses to redistribute earnings, you will be paid according to the distribution that the Spectator chose.

You will receive your additional payment for the task within 4 weeks and it will be paid separately from your participation fee of 1 USD.

End of Survey

Thank you very much for participating in this study!


Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you had wished we asked? Please let us know what you think.

3 Instructions for Buyers

Captcha

Please check the box below to proceed.

☐ I'm not a robot


reCAPTCHA
[Privacy](#) - [Terms](#)

Consent Form

Thank you for participating in this study.

Please read and follow all instructions carefully. Note that you will remain anonymous throughout the study, we will only use your Prolific ID to assign payment and check that you have not participated in this study before.

Task and duration. The study should last approximately 5 minutes. As part of the study, you will be working on a simple task. You will be given detailed instructions about the task. Please read the instructions carefully.

Payment. If you participate in this study, you will be paid a participation fee of 1 USD.

Confidentiality. We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subjects' rights. Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money. If you have any questions regarding this study, you may contact spectator-study@econ.uzh.ch.

Please indicate, in the box below, that you are at least 18 years old, a resident of the United States of America, have read and understood this consent form, and that you agree to participate in this study.

- I agree to participate in this study, am at least 18 years of age and a US resident, and have read this consent form.
- I do not want to participate in this study.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. ____

Choice of numbers

In the following, you will work on a task that involves numbers.

You can now choose with which set of numbers you prefer to work. There is no right or wrong answer. Just choose the set of numbers you like more.

- 0, 2, 4, 6, 8
- 1, 3, 5, 7, 9

Your task

Your task in this study is to **upload sequences of 5 odd/even digits**. To do that, you will have to **buy these number sequences from another participant**. We will call this participant “the Worker”. You can get additional earnings if you upload all the sequences.

We will now give you detailed information about your task. Make sure that you read and understand the instructions.

Buying and uploading the sequences:

- First, you automatically **buy** 10 number **sequences** from the Worker **for a fixed price of 6 USD**.
- You will then have to upload the number sequences.
- For that, you will be shown a list of number sequences in random order.
- To upload your number sequences, **you must find and check off each of your number sequences** from the list of number sequences by clicking on it. **Each of your 10 number sequences occurs once** in the same list.
- Below, you are shown a simplified example to make sure you understand the upload task:

Upload

These are the number sequences you need to upload by checking them off in the matrix below.

31759, 73159, 13759

Please, finish the upload and continue to the next page by clicking on the arrow at the bottom once you checked off all the sequences

31759	51379	13759
15739	91357	39571
51973	35917	73159

Your earnings:

- If you upload all sequences, you can earn a total amount of 8 USD.
- In other words, if you upload all the sequences, **you get additional payments of 2 USD** (8 USD (upload) – 6 USD (fixed price))
- Note, that you do not earn any additional money if you check off a wrong sequence.

You will continue with the upload of the number sequences on the next page.

Upload

These are the number sequences you need to upload by checking them off in the list of numbers below.

➔ *Display number sequences*

Please, finish the upload and continue to the next page by clicking on the arrow at the bottom once you checked off all the sequences.

➔ *Matrix of number sequences*

End of Survey

You have now completed the task.

Thank you very much for participating in this study!

Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you wished we had asked? Please let us know what you think.


F.2 Online Experiment - Wave 2

1 Instructions for Spectators

Captcha

Please check the box below to proceed.

☐ I'm not a robot


reCAPTCHA
[Privacy](#) - [Terms](#)

Consent Form

Thank you for participating in this study.

This is a survey being conducted by researchers at the University of Zurich. All data collected in this survey are for research purposes only.

Task and Duration:

The study should last 20 minutes or less. You will make decisions that can have real-life consequences. It is therefore important that you read and follow the instructions carefully.

Compensation:

For your participation, you will be paid a participation compensation of USD 4.

Risk and Benefits:

The risks to you from participating in this study are those associated with basic computer tasks, including boredom, fatigue, or mild stress. The benefit to you is that you contribute to the advancement of scientific knowledge.

Confidentiality:

We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subject's Rights:

Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money.

For additional questions about this research, you may contact spectator-study@econ.uzh.ch.

Please indicate, in the box below, that you are at least 18 years old, a resident of the United States of America, have read and understood this consent form, and that you agree to participate in this study.

- I agree to participate in this study, am at least 18 years of age and a US resident, and have read this consent form.
- I do not want to participate in this study.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. ____

Attention Check

This study should take 20 minutes or less to complete. It is important that you take the time to read all instructions and that you read questions carefully before you answer them. Previous research has found that some people do not take the time to read everything that is displayed. To show that you read our questions carefully, please choose both 'Monday and 'Tuesday as your answer in the first question and type 'darts' into the 'Other' field of the second question.

Given the above, what are your preferred days to do sports? (Click all that apply)

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

Given the above, what is your favorite sport?

- American football
- Baseball
- Ice hockey
- Tennis
- Golf
- Wrestling
- Soccer
- Other: ____

Intro

In this study we will ask you to make a **decision** that might have **real financial consequences for two other people**.

These two people have worked on a task for which they can earn money. We will explain to you in detail what the task looked like and how the earnings will be determined.

You will then have the opportunity to redistribute earnings between these two people.

Please read the following pages very carefully. A quiz will test your understanding.

The context of your decision (**Brute Luck treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → **73159**

Worker B: **HBKMS** → **62048**

Both workers had to translate 10 letter sequences correctly. Whereas **worker A** translated 10 letter sequences into **sequences of odd digits**, **worker B** translated 10 letter sequences into **sequences of even digits**. The amount of **effort** required to complete the task **did not differ between the two tasks**.

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

After completing the task, they were told that their **earnings from the task would be determined by a lottery** where each worker has the **same chance** of winning the lottery. The worker **winning the lottery would earn 6 USD** for the task and the **other worker would earn nothing** for the task.

The workers were not informed about the outcome of the lottery. However, they were told that a third person – the **spectator** – is informed about the translation task and the lottery outcome. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task.

