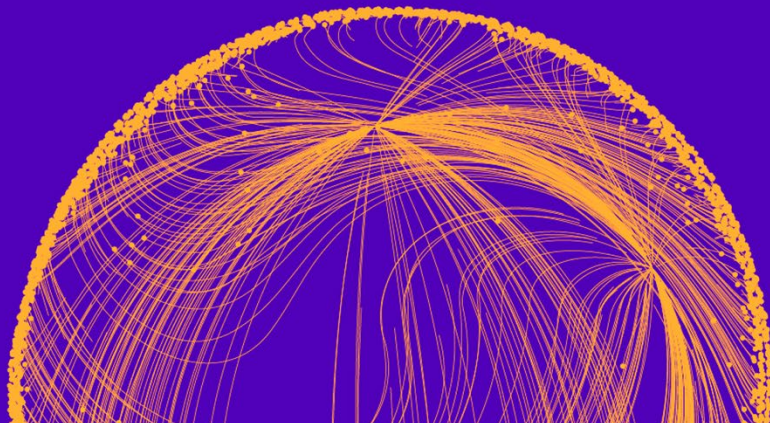


HELSINKI GSE DISCUSSION PAPERS 61 · 2026

Which Ponds Do We Choose, and Why? The Choice of Income Reference Group and Its Consequences

Satu Metsälampi
Xiaogeng Xu
Michael Kirchler
Kaisa Kotakorpi
Peter Hans Matthews
Topi Miettinen



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



A! Aalto University

Helsinki GSE Discussion Papers

Helsinki GSE Discussion Papers 61 · 2026

Satu Metsälampi, Xiaogeng Xu, Michael Kirchler, Kaisa Kotakorpi, Peter
Hans Matthews, and Topi Miettinen

Which Ponds Do We Choose, and Why? The Choice of Income Reference
Group and Its Consequences

ISBN 978-952-7543-60-3 (PDF)

ISSN 2954-1492

Helsinki GSE Discussion Papers:

<https://www.helsinkigse.fi/discussion-papers>

Helsinki Graduate School of Economics

PO BOX 21210

FI-00076 AALTO

FINLAND

Helsinki, August 2026

Which Ponds Do We Choose, and Why? The Choice of Income Reference Group and Its Consequences*

Satu Metsälampi,^{1,2} Xiaogeng Xu,^{3,4} Michael Kirchler,⁵
Kaisa Kotakorpi,^{2,6} Peter Hans Matthews,^{4,7,8,*} Topi Miettinen^{3,4}

¹Department of Economics, University of Turku; Turku, Finland.

²Finnish Centre of Excellence in Tax Systems Research (FIT)

³Department of Economics, Hanken School of Economics; Helsinki, Finland.

⁴Helsinki Graduate School of Economics; Helsinki, Finland.

⁵Department of Banking and Finance, University of Innsbruck; Innsbruck, Austria.

⁶Department of Economics, Tampere University; Tampere, Finland.

⁷Department of Economics; Middlebury College; Vermont, USA.

⁸Department of Economics; Aalto University; Espoo, Finland.

*Corresponding author. E-mail: pmatthew@middlebury.edu

*We acknowledge the financial support from The Academy of Finland, project (grant no. 332550), Finnish Centre of Excellence in Tax Systems Research / Academy of Finland (grant no. 346250), the Austrian Science Fund (SFB F63 and PAT2142125), the Austrian National Bank (ID 19125). Finnish Cultural Foundation (grant no. 00210723) and the Yrjö Jahnsson Foundation (grant no. 20177011). We are grateful for the feedback from B. Bartling, K. Berg, E. Fehr, M. Sutter, B. Tungodden, and audiences in Bergen (FAIR), Kiel, Oslo, NCBEE 2023 in Lund, at IIPF Prague 2024, ESA European Meeting in Helsinki 2024, and 46th Finnish Economic Association Meeting 2026. The study was approved by Hanken's Research Ethics Committee on December 12, 2019. The RCT ID is AEARCTR-0011720.

Abstract

Although higher status or income rank is known to generate hedonic pleasure, little is known about the search for rank information. We report an experiment eliciting rank beliefs and providing rank information to a large sample of mid-career Finns, with both exogenous and endogenous choice of reference populations. Nearly half care most about rank within occupation, and few about national rank. This choice pattern itself, the reported motivations, interactions between choice and its motivation, and the longer-run effects of rank information on real behavior are all consistent with instrumentally motivated search, and inconsistent with purely hedonic motives for search. Yet, the short-run well-being effects of rank information are consistent with hedonic motivation. We provide a resolution of this apparent puzzle.

JEL Codes: D63, D8, D91, I31

Keywords: Relative position, individual welfare, fairness, comparison group, information provision

1 Introduction

[Frank \(1985\)](#) was among the first to argue that in the human quest for status, local hierarchies were often more salient than national or international ones. In his preferred example, the problem of “choosing the right pond” involved workers selecting from among positions in which there was a trade-off between the expected level of income and within-firm income rank. Other examples have followed, but most suffer from two weaknesses. First, the relevant reference group, local or otherwise, is nearly always assumed. With a few exceptions ([Mayraz et al., 2009](#); [de la Garza et al., 2012](#); [Goerke and Pannenberg, 2015](#); [Clark and Senik, 2010](#)), empirical studies have imposed reference groups, whether professional ([Clark and Oswald, 1996](#); [Ferrer-i-Carbonell, Ada, 2005](#); [Godechot and Senik, 2015](#)), national ([Easterlin, 1974, 1995](#); [McBride, 2001](#)), or local such as neighborhood ([Luttmer, 2005](#)). Second, and as a consequence, the existing literature does not consider the choice of reference group, or what drives that choice, or how the consequences of acquired information differ from exogenous or random information provision.¹ This is precisely what we do here, using a large-scale information provision survey experiment. Participants were exposed to one of several broad or narrow reference distributions, which were either randomly assigned or chosen endogenously by the participant. The opportunity to choose the reference (rank) distribution was itself randomly assigned. This is, to our knowledge, the first experiment of its kind.

In the experiment conducted in collaboration with Statistics Finland, we first elicited the beliefs of a sample of 6642 mid-career Finns, about their real-world income ranks within their occupational group, education level, age cohort, municipality of residence, and Finland’s national income distribution. In five experimental conditions, participants learned their status in one of these five reference groups chosen at random. We devote particular attention to a sixth

¹Existing online and lab experiments investigate the choice of peers, but not of reference groups, in organizational settings studying performance and stress as outcomes ([Kiessling et al., 2022](#); [Senn et al., 2026](#)).

condition, which we call Treatment CHOICE, in which respondents choose which reference group rank to learn. Before revealing the chosen information, participants also shared the motivations behind their choice. After learning their actual rank, respondents then answered a series of questions measuring subjective well-being (SWB) and preferences and real choices. The design of the survey is explained in more detail in the Appendix; the survey screens are available at [OSF \(Open Science Repository\)](#).

Our work contributes to the growing literature on information provision experiments ([Haaland et al., 2023](#); [Coibion and Gorodnichenko, 2026](#)), which have allowed social scientists to estimate the causal effects of beliefs or expectations on decisions and outcomes. Such relationships are often central to the models we build, but challenging to characterize because beliefs and expectations are typically endogenous. Under standard implementations, researchers elicit beliefs from all participants and then provide information - which, if credible, causes these beliefs to be updated - to a random subset of these. We do this but, extending this framework, also allow some subjects to choose which information to receive.

Our paper fills key knowledge gaps about the determinants of information search, and the effects of rank information on well-being and real behavior. The motivation for the treatment with chosen information is that it more closely mimics the real life case of deciding what information to acquire. Further, it allows for direct inference on what information matters to individuals, as opposed to indirect inference based on their reactions to information received at random. Moreover, our design allows the comparison of the effect of rank information of an exogenously assigned reference group to that of a chosen one. We note that if the effects of chosen information differ from those with random assignment of information, a reappraisal of the lessons learned from earlier information provision experiments would be needed.

The impact of rank information on SWB is *a priori* ambiguous. Learning that one's own income is lower (higher) than expected, or lower (higher) than that of others, could decrease (in-

crease) SWB for familiar hedonic reasons (Clark and Senik, 2010; Xu et al., forthcoming).² But learning that one is a “smaller fish” than expected in a particular pond could also provide actionable information, the future benefits of which might mitigate the effects of, for example, experienced unfairness or envy. If the information leads to finding a more attractive job (Card et al., 2012), negotiating a higher salary (Obloj and Zenger, 2022), working harder for a promotion, or taking action to manifest or correct some perceived unfairness (Cullen and Perez-Truglia, 2022), it could even increase long-run satisfaction (Senik, 2009; Clark et al., 2009; Hirschman and Rothschild, 1973). Providing a utility foundation for these behavioral reactions to injustice has been the core of inequity aversion and fairness models (Fehr and Schmidt, 2006; Cappelen et al., 2007), and behavioral evidence suggests that meritocratic fairness ideals seeking to equalize especially non-merited income differences are modal both in US and in Scandinavia (Almås et al., 2020).