You are the third person, the spectator, who can decide whether to redistribute earnings.

Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, one out of every ten spectators is randomly selected to determine the final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take each decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**. You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The amount of effort required to complete the task differs between tasks. (True, **False**)

Workers A and B are equally likely to win the lottery. (**True**, False)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated the number sequences. **Worker A won the lottery**. Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.

- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

We are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers A and B? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

The context of your decision (**Market Luck Treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → 73159

Worker B: **HBKMS** → 62048

Both workers had to translate 10 letter sequences correctly. Whereas **worker A** translated 10 letter sequences into **sequences of odd digits**, **worker B** translated 10 letter sequences into **sequences of even digits**. The amount of **effort** required to complete the task **did not differ between the two tasks**.

The role of the producers

Separately, we recruited other individuals who carried out a separate task for which they could earn additional money. Let us call these individuals the **producers**.

Producers could earn money if they entered and uploaded **number sequences that they bought from the workers**.

Each producer could choose, at the beginning of the study, whether he or she preferred to work with odd or even numbers. According to this choice, we classify each producer as either an “odd” producer or an “even” producer. For that, we told producers that they are going to work on a task that involves numbers. We then asked producers whether they want to work with odd or even numbers.

Odd producers have chosen odd numbers and therefore **only earned money if they uploaded odd** number sequences; **even producers** have chosen even numbers and therefore **only earned money if they uploaded even** number sequences.

A producer had to buy the chosen type of number sequences from a worker and then **earned 8 USD** by uploading the sequences.

Payment of producers

Producers were offered a participation compensation of 1 USD. In addition, each producer was randomly matched with a pair of workers A and B.

The producer bought the number sequences and **paid 6 USD to the worker who translated the number sequences that the producer has chosen at the beginning and therefore needed**. The producer then received the number sequences and earned 8 USD by uploading them.

Hence, the producer got total additional earnings of 2 USD. **In other words, the sequences of this worker created an additional income of USD 2 for the producer.**

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

After completing the task, the workers were told that we recruited additional individuals, which we call the producers. Furthermore, the workers were told that the two of them **together are randomly matched with a producer who has chosen either odd or even numbers**. There was an equal chance that the matched producer was an odd producer or an even producer.

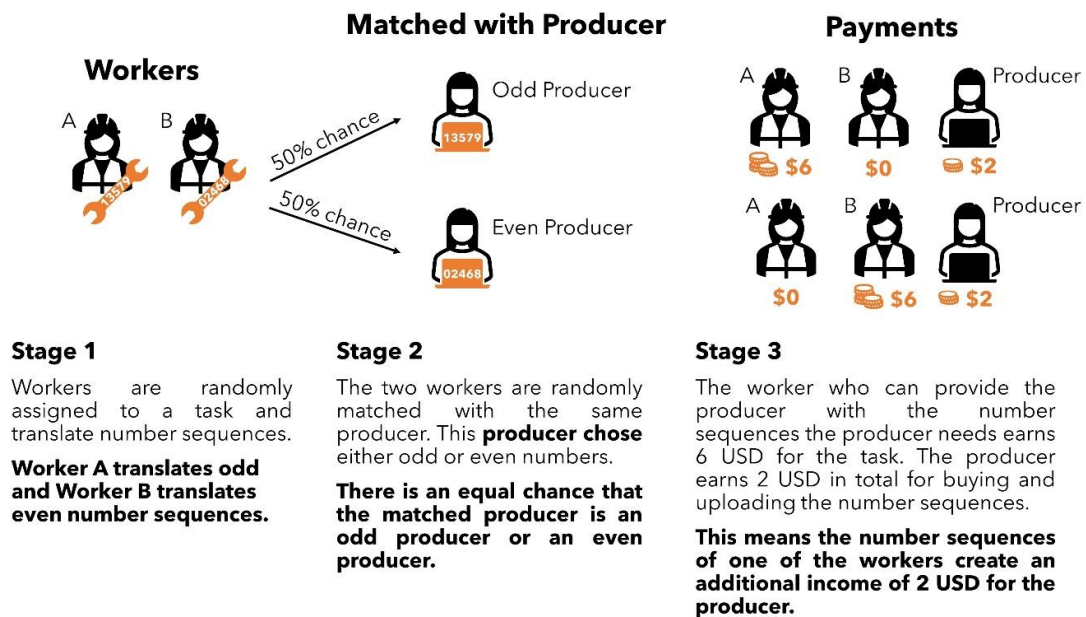
One worker could provide the producer with the number sequences that the producer needed. This worker earned 6 USD in addition to the participation compensation of 1 USD. The other worker earned nothing in addition for the task.

That is, if the workers were matched with a producer who has chosen and therefore needed odd numbers (odd producer), only the odd worker could sell his or her number sequences. Vice versa, if the workers were matched with a producer who has chosen and therefore needed even numbers (even producer), only the even worker could sell his or her number sequences.

The workers do not know whether they are matched with an odd or even producer. However, they were told that a third person – the **spectator** – is informed about the translation task, the task of the producer, and the matching with the producer. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task.

You are the third person, the spectator, who can decide whether to redistribute earnings.

The figure below again illustrates how the earnings of the workers are determined.



Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, one out of every ten spectators is randomly selected to determine the final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take each decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**.

You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The amount of effort required to complete the task differs between tasks. (True, **False**)

Workers A and B are equally likely to be matched with an odd producer or with an even producer. (**True**, False)

The producers cannot choose whether they prefer to work with odd or even numbers. (True, **False**)

Odd producers can only make additional earnings if they buy the number sequences from the worker who translated odd numbers. (**True**, False)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated the number sequences. They were matched with a producer who needed the number sequences that worker A generated. **Worker A sold her number sequences and was paid by the producer.** Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.
- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

Finally, we are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers A and B? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

The context of your decision (**Profit-Only Treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → **73159**

Worker B: **HBKMS** → **62048**

Both workers had to translate 10 letter sequences correctly. Whereas **worker A** translated 10 letter sequences into **sequences of odd digits**, **worker B** translated 10 letter sequences into **sequences of even digits**. The amount of **effort** required to complete the task **did not differ between the two tasks**.