It is critical to recognize that both hedonic and actionable motives might guide the search for information on relative standing in various ponds. In addition, since those motives also moderate the implied causal effects, the effects of exogenously assigned and endogenously acquired information could differ substantially. We provide the first evidence of the directions of such search, what motivates it, and how the causal effects depend on search.³

2 Results

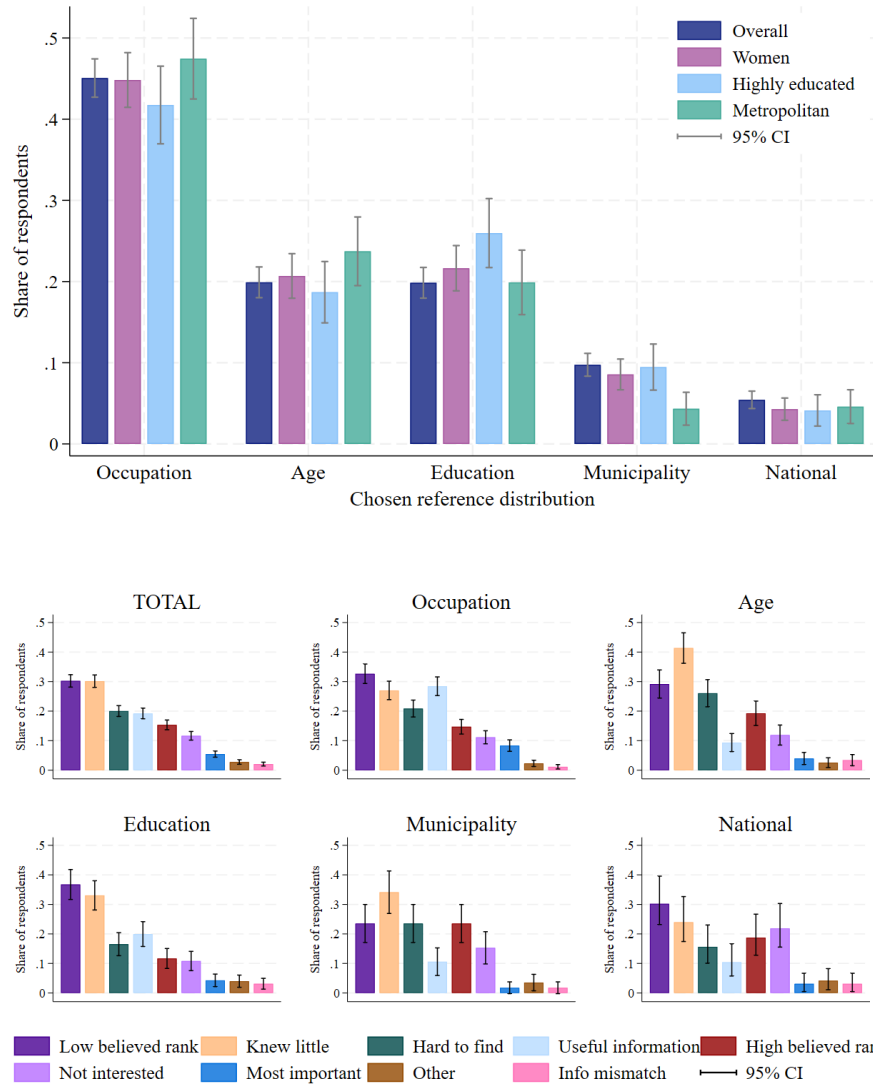
2.1 Choice of pond

Fig. 1(A) displays the chosen distributions, overall, for women, for the highly educated, and for residents of Finland’s capital region, while Fig. 1(B) depicts the stated reasons for these choices. The most striking feature of the data is the absence of primary interest in national

²Such effects are consistent with a host of theoretical literature e.g. Fehr and Schmidt (2006); Clark et al. (2008)

³An exception is Clark and Senik (2010) who investigate correlational evidence in a large-scale survey-setting.

status or rank, as shown in Fig. 1(A): just 5.4% chose to learn it contra the supposition of many economic models and empirical specifications in the literature ([Duesenberry, 1949](#); [Alesina et al., 2004](#); [Karadja et al., 2017](#)). Indeed, the diagram *overstates* this interest inasmuch as those who chose the national distribution were also more likely to disavow any interest in comparisons (as illustrated in Fig. 1(B) and Table [S5](#), see also Table [S9](#)). While the number who chose to learn municipal rank (9.7%) is almost twice as big—a result that might be ascribed to the importance of “experienced inequality” ([Bowles and Carlin, 2020](#))—the two place-based measures were together the least popular choices.



Top: Fig. 1(A). Overall share, share of women, share of highly educated and share Metropolitan area residing participants choosing each reference distribution information. The figure plots the overall and sub-population shares of participants choosing each reference distribution information. High education refers to having a master’s degree or higher level of education, Metropolitan for living in the Helsinki metropolitan area (Helsinki, Espoo, Vantaa or Kauniainen). **Bottom: Fig. 1(B). Motivation for choosing a particular reference distribution information.** Share of participants who checked the reason(s) out of all participants in treatment CHOICE (the first graph) and of the participants who chose a reference group (the last five graphs). Each participant may check more than one reasons for the choice of reference group. “Low (High) believed rank” indicates “I expected my income to be relatively low (high) and wanted to check whether it holds true.” “Knew little” indicates “I knew relatively little about my position in this group.” “Hard to find” indicates “This piece of information is difficult to find elsewhere.” “Useful information” indicates “I expect to use this information.” “Not interested” indicates “I am not interested in comparing my income to others’ incomes.” “Most important” indicates “This piece of information is most important to me.” “Others” indicates “Some other reason.” “Information mismatch” indicates “Some information in the registers was incorrect, which affected my choice.”

At the other extreme, 45.1% of participants chose to find out their rank in their occupational distribution, consistent with [Frank \(1985\)](#)’s emphasis on work-related hierarchies, and on the importance of different directions of income comparisons ([Mayraz et al., 2009](#); [de la Garza et al., 2012](#); [Goerke and Pannenberg, 2015](#)). This is also an example of “actionable information”: information about co-workers’ earnings could change bargaining ([Obloj and Zenger, 2022](#); [Roussille, 2024](#)) and search behavior ([Card et al., 2012](#)), or behaviors attempting to manifest and correct unfairness, especially non-merited income differences ([Cullen and Perez-Truglia, 2022](#)). (In Subsection 2.2 we study motivations behind these choices and argue why we think the choice is driven by actionable motives.) In between, we find two “peer group distributions”, age and level of education, each of which was chosen by about 20% of participants. Of these, education is related to merit in a similar manner to occupation and thus provides actionable information.

The same three-group partition - nation and municipality, age and education, and occupation - also characterises the subpopulations of women, the highly educated, and residents of the Helsinki metropolitan area, with two qualifications: The highly educated were more interested in their place within the education distribution (26.0%) than the age distribution (17.9%), and residents of the capital region are less interested in their place in the municipal distribution than those who live outside the metropolitan area ($D = 7.0$ pp, $p=0.000$, Table [S9](#), see also Table [S6](#) and Table [S8](#) controlling for ranks). The fact that highly educated are significantly more interested in their place in the merit-based education distribution is also consistent with actionable motives since highly educated typically have skills more transferrable across occupations.

2.2 Reasons behind pond choice

To explain their choice, participants selected among nine predetermined reasons, including “Other”. In addition, we allowed participants to declare that “I am not interested in com-

paring my income to others' incomes"—but still required them to choose one. Furthermore, we allowed individuals to choose more than one option, although most (67%) offered only one motivation. As depicted in Fig. 1(B), there are two surprises: the small proportion that checked “This information is most important to me” (5.7%) and the substantial proportion (12.2%) who claimed not to be interested in income comparisons. Together, these indicate that the importance of rank, and the information it conveys, is a common but not universal feature.