The role of the producers

Separately, we recruited other individuals who carried out a separate task for which they could earn additional money. Let us call these individuals the **producers**.

Producers could earn money if they entered and uploaded **number sequences that they bought from the workers**.

Each producer was either an “odd” producer **or** an “even” producer. Whether a producer is classified as an odd or an even producer was randomly determined by a lottery.

Odd producers only earned money if they uploaded odd number sequences; **even producers only earned money if they uploaded even** number sequences.

A producer had to buy the number sequences from a worker and then **earned 8 USD** by uploading the sequences.

Payment of producers

Producers were offered a participation compensation of 1 USD. In addition, each producer was randomly matched with a pair of workers A and B.

The producer bought the number sequences and **paid 6 USD to the worker who translated the number sequences that the producer needed**. The producer then received the number sequences and earned 8 USD by uploading them.

Hence, the producer got total additional earnings of 2 USD. **In other words, the sequences of this worker created an additional income of USD 2 for the producer.**

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

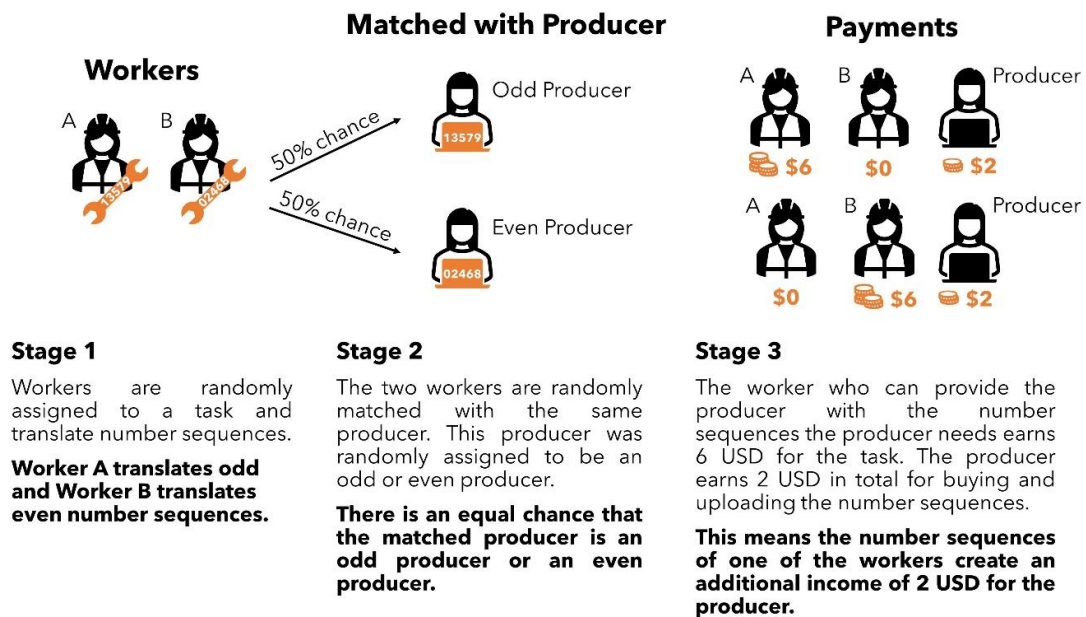
After completing the task, the workers were told that we recruited additional individuals, which we call the producers. Furthermore, the workers were told that the two of them **together are randomly matched with a producer who needed either odd or even numbers**. There was an equal chance that the matched producer was an odd producer or an even producer.

One worker could provide the producer with the number sequences that the producer needed. This worker earned 6 USD in addition to the participation compensation of 1 USD. The other worker earned nothing in addition for the task.

That is, if the workers were matched with a producer who needed odd numbers (odd producer), only the odd worker could sell his or her number sequences. Vice versa, if the workers were matched with a producer who needed even numbers (even producer), only the even worker could sell his or her number sequences.

The workers do not know whether they are matched with an odd or even producer. However, they were told that a third person – the **spectator** – is informed about the translation task, the task of the producer, and the matching with the producer. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task. **You are the third person, the spectator**, who can decide whether to redistribute earnings.

The figure below again illustrates how the earnings of the workers are determined.



Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, one out of every ten spectators is randomly selected to determine the final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take your decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**.

You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The amount of effort required to complete the task differs between tasks. (True, **False**)

Workers A and B are equally likely to be matched with an odd producer or with an even producer. (**True**, False)

The producers can choose whether they prefer to work with odd or even numbers. (True, **False**)

Even producers can only make additional earnings if they buy the number sequences from the worker who translated even numbers. (**True**, False)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated the number sequences. They were matched with a producer who needed the number sequences that worker A generated. **Worker A sold her number sequences and was paid by the producer.** Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.
- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

Finally, we are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers A and B? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

The context of your decision (**No-Exchange Treatment**)

As part of this study, we recruited two individuals via an online marketplace to work on a task for which they can earn money. Let us call them **worker A** and **worker B**.

The role of the workers

Each of the two workers was randomly assigned to one of two tasks that are very similar. Both workers had to generate number sequences. More precisely, they had to **translate sequences of 5 letters into sequences of 5 digits** with the help of a decryption key. The decryption key that each worker received indicates which letter corresponds to which digit. The workers translated the same letter sequences. The only difference between the two tasks was that in one case, the decryption key translates letters into **odd digits** and in the other case, the decryption key translates letters into **even digits**.

The figure below illustrates the decryption keys for the two workers and a translation example.

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

Decryption key of Worker A

B	H	K	M	S
↓	↓	↓	↓	↓
2	6	0	4	8

Decryption key of Worker B

Worker A: **HBKMS** → **73159**

Worker B: **HBKMS** → **62048**

Both workers had to translate 10 letter sequences correctly. Whereas **worker A** translated 10 letter sequences into **sequences of odd digits**, **worker B** translated 10 letter sequences into **sequences of even digits**. The amount of **effort** required to complete the task **did not differ between the two tasks**.