Indeed, almost half of the participants believed that their rank in a particular distribution was either low (31.9%) or high (16.2%) and wanted to confirm it, a particular manifestation of “importance.” The “high believed rank” motive is consistent with the hedonic-explanation of choosing the pond where one expects to rank high. The “low believed rank” motive is consistent with instrumental and fairness motives which, if actionable, can provide grounds for action to manifest or correct unfairness (Card et al., 2012; Obloj and Zenger, 2022; Cullen and Perez-Truglia, 2022), potentially leading to improved future satisfaction. As shown in Table S15, expressing a prior belief, whether high or low, as a motivation is strongly correlated with subjective well-being. Low believed rank is associated with substantially lower well-being in all measured dimensions (Table S15). Moreover, “low believed rank” is correlated with job search intentions (Table S16), suggesting that for many respondents “low believed rank” signifies “too low” or “unjustly low”. Wanting to confirm a high rank, by contrast, is positively associated with income, wage and job satisfaction, as well as perceived job meaningfulness.

We also note that what could be described as the explicitly instrumental motivation—“I expect to use this information”—is also popular: 20.2% chose it. Almost a third of all responses included related explanations “Hard to Find” (21.1%) or “Knew Little” (31.8%). We interpret this as a demand for information *per se*.

A comparison of the different reference groups reveals some exceptions. For example, much of the demand for information is associated with the occupation and, to a lesser extent,

education distributions. This is consistent with intuition: learning about rank in the occupational distribution—the quintessential peer group—should inform both wage bargaining and job search. Relatedly, “low believed rank” motivation features particularly frequently in the educational distribution and is consistent with wage bargaining and job search motives but also with actionable fairness motives.⁴ Meritocratic fairness ideals are known to be important both in the Nordic countries and in the US (Almås et al., 2020), and thus the high frequency of “low believed rank” in educational level and occupation reference groups, which both control for merit, is consistent with such meritocratic fairness motives also driving the choices of reference groups.

There are two distributions where hedonic motives of search seem to play an outsize role – the age and municipal distributions. Only when choosing these distributions, “high believed rank” is significantly more commonly reported than “useful” ($D = 10.0$ pp and $D = 13.0$ pp, respectively) reflecting relatively stronger hedonic than actionable motivations. Indeed, choosing each of these is positively correlated with the respondent’s rank in the respective reference group (Table S8). When choosing these two distributions, “knew little” is also more common than the desire to confirm an expected low rank. For the age distribution, these numbers are 29.2% and 41.4%, and the difference is large and significant ($D = 12.2$ pp, $p = 0.001$), while for the less popular municipal distribution, the numbers are 23.5%, 34.1% ($D=10.6$ pp, $p = 0.031$). Our results therefore suggest that although the primary motivations for search are instrumental, among the minority who choose the age or municipal distributions, hedonic reasons play a considerable role.

The relative importance of actionable over hedonic motives is also reflected in comparisons between perceived rank in the chosen distribution and the participant’s maximal and median

⁴consistent with instrumental income concerns, among respondents who selected “other, please specify” as their reason for choosing the “occupation” reference group, 9 out of 18 explicitly mentioned salary negotiations or job search as their motivation. With only a couple of exceptions, no comparable explanations emerged among those who chose other reference groups.

perceived rank among the five distributions. (Tables [S17](#), [S18](#), [S19](#), [S20](#).) Perceived rank in the chosen distribution is consistently below the participant's maximum perceived rank. Furthermore, when one of the most common reference distributions (occupation, education, or age) is selected, the perceived rank in the chosen distribution is below even the median perceived rank. The same patterns hold for true ranks.

Moreover, the modal choice of reference group is 'occupation' and, in that group, the wish to confirm a low expected rank is about twice as popular motivation as the wish to confirm a high expected rank (see Fig. [S5](#) for distributions of ranks, beliefs and misperceptions in reference group 'occupation'). The true ranks of those seeking to confirm a low rank are smaller than the ranks of those seeking to confirm a high rank or those who do not report any confirmatory motivation. However, their misperceptions are not different from those who do not have any confirmatory motivations. All this further supports the conclusion that the choices are unlikely to be predominantly driven by hedonic motives to search for evidence of high status, or for positive surprises about status.

The reported motivations for the demand of information reveal some differences between sub-populations (Table [S12](#), see also Table [S13](#) controlling for chosen reference distribution). Notably, the reported reasons driving the choice are different for men and women. Women are significantly more likely to report a desire to confirm a low believed rank ($p < 0.001$) and less likely to indicate high believed rank as motivation than men ($p < 0.001$). The highly educated and residents of the Helsinki metropolitan area are more likely to report high believed rank ($p < 0.05$) (Tables [S12](#) and [S13](#)).

2.3 Causal effects

We next examine the causal effects of rank information on subjective well-being and real behavior. [Xu et al. \(forthcoming\)](#) show that receiving new information about own income rank in one

randomly assigned reference distribution causally affects subjective well-being and income-related satisfaction.⁵ Moreover, the reference distributions that appear to matter most in this respect are occupation, education and age (Xu et al., forthcoming). Fig. 2 contrasts the effects of this randomly assigned information and the chosen, i.e., the most relevant or meaningful, information, conditional on the type of misperception for reference groups occupation, age and educational level. The estimation is a discretized version of the OLS regressions reported in the Supplemental Appendix tables S26-S31 corresponding to the adapted pre-registered main specification described in equation 1 in the Supplemental Appendix. We acknowledge that the groups who select to learn a particular piece of information may be selected, and the potential difference between the effects of randomly assigned information and chosen information incorporates such selection effects. However, this type of selection is an integral feature of real-life information search, and the comparison provides a meaningful generalisation of the effects of exogenous information provision, typically implemented in experiments. Further, we also present the results of a pooled version in Fig. S3. This latter analysis has a causal interpretation as it includes all respondents, and the recipients of chosen information are randomly selected from the pool of respondents.

As Fig. 2 illustrates, apart from a few exceptions, the relationship between well-being and receiving rank information about the chosen reference distribution is statistically indistinguishable from the impact of exogenously assigned information ($p > 0.05$). The same conclusion applies to municipality and national reference distributions (Figs. S1 and S2) and the pooled analysis (Fig. S3).

Finally, we turn to the effects of information on real behavior. This analysis is informative about the broader effects of rank information that facilitates income comparisons. The results are reported in Tables S33 - S40. We examine effects of relative income information on us-

⁵Hvidberg et al. (2023) study the effect of revealing income rank in several reference groups jointly.

Table 1: Effect of information on satisfaction with own disposable income

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.101 (0.193)	0.909*** (0.205)	0.826*** (0.164)	0.311* (0.142)	0.708*** (0.208)
Exo-info	-0.004 (0.059)	-0.019 (0.079)	-0.109 (0.067)	-0.095 (0.055)	0.119 (0.083)
Exo-info $\times$ Misperception	-0.862** (0.263)	-0.713* (0.278)	-0.965*** (0.234)	-0.606** (0.206)	-0.089 (0.291)
Endo-info	0.101 (0.068)	0.134 (0.120)	-0.211* (0.082)	-0.130* (0.057)	-0.059 (0.169)
Endo-info $\times$ Misperception	-0.472 (0.314)	-0.895* (0.395)	-1.115*** (0.286)	-0.479* (0.195)	-0.214 (0.619)
Constant	0.013 (0.044)	0.202*** (0.059)	0.170*** (0.048)	0.042 (0.040)	0.157** (0.059)
Exo=Endo	2.599 (0.107)	1.693 (0.193)	1.564 (0.211)	0.396 (0.529)	1.118 (0.290)
Exo $\times$ Misp.=Endo $\times$ Misp.	1.621 (0.203)	0.220 (0.639)	0.273 (0.601)	0.400 (0.527)	0.041 (0.840)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	2.091 (0.148)	0.003 (0.954)	0.527 (0.468)	0.161 (0.688)	0.159 (0.690)
Observations	1852	1663	1845	2262	1586

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on satisfaction with disposable income. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

ing some of one's survey compensation for charitable donations, purchasing lottery tickets, or voluntary tax payments. We also examine effects on labor income and new work contracts, recorded in register data. We found significant effects of exogenous information on charitable donations (intensive margin) and labor income in 2021 for the occupational reference group, as reported in [Xu et al. \(forthcoming\)](#). Those results are reproduced here, and the findings from the endogenous choice treatment are consistent: Again, we find significant effects of relative income information on charitable giving. Effects on labor income from receiving information about one's standing in the occupational reference group are somewhat smaller but statistically indistinguishable from the estimated effects of exogenous information. The finding that information affects real behavior resonates with the idea that actionable motives are important drivers of information choice.

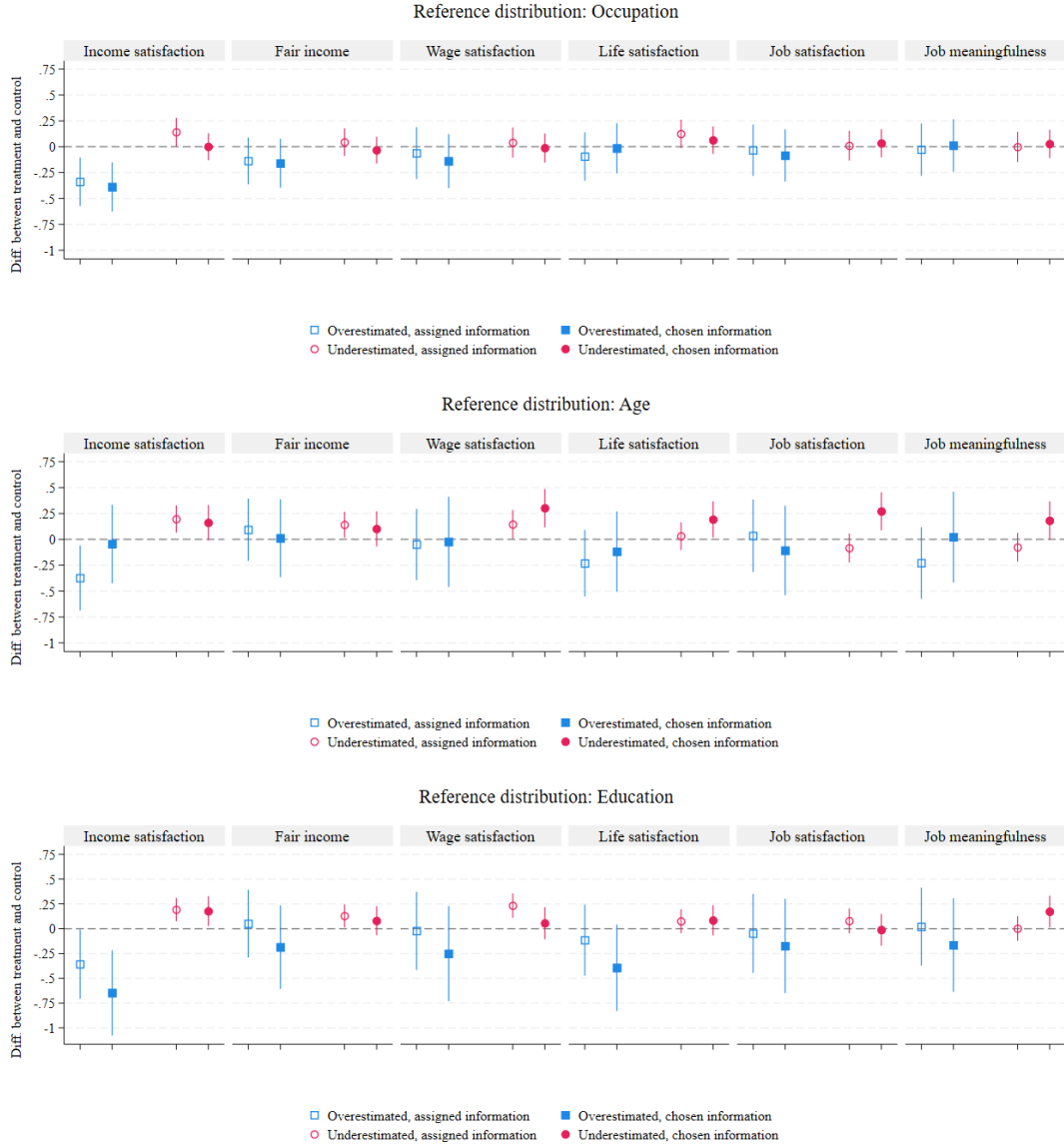


Fig. 2. Regression estimated effects of assigned and chosen information on subjective well-being in reference distributions occupation, age and education. Each bar plots the difference (95 % confidence interval) of a given outcome measure between the respondents who are in the control group (who receive no income rank information) and the respondents who were either exogenously assigned information (hollow markers), or chose to receive that information (filled markers). The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Respondents are categorized according to their misperceptions in the assigned or chosen reference distribution. “Overestimated” refers to those respondents who overestimate their income rank in a given reference distribution by more than 10 percentage points, “Underestimated” to those who underestimate their rank by more than 10 percentage points.

2.4 Summary

We set out to examine the anatomy and implications of relative income concerns: whom do we choose to compare ourselves to, why, and what are the consequences of such comparisons for well-being and behavior.

First, concerning the choice of reference group, a striking feature of our results is the overwhelming interest of our participants in narrow(er) and more merit-relevant reference frames: there was little interest in learning where one stood in the national or municipal income distributions, while most people were interested in their position in the income distribution corresponding to their occupation, level of education, or age. These latter reveal income rank relative to those who have a comparable skill set, or an equal opportunity to acquire a skill set and income; they are thus relevant for meritocratic income evaluations which are known to constitute a predominant mode of fairness evaluations ([Cappelen et al., 2007](#); [Almås et al., 2020](#)).

Second and relatedly, the choices of the reference groups seem to be driven by actionable and instrumental motives rather than hedonic ones. There are five patterns in the data which together provide evidence that this is the case. Pattern 1: the reference groups for which relative income information is actionable on pecuniary, fairness, or other grounds are precisely those most often chosen. Indeed, the usefulness of the information stands out as a distinctively popular motive for the choice of the “occupation” reference group. Pattern 2: the reference group choices “occupation” and “educational level” are most often motivated by willingness to confirm an expectation of a low rank—consistent with (actionable meritocratic) (un)fairness motives. Seeking to confirm an expected low rank is hard to reconcile with hedonic motives. Pattern 3: the choice of “occupation” is equally often motivated by usefulness of the information. Pattern 4: the perceived rank in the chosen distribution is consistently below the participant’s maximum perceived rank; when occupation or education is selected, the perceived rank in the chosen distribution is below even the median perceived rank. Pattern 5: the finding that

wage income changes relative to the control group when learning that one earns more or less than expected relative to those in the same occupational reference group suggests that some real action is being taken based on the actionable information searched for and received.⁶

On the final question—what are the consequences of these comparisons—we find that the causal effects of both exogenously assigned and endogenously acquired relative income information on subjective well-being are consistent with hedonic motives: positive (negative) surprises about rank increase (decrease) income satisfaction, and these effects do not differ significantly between exogenous and endogenous information. Further, we also find causal effects of relative income information on real behavior, in particular an increase in earned income as recorded in administrative data.

3 Discussion and concluding remarks

Our results give rise to an apparent puzzle: while the causal effects of rank information on subjective well-being are consistent with hedonic motivations, the reasons for pond choice appear driven by actionable or instrumental motivations. The latter finding is further corroborated by the observed changes in future behavior.

What explains this? Our preferred explanation is that the forecast horizon for hedonic well-being is short. Learning that one's rank is higher or lower than expected has a corresponding and immediate hedonic effect. However, we may choose to learn our occupational status, for example, because that information is actionable and it matters more to us than our national status. The net benefits of that action, and actions motivated by it, may be sometime in the future, and those benefits may more than offset the potentially negative short term hedonic

⁶We should remark that when actionable motives relate to helping others, these latter and hedonic motives (broadly defined) do not need to be in conflict: on the intensive margin of the charity donation data, we observe that those who choose to learn their position in the municipal or national distribution and who learn that their rank is higher than expected make larger donations to charity as a consequence (see Table 0.2 in the appendix). In the end, these are relatively rare events in our data, as the municipal and national distributions are least often chosen.

effects.

To illustrate, we present an organizing utility model in the Appendix, building on the model in the review article of Clark et al. (2008). In the model, in addition to the consumption value of income, people have psychological relative income concerns where well-being depends on one's income relative to others. The consumption and relative income value is evaluated at various time points. In a static one-period model, hedonic motives would always dominate search of relative income information, and one would choose a reference group where one expects to learn positive news and/or rank highly. In a dynamic setting, however, actions at an earlier point in time may influence both consumption and relative income in the future. Thus, information revealed earlier may motivate future actions and thus future consumption and relative income. Relative income information may influence both the pecuniary and hedonic payoffs later through job search, wage bargaining, job performance, or investment behavior. Such information may even motivate actions to reduce the incomes of others in the relevant reference group (Fehr and Senn, 2026). The dynamic model implies that there may be intertemporal utility tradeoffs where one accepts lower subjective wellbeing today to motivate future actions and gain higher utility later. Our results are consistent with the idea that such intertemporal actionable motives provide the predominant motives for search of relative income information, and they override hedonic (myopic) motives for the majority of active working life Finns.

The most fundamental lessons from our paper relate to the value of relative income information, highlighted by the above-mentioned puzzle and its resolution: rank information has both hedonic value - knowledge about rank gives people direct subjective psychological pleasure/pain - as well as instrumental value that affects both the directions of information search and hence accumulation of knowledge, as well as real economic outcomes such as earnings and charitable giving. This suggests that the welfare implications of rank information are likely much broader than the direct hedonic effects.