The role of the producers

Separately, we recruited other individuals who carried out a separate task for which they could not earn additional money. Let us call these individuals the **producers**.

The producers' task was to **enter and upload number sequences**.

Each producer was either an “odd” producer **or** an “even” producer. Whether a producer is classified as an odd or an even producer was randomly determined by a lottery.

Odd producers had to **enter and upload odd** number sequences; **even producers** had to **enter and upload even** number sequences.

Payment of producers

Producers were offered a participation compensation of 1 USD for entering and uploading the number sequences. In addition, each producer was randomly matched with a pair of workers A and B.

Payment of workers

Both workers received a participation compensation of 1 USD regardless of what they will be paid for the task.

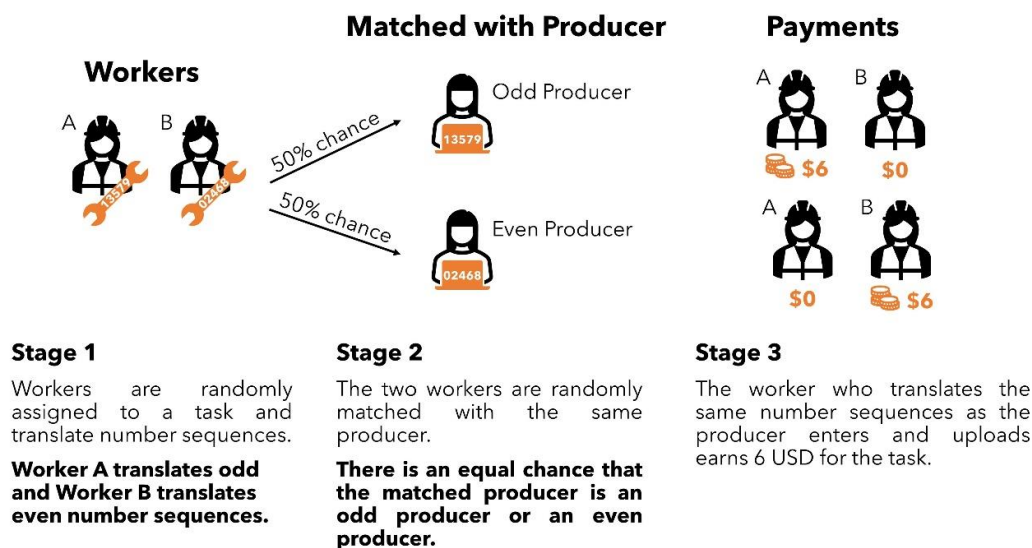
After completing the task, the workers were told that we recruited additional individuals, which we call the producers. Furthermore, the workers were told that the two of them **together are randomly matched with a producer**. There was an equal chance that the matched producer was an odd producer or an even producer.

One worker translated the same number sequences as the matched producer entered and uploaded. This worker earned 6 USD in addition to the participation compensation of 1 USD. The other worker earned nothing in addition for the task.

That is, if the workers were matched with a producer who entered and uploaded odd numbers (odd producer), only the odd worker earned 6 USD in addition. Vice versa, if the workers were matched with a producer who entered and uploaded even numbers (even producer), only the even worker earned 6 USD in addition.

The workers do not know whether they are matched with an odd or even producer. However, they were told that a third person – the **spectator** – is informed about the translation task, the task of the producer, and the matching with the producer. Furthermore, they were told that the spectator is given the opportunity to redistribute the earnings and thus determines how much they are paid for the task. **You are the third person, the spectator, who can decide whether to redistribute earnings.**

The figure below again illustrates how the earnings of the workers are determined.



Your decision

Your role in this study is to **decide on the final earnings** that the two workers receive. This means, you can transfer money from the worker with the high earnings to the worker with the low earnings.

In this study there are other people in your role as spectator who make the same decision as you do. Some of you will be selected to determine the final amount of money that the two workers receive. So, **your decision might be implemented** as well.

More specifically, one out of every ten spectators is randomly selected to determine the final earnings. If you are selected, your decision will be implemented to determine the final money payments that workers A and B receive. **Your decision is completely anonymous, and you will not be informed whether your decision has been selected or not.**

Therefore, please take each decision seriously. It might matter a lot to two real people!

The workers will receive the payment that you choose for them within a few weeks but will not receive any further information.

Quiz

Before you make your decision, we ask you to take a **short quiz about the context of your decision**.

You can receive an additional bonus payment of 0.25 USD if you answer all questions correctly.

Before taking the short quiz, do you want to read the instructions again? (Yes, No)

We now ask you to take the short quiz about the context of your decision. Which of the following statements are correct?

Each worker is randomly assigned to one of two tasks. (**True**, False)

The amount of effort required to complete the task differs between tasks. (True, **False**)

Workers A and B are equally likely to be matched with an odd producer or with an even producer. (**True**, False)

The producers can choose whether they prefer to work with odd or even numbers. (True, **False**)

If your decision about the allocation of the earnings between workers A and B is selected, the two workers will receive the earnings that you chose for them. (**True**, False)

Your decision

We now want you to choose how to allocate the earnings between worker A and worker B.

Worker A and worker B both worked on the task and generated the number sequences. **Worker A translated the same number sequences as the producer they were matched with entered and uploaded.** Hence, **worker A earned 6 USD** for the task and **worker B earned nothing** for the task.

Please state which of the following alternatives you choose:

- I do not redistribute: worker A is paid 6 USD and worker B is paid 0 USD.
- I do redistribute: worker A is paid 5 USD and worker B is paid 1 USD.
- I do redistribute: worker A is paid 4 USD and worker B is paid 2 USD.
- I do redistribute: worker A is paid 3 USD and worker B is paid 3 USD.
- I do redistribute: worker A is paid 2 USD and worker B is paid 4 USD.
- I do redistribute: worker A is paid 1 USD and worker B is paid 5 USD.
- I do redistribute: worker A is paid 0 USD and worker B is paid 6 USD.

Finally, we are interested in your thoughts that lead to your payment decision.

Please describe briefly: What was the reasoning that shaped your decision how to split the money between the two workers A and B? _____

What do you think: Before you had the chance to redistribute their earnings, were both workers equally likely to receive the high earnings (i.e., 6 USD)? (Yes, No).

Demographics

Please tell us about yourself so we can put your other replies in greater context:

- What is your age?
- What is your gender?
 - Male
 - Female
 - Other: ____
 - Rather not say
- What is the primary ethnicity or race you identify with?
 - Asian/Asian American
 - Black/African American
 - White/European American
 - Hispanic/Latino
 - Other: ____
 - Rather not say
- Were you born in the United States?
 - Yes
 - No
- What was your yearly household income in 2022 in US dollars before taxes and deductions?
(Note: the household income is the total amount of money earned by all members of your household)
 - Less than 15,000
 - Between 15,000 and 25,000
 - Between 25,000 and 50,000
 - Between 50,000 and 75,000
 - Between 75,000 and 100,000
 - Between 100,000 and 150,000
 - Between 150,000 and 200,000
 - More than 200,000
- What is the highest educational level that you have attained?
 - 12th grade or less
 - Graduated high school or equivalent
 - Some college, no degree
 - Associate degree
 - Bachelor's degree
 - Post-graduate degree
- What is your current employment status?
 - Full-time employee
 - Part-time employee
 - Self-employed or small business owner
 - Unemployed
 - Student
 - Not in labor force (for example: retired, or full-time parent)
- In political matters, people talk of “the left” and “the right.” How would you place your views on this scale, generally speaking?
(10-point Scale: 1: Left to 10: Right)

- Do you think of yourself as closer to the Republican or Democratic party?
 - Democrat
 - Republican
 - Other: __

Policy Questions

In this part of the survey, we would like to know your opinion on different government policies.

In the following, you will see a list of different government policies. The list includes both policies that might already be in place and policies that are only being discussed but have not been implemented yet. Indicate for each of these policies, how strongly you support or oppose them.

- An increase in the top federal income tax rate for high-income households.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A tax on the wealth that people inherit from deceased family members (often called an estate tax).
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A tax on people's net wealth, i.e., on the value of all their assets minus their debt.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A full employment bill in which the government guarantees a job to everyone who wants to work.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- An increase in the federal minimum wage. (The current level is at 7.25 USD.)
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- An increase of unemployment benefits.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A universal basic income, where every citizen regularly receives a cash transfer unconditional on his or her employment status.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose

In this part of the survey, we are interested in your opinion about the role of the government. Indicate for each of the following statements, how strongly you agree or disagree with them:

- General:

In general, I trust the federal government to do what is right.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

- Trade:

The government should limit the import of foreign products in order to protect its domestic economy.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

- Immigration

The government should control its borders and impose restrictions on immigration in order to protect domestic jobs.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

- Automation

The government should raise a tax on robots in order to prevent workers to be replaced by machines.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

- Retraining & income support:

The government should provide retraining programs for workers in declining industries.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

- The government should provide income support for workers in declining industries.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

- Unions:

The government should strengthen the position of unions.

Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

Finally, please tell us how strongly you agree or disagree with the following statements.

- Income differences between individuals are acceptable if they result from differences in hard work and are not acceptable if they result from differences in luck.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Income differences between individuals are necessary because they incentivize individual effort and thereby increase overall wealth.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- In reality, hard work doesn't generally bring success - it's more a matter of luck.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

End of Survey

Thank you very much for participating in this study! Please click the button below to be redirected to Prolific and register your submission.


Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you had wished we asked? Please let us know what you think.

2 Instructions for Workers

Captcha

Please check the box below to proceed.

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Consent Form

Thank you for participating in this study.

Please read and follow all instructions carefully. Note that you will remain anonymous throughout the study. We will only use your Prolific ID to assign payment and check that you have not participated in this study before.

Task and duration. The study should last approximately 5 minutes. As part of the study, you will be working on a simple task. You will be given detailed instructions about the task. Please read the instructions carefully.

Payment. If you participate in this study, you will be paid a participation fee of 1 USD. In addition, you may earn additional money, depending on the actions you and others take. We need some time to transfer the additional payments. You will receive these payments within the next 4 weeks via a Prolific bonus transfer. We will try to be as fast as possible.

Confidentiality. We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subjects' rights. Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money. If you have any questions regarding this study, you may contact spectator-study@econ.uzh.ch.

Please indicate, in the box below, that you are at least 18 years old, a resident of the United States of America, have read and understood this consent form, and that you agree to participate in this study.

- I agree to participate in this study, am at least 18 years of age and a US resident, and have read this consent form.
- I do not want to participate in this study.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. _____

Your task

- You will be given 10 sequences of 5 **letters which you have to translate into 10 sequences of digits** with the help of a decryption key.
- The **decryption key tells you which letter corresponds to which even/odd number** and looks as follows:

B	H	K	M	S
↓	↓	↓	↓	↓
3	7	1	5	9

- **Please enter the number sequence in the field below the letter sequence.**
- For example, if you are given the letter sequence **HMSKB**, you should enter the number sequence **75913**.
- There will be an error message if the translated sequence is incorrect. In this case, you can reenter another sequence. Once you translated the sequence correctly, you can advance to the next sequence on the next page.
- The decryption key will be displayed on every page.
- To complete the task, you have to translate 10 sequences correctly.
- You can withdraw from the task at any point in time, but you will not receive any money in this case.

Make sure that you have read and understood the instructions. The task will start once you go to the next page.

➔ *Task: 10 letter sequences (one sequence per page with decryption key on every page)*

Congratulations, you have finished the task! Please continue to the next page to get information about your earnings.

Your earnings

We will now explain how you will be paid for your work. After you have completed this study, we will match you with another participant who has completed a similar task. The other participant decrypted the same letter sequences but with a decryption key that translates letters into odd/even numbers instead of odd/even numbers, as in your case. The payment to you and the other participant is determined by a two-stage process. Below we explain this process in more detail.