Further, our approach allows a generalization of previous research findings: We are the first to examine the effects of rank information, taking into account the possibility of choosing which comparisons to make - an essential feature of real-life information acquisition. Had we found that the subjective wellbeing effects of such information differed substantially from the effects of exogenously assigned information, such findings would have put into question much of the lessons from earlier information provision studies. However, our results indicate that the effects of exogenously provided and endogenously acquired information on subjective well-being do not differ substantially, and we show this in a unified experimental setting where these effects can indeed be reliably estimated and compared. On the other hand, our finding that people are not interested in national rank may imply that earlier research, which typically focuses on national comparisons, potentially underestimates the importance of rank effects.

References

- Alesina, Alberto, Rafael Di Tella, and Robert MacCulloch**, “Inequality and happiness: are Europeans and Americans different?,” *Journal of public economics*, 2004, 88 (9-10), 2009–2042.
- Almås, Ingvild, Alexander W. Cappelen, and Bertil Tungodden**, “Cutthroat Capitalism versus Cuddly Socialism: Are Americans More Meritocratic and Efficiency-Seeking than Scandinavians?,” *Journal of Political Economy*, 2020, 128 (5), 1753–1788.
- Bowles, Samuel and Wendy Carlin**, “Inequality as experienced difference: A reformulation of the Gini coefficient,” *Economics Letters*, 2020, 186, 108789.
- Cappelen, Alexander W., Astri Drange Hole, Erik Ø Sørensen, and Bertil Tungodden**, “The Pluralism of Fairness Ideals: An Experimental Approach,” *American Economic Review*, June 2007, 97 (3), 818–827.

- Card, David, Alexandre Mas, Enrico Moretti, and Emmanuel Saez**, “Inequality at work: The effect of peer salaries on job satisfaction,” *American Economic Review*, October 2012, *102* (6), 2981–3003.
- Clark, Andrew E. and Andrew J. Oswald**, “Satisfaction and comparison income,” *Journal of Public Economics*, September 1996, *61* (3), 359–381.
- **and Claudia Senik**, “Who Compares to Whom? The Anatomy of Income Comparisons in Europe*,” *The Economic Journal*, 2010, *120* (544), 573–594.
- Clark, Andrew E, Nicolai Kristensen, and Niels Westergård-Nielsen**, “Job satisfaction and co-worker wages: Status or signal?,” *Econ. J.*, March 2009, *119* (536), 430–447.
- **, Paul Frijters, and Michael A Shields**, “Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles,” *Journal of Economic literature*, 2008, *46* (1), 95–144.
- Coibion, Olivier and Yuriy Gorodnichenko**, “Schumpeter Lecture 2025: The New Causal Macroeconomics of Surveys and Experiments,” *Journal of the European Economic Association*, 2026, *24* (1), 58–81.
- Cullen, Zoë and Ricardo Perez-Truglia**, “How much does your boss make? The effects of salary comparisons,” *J. Polit. Econ.*, March 2022, *130* (3), 766–822.
- de la Garza, Adrián G, Giovanni Mastrobuoni, Atsushi Sannabe, and Katsunori Yamada**, “The Relative Utility Hypothesis With and Without Self-Reported Reference Wages,” *SSRN Electronic Journal*, July 2012.
- Duesenberry, James S.**, *Income, Saving, and the Theory of Consumer Behavior*, Cambridge, Mass.: Harvard University Press, 1949.

Easterlin, Richard A, “Does economic growth improve the human lot? Some empirical evidence,” in “Nations and households in economic growth,” Elsevier, 1974, pp. 89–125.

—, “Will raising the incomes of all increase the happiness of all?,” *Journal of Economic Behavior & Organization*, 1995, 27 (1), 35–47.

Fehr, Ernst and Julian Senn, *One Hundred Years of Game Theory: A Nobel Symposium*, Econometric Society Monographs. Cambridge University Press,

— and **Klaus M Schmidt**, “The economics of fairness, reciprocity and altruism—experimental evidence and new theories,” *Handbook of the economics of giving, altruism and reciprocity*, 2006, 1, 615–691.

Ferrer-i-Carbonell, Ada, “Income and well-being: an empirical analysis of the comparison income effect,” *Journal of Public Economics*, June 2005, 89 (5), 997–1019.

Frank, Robert H, *Choosing the right pond: Human behavior and the quest for status.*, Oxford University Press, 1985.

Godechot, Olivier and Claudia Senik, “Wage comparisons in and out of the firm. Evidence from a matched employer–employee French database,” *Journal of Economic Behavior & Organization*, 2015, 117, 395–410.

Goerke, Laszlo and Markus Pannenberg, “Direct evidence for income comparisons and subjective well-being across reference groups,” *Econ. Lett.*, December 2015, 137, 95–101.

Haaland, Ingar, Christopher Roth, and Johannes Wohlfart, “Designing information provision experiments,” *Journal of economic literature*, 2023, 61 (1), 3–40.

- Hirschman, Albert O and Michael Rothschild**, “The Changing Tolerance for Income Inequality in the Course of Economic Development: With A Mathematical Appendix,” *Q. J. Econ.*, November 1973, 87 (4), 544–566.
- Hvidberg, Kristoffer B, Claus T Kreiner, and Stefanie Stantcheva**, “Social Positions and Fairness Views on Inequality,” *The Review of Economic Studies*, 03 2023. rdad019.
- Karadja, Mounir, Johanna Mollerstrom, and David Seim**, “Richer and holier than thou? The effect of realtive income improvements on demand for redistribution,” *Review of Economics & Statistics*, May 2017, 99 (2), 201–212.
- Kiessling, Lukas, Jonas Radbruch, and Sebastian Schaub**, “Self-selection of peers and performance,” *Management Science*, 2022, 68 (11), 8184–8201.
- Luttmer, Erzo F. P.**, “Neighbors as Negatives: Relative Earnings and Well-Being,” *The Quarterly Journal of Economics*, August 2005, 120 (3), 963–1002.
- Mayraz, Guy, Gert G Wagner, and Jürgen Schupp**, “Life Satisfaction and Relative Income - Perceptions and Evidence,” August 2009.
- McBride, Michael**, “Relative-income effects on subjective well-being in the cross-section,” *Journal of Economic Behavior & Organization*, July 2001, 45 (3), 251–278.
- Obloj, Tomasz and Todd Zenger**, “The influence of pay transparency on (gender) inequity, inequality and the performance basis of pay,” *Nature Human Behaviour*, 2022, 6 (5), 646–655.
- Roussille, Nina**, “The role of the ask gap in gender pay inequality,” *The Quarterly Journal of Economics*, 2024, p. qjae004.

Senik, Claudia, “Direct evidence on income comparisons and their welfare effects,” *J. Econ. Behav. Organ.*, October 2009, 72 (1), 408–424.

Senn, Julien, Jan Schmitz, and Christian Zehnder, “Leveraging Social Comparisons: The Role of Peer Assignment Policies for Productivity and Stress,” *Journal of the European Economic Association*, 2026, p. jvag008.

Xu, Xiaogeng, Satu Metsälampi, Michael Kirchler, Kaisa Kotakorpi, Peter Hans Matthews, and Miettinen Topi, “Which income comparisons matter to people, and how? Evidence from a large field experiment,” 2023.

—, **Satu Metsälampi, Michael Kirchler, Kaisa Kotakorpi, Peter Hans Matthews, and Topi Miettinen**, “Which Reference Groups Matter and How? A Relative Income Information Experiment with Administrative Data,” *Am. Econ. J. Appl. Econ.*, forthcoming.

Supplemental Appendix

Materials and methods

Sample information

In cooperation with Statistics Finland (SF), we invited a stratified random sample of 20,000 Finns who had not permanently left the labor force at the time of the survey to participate in an incentivized survey experiment. Participants with basic and upper secondary education were oversampled to account for the expected unit non-response implied by the response rates in the pilot survey. The sample was restricted to people born between 1975 and 1985, who had a Finnish social security number in 2010, whose mother tongue is either Finnish or Swedish, Finnish or Swedish as their mother tongue, non-missing 2018 income and occupation information, who were not residents of Åland island and whose family status was not “child” in SF administrative data. This target population was chosen to capture individuals with established labor market attachment and remaining working years.

Sampling, randomization into treatments and invitation were conducted by SF. 33% of the 20,000 invitees started completing the survey and 92% of respondents completed it. The overall and per-treatment response and completion rates, target population and respondent population characteristics, and survey attrition are discussed in ([Xu et al., forthcoming](#)). The data collection was carried out in the summer of 2021 in cooperation with SF, and the collected survey data was linked to SF’s administrative records.