First stage: Market Luck/Profit-Only. To determine your earnings for the task, we recruit some additional participants, whom we call the “producers”. A producer can earn additional money if he or she acquires number sequences. Producers differ in that some producers can only earn money if they acquire odd numbers, and other producers can only earn money if they acquire even numbers.

You and the other participant will be matched with a randomly selected producer. The producer will not know the identity of you or the other participant but will be informed that there is a worker who translated the sequences that he or she needs.

The producer buys the number sequences either from you or the other participant. If the producer needs odd/even numbers, you earn 6 USD, and the other participant earns 0 USD. If the producer needs even/odd numbers, you earn 0 USD, and the other participant earns 6 USD.

First stage: No-Exchange. To determine your earnings for the assignment, we recruit some additional participants, whom we call the “producers”. Producers differ in that some producers enter and upload odd numbers, and other producers enter and upload even numbers.

You and the other participant will be matched with a randomly selected producer. The producer will not know the identity of you or the other participant.

If the producer enters and uploads odd/even numbers, you earn 6 USD, and the other participant earns 0 USD. If the producer enters and uploads even/odd numbers, you earn 0 USD, and the other participant earns 6 USD.

First stage: Brute Luck. For this task, the earnings of you and the other participant are determined by a lottery. Each of you has the same chance to earn 6 USD or 0 USD.

Second stage. For this part of the study, we again recruit other additional participants, whom we will call the “Spectators”. A randomly selected Spectator will be given the opportunity to redistribute the earnings between you and the other participant: increasing the payment of the participant with the low earnings by 1 USD decreases the other participant’s payment by 1 USD.

The spectator will not know the identity of you or the other participant but will be informed about the nature of the task and the allocation of earnings in the first stage.

If the spectator chooses not to redistribute earnings, each of you will be paid your earnings as determined in the first stage.

If the spectator chooses to redistribute earnings, you will be paid according to the distribution that the Spectator chose.

You will receive your additional payment for the task within 4 weeks and it will be paid separately from your participation fee of 1 USD.

End of Survey

Thank you very much for participating in this study!


Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you had wished we asked? Please let us know what you think.

3 Instructions for Buyers

Captcha

Please check the box below to proceed.

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Consent Form

Thank you for participating in this study.

Please read and follow all instructions carefully. Note that you will remain anonymous throughout the study, we will only use your Prolific ID to assign payment and check that you have not participated in this study before.

Task and duration. The study should last approximately 5 minutes. As part of the study, you will be working on a simple task. You will be given detailed instructions about the task. Please read the instructions carefully.

Payment. If you participate in this study, you will be paid a participation fee of 1 USD.

Confidentiality. We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subjects' rights. Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money. If you have any questions regarding this study, you may contact spectator-study@econ.uzh.ch.

Please indicate, in the box below, that you are at least 18 years old, a resident of the United States of America, have read and understood this consent form, and that you agree to participate in this study.

- I agree to participate in this study, am at least 18 years of age and a US resident, and have read this consent form.
- I do not want to participate in this study.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. ____

Choice of numbers: **Market Luck**

In the following, you will work on a task that involves numbers.

You can now choose with which set of numbers you prefer to work. There is no right or wrong answer. Just choose the set of numbers you like more.

- 0, 2, 4, 6, 8
- 1, 3, 5, 7, 9

Your task: **Market Luck/Profit-Only**

Your task in this study is to **upload sequences of 5 odd/even digits**. To do that, you will have to **buy these number sequences from another participant**. We will call this participant “the Worker”. You can get additional earnings if you upload all the sequences.

We will now give you detailed information about your task. Make sure that you read and understand the instructions.

Buying and uploading the sequences:

- First, you automatically **buy** 10 number **sequences** from the Worker **for a fixed price of 6 USD**.
- You will then have to upload the number sequences.
- For that, you will be shown a list of number sequences in random order.
- To upload your number sequences, **you must find and check off each of your number sequences** from the list of number sequences by clicking on it. **Each of your 10 number sequences occurs once** in the same list.
- Below, you are shown a simplified example to make sure you understand the upload task:

Upload

These are the number sequences you need to upload by checking them off in the matrix below.

31759, 73159, 13759

Please, finish the upload and continue to the next page by clicking on the arrow at the bottom once you checked off all the sequences

31759	51379	13759
15739	91357	39571
51973	35917	73159

Your task: No-Exchange

Your task in this study is to **upload sequences of 5 odd/even digits**.

We will now give you detailed information about your task. Make sure that you read and understand the instructions.

Uploading the sequences:

- You are given 10 number sequences consisting of 5 odd/even digits.
- You will have to upload these number sequences.
- For that, you will be shown a list of number sequences in random order.
- To upload your number sequences, **you must find and check off each of your number sequences** from the list of number sequences by clicking on it. **Each of your 10 number sequences occurs once** in the same list.
- Below, you are shown a simplified example to make sure you understand the upload task:

Upload

These are the number sequences you need to upload by checking them off in the matrix below.

31759, 73159, 13759

Please, finish the upload and continue to the next page by clicking on the arrow at the bottom once you checked off all the sequences

31759	51379	13759
15739	91357	39571
51973	35917	73159

Your earnings: Market Luck/Profit-Only

- If you upload all sequences, you can earn a total amount of 8 USD.
- In other words, if you upload all the sequences, **you get additional payments of 2 USD** (8 USD (upload) – 6 USD (fixed price))
- Note that you do not earn any additional money if you check off a wrong sequence.

Your earnings: No-Exchange

If you upload all your sequences, you earn the participation compensation of 1 USD.

You will continue with the upload of the number sequences on the next page.

Upload

These are the number sequences you need to upload by checking them off in the list of numbers below.

➔ *Display number sequences*

Please, finish the upload and continue to the next page by clicking on the arrow at the bottom once you checked off all the sequences.

➔ *Task: Matrix of number sequences*

You have now completed the task.

Payment: **Market Luck/Profit-Only**

You will receive your additional payment for the assignment within 4 weeks and it will be paid separately from your participation fee of 1 USD.

Thank you very much for participating in this study!


Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you wished we had asked? Please let us know what you think.

F.3 Survey Experiment

Captcha

Please check the box below to proceed.

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Consent Form

Thank you for participating in this study.

This is a survey being conducted by researchers at the University of Zurich. All data collected in this survey are for research purposes only.

Task and Duration:

The study should last 20 minutes or less. You will make decisions that can have real-life consequences. It is therefore important that you read and follow the instructions carefully.

Compensation:

For your participation, you will be paid a participation compensation of USD 4.

Risk and Benefits:

The risks to you from participating in this study are those associated with basic computer tasks, including boredom, fatigue, or mild stress. The benefit to you is that you contribute to the advancement of scientific knowledge.

Confidentiality:

We will not ask for any personally identifying information about you, and all your answers are completely anonymous. The data may be published in aggregate form in scientific articles or academic presentations. Your personal identity will not be revealed.

Subject's Rights:

Your participation is voluntary. You may withdraw at any time during the study. However, if you withdraw, you will not receive any money.

For additional questions about this research, you may contact spectator-study@econ.uzh.ch.

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID. ____

Attention Check

This study should take about 10 minutes to complete. It is important that you take the time to read all instructions and that you read questions carefully before you answer them. Previous research has found that some people do not take the time to read everything that is displayed. To show that you read our questions carefully, please choose both 'Monday and 'Tuesday as your answer in the first question and type 'dart' into the 'Other' field of the second question.

Given the above, what are your preferred days to do sports? (Click all that apply)

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

Given the above, what is your favorite sport?

- American football
- Baseball
- Ice hockey
- Tennis
- Golf
- Wrestling
- Soccer
- Other: ____

Vignettes Intro

In the following pages, **you will read about scenarios in which two individuals who are working end up earning different salaries.** It is explained how the difference in annual earnings between the two individuals occurs.

Your task is to evaluate whether you consider the difference in annual earnings to be fair or unfair. Please read the description of the scenarios carefully.

Scenario Taste Shock

Noah and Liam (Barbara and Sarah) are of the same age but work in different companies. They both work hard, perform well in their jobs, and have similar annual earnings. The companies Noah and Liam work for offer different products to consumers. Because Noah and Liam have different skills, Noah could not work in Liam's company, and Liam could not work in Noah's company.

A **shift in consumers' taste** boosts sales at Noah's company, leaving Liam's company unaffected. As a result, **Noah's annual earnings increase**, while **Liam's annual earnings remain unchanged**. [This change in consumer taste was completely unexpected at the time when Noah and Liam made their career choices.]

Please indicate the extent to which you think it is fair or unfair that Noah now earns more than Liam because of this [unexpected] change in consumer taste.

Scenario Immigration

Mike and Paul (Emma and Olivia) are of the same age but work in different occupations. They both work hard, perform well in their jobs, and have similar annual earnings. Because Mike and Paul have different skills, Mike could not work in Paul's job, and Paul could not work in Mike's job.

Due to an **inflow of immigrants**, there are now many more workers who do the same job as Mike, while there is no change in the number of workers in Paul's job. As a result, **Mike's annual earnings decrease**, while **Paul's annual earnings remain unchanged**. [This immigration wave was completely unexpected at the time when Mike and Paul made their career choices.]

Please indicate the extent to which you think it is fair or unfair that Paul now earns more than Mike because of this [unexpected] increase in immigration.

Scenario Trade

Ethan and Lucas (Mary and Patricia) are of the same age but work in different occupations. They both work hard, perform well in their jobs, and have similar annual earnings. Because Ethan and Lucas have different skills, Ethan could not work in Lucas' job, and Lucas could not work in Ethan's job.

The sector in which Ethan works experiences an **increase in imports from foreign countries**, leading to higher foreign competition in this sector. The sector in which Lucas works remains unaffected by this increase in foreign competition. As a result, **Ethan's annual earnings decrease**, while **Lucas's annual earnings remain unchanged**. [This increase in foreign competition was completely unexpected at the time when Ethan and Lucas made their career choices.]

Please indicate the extent to which you think it is fair or unfair that Lucas now earns more than Ethan because of this [unexpected] increase in foreign competition.

Scenario SBTC: Productivity gain

James and David (Sophia and Charlotte) are of the same age but work in different occupations. They both work hard, perform well in their jobs, and have similar annual earnings. Because James and David have different skills, James could not work in David's job, and David could not work in James's job.

Technological advancements lead to innovations, such as new machinery and computer programs, which make David more productive in his job. James' productivity remains unaffected by these innovations. As a result, **David's annual earnings increase**, while **James' annual earnings remain unchanged**. [These innovations were completely unexpected at the time when James and David made their career choices.]

Please indicate the extent to which you think it is fair or unfair that David now earns more than James because of this [unexpected] technological advancements.

Scenario SBTC: Productivity Loss

Michael and Daniel (Linda and Jennifer) are of the same age but work in different occupations. They both work hard, perform well in their jobs, and have similar annual earnings. Because Michael and Daniel have different skills, Michael could not work in Daniel's job, and Daniel could not work in Michael's job.

Recent innovations in automation have resulted in technology performing some tasks that were part of Michael's job. Daniel's job remains unaffected by these innovations. As a result, **Michael's annual earnings decrease**, while **Daniel's annual earnings remain unchanged**. [This automation was completely

unexpected at the time when Michael and Daniel made their career choices.]

Please indicate the extent to which you think it is fair or unfair that Daniel now earns more than Michael because of this [unexpected] automation.

Scenario Effort

Charles and Thomas (Mia and Emily) are of the same age and work in the same job. They work for different companies but have similar annual earnings.

Charles works harder than Thomas and receives a pay raise. As a result, **Charles' annual earnings increase**, while **Thomas' annual earnings remain unchanged**.