All analyses use all available observations, except regressions with outcomes using administrative records (earned income and new work contracts), which exclude participants who did not complete the survey. Additionally, 38 respondents who reported that incorrect occupational information in administrative records affected their choice are excluded from analyses of reference distribution choice, motivations, and related effects.

Survey design

The survey is personalized and contains incentivized belief elicitation and outcome measures, survey questions and information provision treatments.

Respondents log in with a personal username and password provided in the survey invitation. The survey begins with background questions, followed by elicitations of beliefs about respondents' 2018 disposable income rank within five reference groups. For each group, respondents report the share of individuals they believe had lower disposable income than themselves. The definition of disposable income is clarified in the survey by stating that "By income, we refer to the total after tax annual income, which contains income from labor and capital, as well as all transfers and subsidies like unemployment benefits and pensions (i.e., disposable income)." We use this *in-pocket-money* definition because it approximates well the standard of living and potential consumption, and is closely related to individual well-being. The beliefs are elicited in random order, and respondents receive a 5 EUR bonus if their assessment for a randomly selected group is correct.

Rank information is provided after belief elicitation, depending on treatment assignment. There are seven experimental conditions (Table S1). Participants assigned to the CONTROL group receive no information about their income rank, while participants in the exogenous and endogenous information treatments receive some information. In the five treatments with exogenously assigned information, participants are shown their income rank in the corresponding reference group distribution. The rank information is provided after belief elicitation, depending on treatment assignment. There are seven experimental conditions (Table S1). Participants in the CONTROL group receive no income rank information, while those in the exogenous and endogenous information treatments receive rank information. In the five exogenous treatments, participants are shown their income rank within the assigned reference group distribution.

In the endogenous information treatment CHOICE, participants get to choose one of the five

reference groups and receive the rank information accordingly. Before viewing the information, they specify reason(s) for choosing the particular information from a pre-specified list and add their own reasons in an open text box. The pre-specified options were designed based on the pilot survey, and displayed in random order, except for the option "Other" always listed last.

The remainder of the survey consists of a series of survey questions in six blocks: (i) individual well-being (fairness views of own income, feelings about income, life satisfaction, job/wage satisfaction, meaningfulness of job, and job search intentions); (ii) ideal income distribution, trust in institutions, attitudes toward policies (tax, labor market, welfare, migration, and trade); (iii) just world beliefs; (iv) self-assessment and social preferences; (v) political orientations; and (vi) real stakes giving tasks. The order of the first three blocks and the order of the questions within each block is randomized (with some exceptions, see description in online materials posted in research project's [Open Science Repository](#) for a full set of questions and a description of question ordering principles).

Theoretical Model

In this section, we propose a model which helps to understand the puzzling seemingly contradictory findings around hedonic and instrumental motives and effects of search.

We extend the organizing model of the review article of Clark et al. (2008, JEL) as follows

$$U_i = \sum_{t=1,2} E_{i,t} [v_{i,t}(y_{i,t}) + u_{i,t}(y_{i,t}, y^*(y_t)) | a_{\tau \leq t}]$$

Here i refers to the individual, t to time, $y_{i,t}$ is the income or consumption of i at time t which depends on the actions of i and others up to time t , a_t , $y^*(y_t)$ is a reference income which may depend on all incomes (and thus on all actions up to time t). In this model, v is the pecuniary and u is the hedonic component of utility at time t which is increasing in relative income and weakly positive if $y_{i,t} \geq y^*$ and negative otherwise. This component would react to relative income information in the manner observed in our data.

Remark that a static one-period model would predict that hedonic motives dominate search of relative income information to maximize the static u -component: one would choose a reference group where one expects to learn positive news and/or rank highly. Notice, however, that in a dynamic two-period model, actions at time $t = 1$ may in addition influence both components of utility at time $t = 2$ as information revealed at time $t = 1$ may motivate actions at time $t = 2$ to improve both pecuniary and hedonic payoff at time $t = 2$ through job search, wage bargaining, job performance, or investment behavior to increase v and/or u at time $t = 2$. Notice also that there may be intertemporal utility tradeoffs to accept lower u at time $t = 1$ to gain higher u and/or v at time $t = 2$. Our results are consistent with the idea that such intertemporal actionable motives provide the predominant motives for search of relative income information, and they override hedonic (myopic) motives for majority of active working life Finns.

Identification of the effects of rank information

All analyses in this paper are exploratory. The design of this study was pre-registered and the pre-analysis plan can be found in the [Open Science Repository](#).

We evaluate the effects of choosing and receiving the chosen income rank information and compare them to the case when the same information is exogenously assigned relying on the following modified version of the pre-registered main specification (see pre-analysis plan and [\(Xu et al., forthcoming\)](#)):

$$Y_i^k = \beta_0 + \beta_1(ER_i^j - R_i^j) + \beta_2 T_i^j + \beta_3 T_i^j \cdot (ER_i^j - R_i^j) + \beta_4 C_i^j + \beta_5 C_i^j \cdot (ER_i^j - R_i^j) + u_i. \quad (1)$$

In Equation (1), Y_i is the value of outcome k for individual i , R_i^j is i 's actual rank in distribution j , ER_i^j is the same individual's perception about her rank in j , so that $ER_i^j - R_i^j$ is her misperception about rank.

T_i^j is the exogenous treatment indicator that is equal to 1 if i is shown her actual rank in distribution j , and 0 otherwise. C_i^j is an indicator for being assigned to treatment CHOICE,

equal to 1 if i (has chosen and) is shown her actual rank in distribution j .

The main coefficient of interest is β_5 , which measures the relationship between chosen rank information and the relevant outcome and β_3 which measures the causal effect of the exogenously assigned information.

We illustrate the results with a version of the model in Equation (1) in which we discretize the continuous misperception measures, as in (Xu et al., forthcoming). Respondents are categorized into three classes (overestimated, approximately correct beliefs, underestimated) based on their misperceptions in their assigned (exogenous information treatments) or chosen reference distribution (treatment CHOICE). The model is estimated separately for endogenous and exogenous information treatments. The coefficients plotted in Fig. 2 and Figures S1 and S2 show the difference of a given outcome measure between respondents who were in the control group and therefore did not receive any income rank information and the respondents who were either exogenously assigned information or chose to receive that particular piece of information, for different reference groups. The pooled version is presented in Fig. S3.

Supplementary figures

Figure S1: Effect of assigned and chosen municipal rank information on well-being

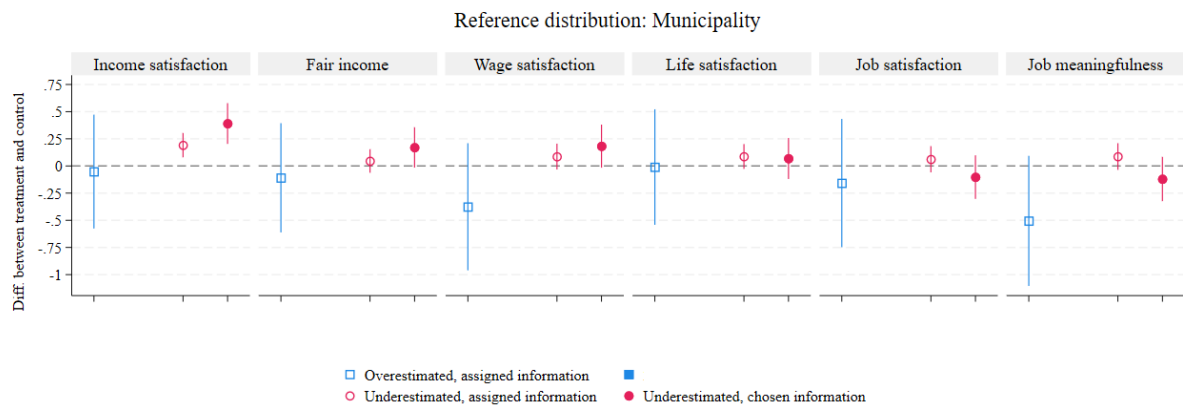


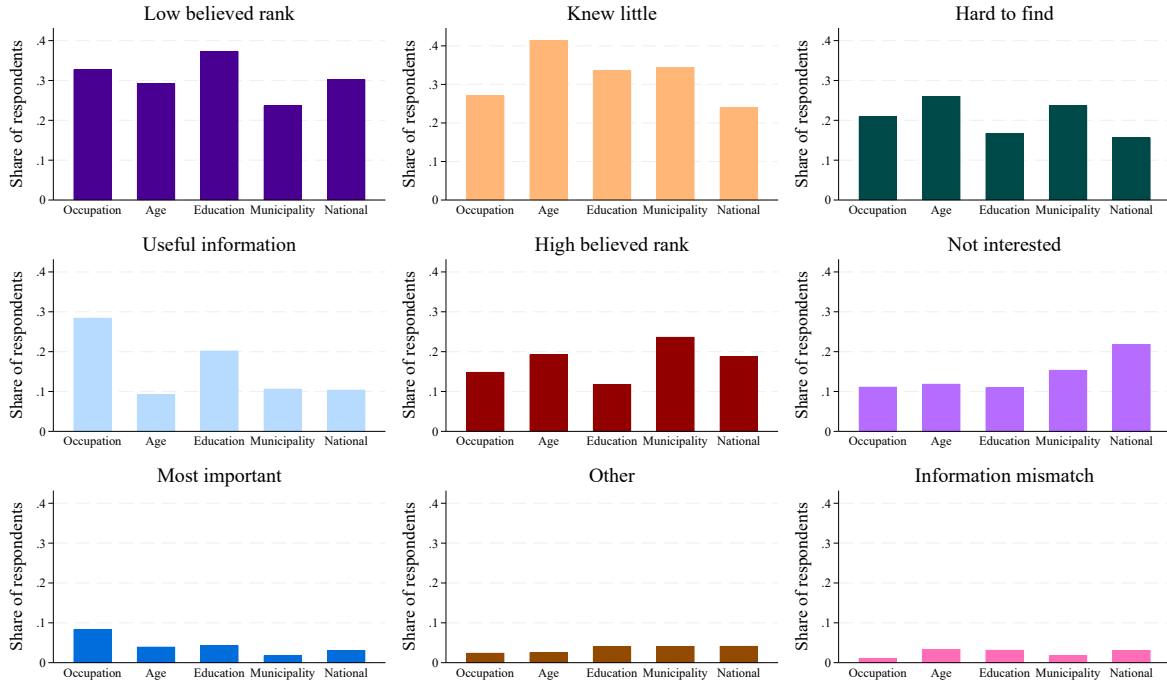
Figure S2: Effect of assigned and chosen national rank information on well-being



Figure S3: Effect of assigned and chosen information about rank on well-being, pooled reference groups

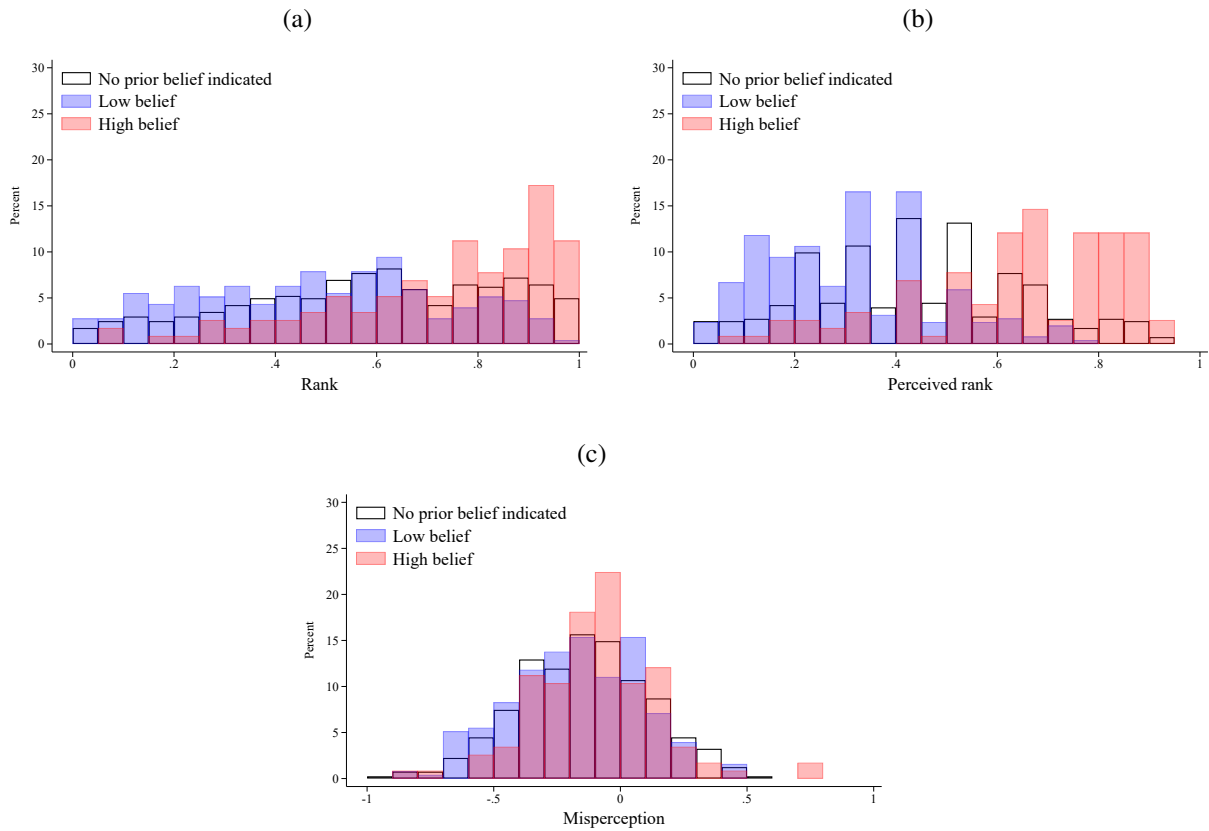


Figure S4: Share chosen reference distribution information by reported motivation



Notes: Panels display the share of respondents choosing a particular reference distribution information by reported motivation. Each participant may check more than one reason for the choice of reference group. “Low (High) believed rank” indicates “I expected my income to be relatively low (high) and wanted to check whether it holds true.” “Knew little” indicates “I knew relatively little about my position in this group.” “Hard to find” indicates “This piece of information is difficult to find elsewhere.” “Useful information” indicates “I expect to use this information.” “Not interested” indicates “I am not interested in comparing my income to others’ incomes.” “Most important” indicates “This piece of information is most important to me.” “Other” indicates “Some other reason.” “Information mismatch” indicates “Some information in the registers was incorrect, which affected my choice.”

Figure S5: Ranks, perceived ranks and misperceptions of respondents choosing reference distribution Occupation



Supplementary tables

Table S1: Treatments and reference groups

Treatment	Description
CONTROL	No information about income rank
AGE	Exogenous information: income rank among people born in the same year
MUNICIPALITY	Exogenous information: income rank among adults living in the same municipality
EDUCATION	Exogenous information: income rank among people with same level of education (Level of education defined as basic, upper secondary, bachelor, master or higher. Classification is based on ISCED 2011.)
OCCUPATION	Exogenous information: income rank among people with same occupation (Classification is based on classification of occupations 2010 on 2-digit level, which follows the structure of ISCO-08, e.g. “teaching professionals”, “sales workers.”)
NATIONAL	Exogenous information: income rank among adult Finns
CHOICE	Endogenous information: income rank among the chosen reference group

Notes: This table presents the treatments and reference groups used in the treatments. The reference group *National* is defined as all adult (aged 18 or older) Finns who had non-zero incomes in 2018. The other reference groups are subsets of *National*, such that reference group *Age* refers to individuals who had non-zero incomes in 2018 and were born in the same year as the participant, *Municipality* refers to all adult Finns with non zero incomes who lived in the same municipality in 2018, etc. See the occupational groups at [SF’s website](#). This table is from Table [in Xu et al. \(2023\)](#).

Table S2: Description of variables

Variable	Description
(A) Treatment variables	
Treatment	Treatment indicator: CONTROL, AGE, MUNICIPALITY, EDUCATION, OCCUPATION, NATIONAL, CHOICE. Treatment assignment conducted by SF before the start of data collection.
Misperception	Defined as Perceived rank - Actual rank (recoded as percentile / 100). Perceived rank from survey Block 3, Actual rank from SF register data.
(B) Variables specific to CHOICE treatment	
Choice of information	Q: Which of the following would you most like to know about? You will receive this information later in the survey. A: My income relative to those who had the same level of education / all adult (18 years or older) Finns / adults (18 years or older) who lived in the same municipality / who had the same occupation / who are born in the same year (radio buttons, answer item order randomized)
Reason(s) for choice	Q: What is your motivation for wanting to know about your income relative to this group? Please, tell us by checking one or more of the options listed below. A: "I expect to use this information" (Useful information) / "I knew relatively little about my position in this group" (Knew little) / "This piece of information is difficult to find elsewhere" (Hard to find) / "This piece of information is most important to me" (Most important) / "I expected my income to be relatively high and wanted to check whether it holds true" (Low believed rank) / "I expected my income to be relatively low and wanted to check whether it holds true" (High believed rank) / "I am not interested in comparing my income to others' incomes" (Not interested) / "Some information in the registers was incorrect, which affected my choice" (Information mismatch) / "Other, please specify" (Other). (Multiple-choice list, restricted simultaneous choice of Low believed rank, High believed rank, answer item order randomized except Other fixed last option)
(C) Outcome variables	
Fairness of own income	Q: How would you evaluate the fairness of the level of your disposable income?