Please indicate the extent to which you think it is fair or unfair that Charles earns more than Thomas because he works harder.

Scenario Luck

Samuel and William (Karen and Nancy) are of the same age and work in the same job at different branches of the same company. They both work hard, perform well in their jobs, and have similar annual earnings.

The **company organizes a lottery** to determine which of the two equally successful branches will get a pay raise. Samuel's branch wins the lottery. As a result, **Samuel's annual earnings increase**, while **William's annual earnings remain unchanged**.

Please indicate the extent to which you think it is fair or unfair that Samuel now earns more than William because he won the lottery.

7-point scale: Completely unfair – completely fair

Please briefly explain your reasoning: Why do you believe it is fair or unfair that Samuel now earns more than William because of [shock]? (This is optional) _____

Please indicate how strongly you disagree or agree with this statement: **"This kind of income difference is an effective way to motivate people like Nancy and Karen to work harder, so it is good for the economy."**

7-point scale: Strongly disagree – Strongly agree

Demographics

Please tell us about yourself so we can put your other replies in greater context:

- What is your age?
- What is your gender?
 - Male
 - Female
 - Other: ____
 - Rather not say
- What is the primary ethnicity or race you identify with?
 - Asian/Asian American
 - Black/African American
 - White/European American
 - Hispanic/Latino
 - Other: ____
 - Rather not say
- In which ZIP code do you live?
- What was your yearly household income in 2023 in US dollars before taxes and deductions? (Note: the household income is the total amount of money earned by all members of your household)
 - Less than 15,000
 - Between 15,000 and 24,999
 - Between 25,000 and 49,999
 - Between 50,000 and 74,999
 - Between 75,000 and 99,999
 - Between 100,000 and 149,999
 - Between 150,000 and 199,999
 - More than 200,000
- What is the highest educational level that you have attained?
 - 12th grade or less
 - Graduated high school or equivalent
 - Some college, no degree
 - Associate degree
 - Bachelor's degree
 - Post-graduate degree

- What is your current employment status?
 - Full-time employee
 - Part-time employee
 - Self-employed or small business owner
 - Unemployed
 - Student
 - Not in labor force (for example: retired, or full-time parent)

- Have you experienced unemployment due to job loss in the past?
 - Yes
 - No
 - Rather not say

- If yes: When was the last time you were unemployed due to job loss?
 - After 2019
 - Between 2015 and 2019
 - Between 2010 and 2014
 - Between 2005 and 2009
 - Between 2000 and 2004
 - Before 2000

- In which industry are you currently working? If you're currently not employed, please select the industry you most recently worked in.
 Use the drop-down menu to specify your industry (Major first, then minor, and lastly the detailed industry.)
 Major (1)
 Minor (2)
 Detailed (3)

- Have you changed the industry you are working in the past?
 - Yes
 - No

- If yes: Please indicate whether your change of industry was voluntary or involuntary (for example, due to job loss).
 - Voluntary
 - Involuntary
 - Rather not say

- If yes: When did your latest industry change occur?
 - After 2019
 - Between 2015 and 2019
 - Between 2010 and 2014
 - Between 2005 and 2009
 - Between 2000 and 2004
 - Before 2000

- Please indicate for each development below whether you think your occupation has been negatively or positively affected by it.
 - Immigration
 - Technological advancements and innovations
 - International trade and imports from foreign countries
 - Changes in consumer taste

(5-point scale: very negatively – neither negatively nor positively – very positively)

- In political matters, people talk of “the left” and “the right.” How would you place your views on this scale, generally speaking?
(11-point Scale: 0: Left to 10: Right)

- In politics, as of today, do you consider yourself a Republican, a Democrat, or an Independent?
 - Democrat
 - Republican
 - Independent

- If Independent: If you had to pick between one of the two, which better describes you?
 - Democrats
 - Republicans
 - Rather not say

Policy Questions

In this part of the survey, we would like to know your opinion on different government policies.

In the following, you will see a list of different government policies. The list includes both policies that might already be in place and policies that are only being discussed but have not been implemented yet. Indicate for each of these policies, how strongly you support or oppose them.

- An increase in the top federal income tax rate for high-income households.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A tax on people's net wealth, this means on the value of all their assets minus their debt.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A full employment bill in which the government guarantees a job to everyone who wants to work.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- An increase in the federal minimum wage. (The current level is 7.25 USD.)
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- An increase in unemployment benefits.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose
- A universal basic income, where every citizen regularly receives a cash transfer unconditional on his or her employment status.
Strongly support; Somewhat support; Neither support nor oppose; Somewhat oppose; Strongly oppose

In this part of the survey, we are interested in your opinion about the role of the government. Indicate for each of the following statements, how strongly you agree or disagree with them:

- General:
It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Trade:
The government should limit the import of foreign products to protect its domestic economy.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Immigration
The government should control its borders and impose restrictions on immigration to protect domestic jobs.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Automation
The government should raise a tax on robots to prevent workers from being replaced by machines.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Retraining & income support:
The government should provide retraining programs for workers in declining industries.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- The government should provide income support for workers in declining industries.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Unions:
The government should strengthen the position of unions.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

Inequality Beliefs

Now, please tell us how strongly you agree or disagree with the following statements.

- Income differences are acceptable when due to hard work but not when arising from luck.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Income differences are essential as they motivate personal effort and increase overall wealth.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- In reality, hard work doesn't generally bring success - it's more a matter of luck.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

Beliefs in Markets

Finally, please tell us how strongly you agree or disagree with the following statements.

- In free market systems, people tend to get the outcomes that they deserve.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Free markets are generally efficient in allocating resources and promoting economic growth.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- For the economy to work well, it's best if the government intervenes and regulates markets and businesses as little as possible.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree
- Private ownership of businesses and industries is essential for a strong economy.
Strongly agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Strongly disagree

End of Survey

Thank you very much for participating in this study!

Do you have any comments or suggestions you would like to share with the researchers who designed this study? Is there anything you found unclear or confusing? Are there questions you had wished we asked? Please let us know what you think.