Continued on the next page

Table S2: Description of variables (continued)

Variable	Description
	A: Unfairly low - Fair - Unfairly high. (slider, values 0-100, Obs: in the analyses here this variable is not recoded this variable as unfair - fair: $\text{abs}([\text{answer}] - 50)$ as in Xu et al. (2023))
Satisfaction with disposable income	Q: How do you feel about your disposable income? A: Disappointed - Neither disappointed nor pleased - Pleased (slider, values 0-100)
Life satisfaction	Q: All things considered, how satisfied are you with your life as a whole nowadays? A: Extremely unsatisfied - Extremely satisfied (slider, values 0-100)
Job satisfaction	Q: How satisfied are you with your job in general? A: Not at all satisfied - Very satisfied (slider, values 0-100)
Wage satisfaction	Q: How satisfied are you with how much you earn on your current job? A: Not at all satisfied - Very satisfied (slider, values 0-100)
Job meaningfulness	Q: Does your work feel meaningful to you? A: Not at all meaningful - Very meaningful (slider, values 0-100)
Job search intentions	Q: How likely is it that you will search for a new job in the next six months? A: Very unlikely - Somewhat unlikely - Somewhat likely - Very likely (radio buttons)

End of table

Notes: This table presents the variables used in the main analyses of this paper. The outcome variables (C) with slider answer modes use continuous rating scales (Visual analogue scale, VAS) with labeled end points (and midpoints in Fairness of own income, Satisfaction with disposable income).

Table S3: Choice of reference group

	Chosen reference distribution									
	Occupation		Age		Education		Municipality		National	
	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.
Total	45.1%	772	19.9%	341	19.8%	340	9.7%	167	5.4%	93
Gender										
Men	45.4%	392	19.2%	166	18.1%	156	10.8%	93	6.6%	57
Women	44.8%	377	20.7%	174	21.6%	182	8.6%	72	4.3%	36
Education										
High edu==0	46.1%	600	20.3%	264	17.9%	233	9.8%	128	5.8%	76
High edu==1	41.7%	172	18.7%	77	26.0%	107	9.5%	39	4.1%	17
Metropolitan										
Metrop == 0	44.4%	586	18.8%	248	19.8%	262	11.4%	150	5.7%	75
Metrop. == 1	47.4%	186	23.7%	93	19.9%	78	4.3%	17	4.6%	18

Notes: The table reports the distribution of chosen reference group information for all participants (Total), for men and women, for highly educated and non-highly educated, and those who reside in the Metropolitan area and those who don't. All observations in treatment CHOICE are included, except those who reported incorrect occupational group information as a reason for their choice (38 observations). N = 1713.

Table S4: Pairwise comparisons of choice of reference distribution by demographic characteristics

	Chosen reference distribution				
	Age	National	Occupation	Education	Municipality
Diff. Non-female - Female	-0.015	0.023	0.005	-0.035	0.023
P-value	(0.425)	(0.039)	(0.845)	(0.068)	(0.104)
Diff. Not highly educated - Highly educated	0.016	0.017	0.044	-0.081	0.004
P-value	(0.478)	(0.181)	(0.120)	(0.000)	(0.824)
Diff. Non-metropolitan area residents - residents	-0.050	0.011	-0.031	-0.001	0.070
P-value	(0.031)	(0.405)	(0.280)	(0.978)	(0.000)

Notes: Two-sample tests of equality of proportions. Entries are differences in proportions across groups, with p-values (from two-sided tests) in parentheses. Female is an indicator for being a woman, High education is an indicator for having a master's degree or higher level of education and Metropolitan for living in Helsinki metropolitan area (Helsinki, Espoo, Vantaa or Kauniainen).

Table S5: Share of respondents offering a given reason by chosen reference distribution and overall

	Chosen reference distribution					Total
	Occupation	Age	Education	Municipality	National	
Low believed rank	0.327	0.292	0.373	0.237	0.302	0.319
Knew little	0.271	0.414	0.335	0.343	0.240	0.318
Hard to find	0.209	0.261	0.168	0.237	0.156	0.211
Useful inform.	0.285	0.093	0.202	0.107	0.104	0.202
High believed rank	0.147	0.193	0.118	0.237	0.188	0.162
Not interested	0.112	0.119	0.110	0.154	0.219	0.123
Most important	0.083	0.040	0.043	0.018	0.031	0.057
Other	0.023	0.025	0.040	0.036	0.042	0.029
Incorrect infor.	0.012	0.034	0.032	0.018	0.031	0.022

Notes: Share of respondents offering a given motivation for choosing given reference group distribution information by chosen reference distribution and overall. The reasons are defined as binary variables and listed in Table S2. N = 1744.

Table S6: Average marginal effects on the choice of reference group with demographic characteristics as predictors

	Age	National	Education	Municipality
Female	0.016 (0.019)	-0.022 (0.011)	0.032 (0.019)	-0.023 (0.014)
High education	-0.023 (0.023)	-0.016 (0.014)	0.075*** (0.021)	0.009 (0.017)
Metropolitan	0.055* (0.022)	-0.007 (0.014)	-0.006 (0.023)	-0.091*** (0.023)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from multinomial logit regression with baseline chosen reference distribution *Occupation*. Predictors are self-reported demographic characteristics defined as binary variables. Female is an indicator for being a woman, High education is an indicator for having a master's degree or higher level of education and Metropolitan for living in Helsinki metropolitan area (in Helsinki, Espoo, Vantaa or Kauniainen). N=1706. Individuals who reported information mismatch (38 observations) are excluded.

Table S7: Average marginal effects for choice of reference group with motivations as predictors

	Age	National	Education	Municipality
Low believed rank	-0.001 (0.024)	-0.000 (0.015)	0.031 (0.025)	-0.026 (0.017)
Knew little	0.089*** (0.023)	-0.015 (0.013)	0.018 (0.023)	0.011 (0.017)
Hard to find	0.066* (0.026)	-0.012 (0.013)	-0.053* (0.022)	0.017 (0.019)
Useful information	-0.128*** (0.020)	-0.029* (0.012)	0.010 (0.026)	-0.051** (0.016)
High believed rank	0.055 (0.031)	0.012 (0.019)	-0.054* (0.027)	0.040 (0.024)
Not interested	0.020 (0.035)	0.033 (0.024)	-0.027 (0.032)	0.020 (0.027)
Most important	-0.025 (0.043)	-0.017 (0.023)	-0.046 (0.039)	-0.064** (0.022)
Other	-0.023 (0.055)	0.016 (0.036)	0.067 (0.062)	0.035 (0.047)
Info mismatch	0.143 (0.078)	0.019 (0.042)	0.071 (0.071)	-0.021 (0.044)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from multinomial logit regression with baseline chosen reference distribution *Occupation*. Predictors are reported motivations for choosing that particular reference distribution. N = 1744.

Table S8: Average marginal effects for choice of reference group with demographic characteristics and ranks as predictors

	Age	National	Education	Municipality
Rank (occupation)	-0.045 (0.056)	0.036 (0.033)	0.040 (0.056)	-0.006 (0.043)
Rank (age)	0.325* (0.146)	0.042 (0.083)	-0.160 (0.155)	0.054 (0.112)
Rank (education)	-0.009 (0.092)	-0.054 (0.054)	-0.279** (0.091)	-0.035 (0.068)
Rank (municipality)	-0.404 (0.210)	-0.068 (0.120)	0.150 (0.214)	0.345* (0.167)
Rank (national)	0.026 (0.273)	0.025 (0.161)	0.329 (0.291)	-0.354 (0.227)
Female	0.020 (0.021)	-0.026* (0.012)	0.014 (0.021)	-0.023 (0.016)
High education	-0.033 (0.032)	-0.024 (0.020)	0.014 (0.031)	-0.001 (0.024)
Metropolitan	0.019 (0.028)	-0.013 (0.017)	0.012 (0.029)	-0.065* (0.027)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from multinomial logit regression with baseline chosen reference distribution *Occupation*. Regressors include rank in each reference distribution and self-reported demographic characteristics defined as binary variables. Female is an indicator for being a woman, High education is an indicator for having a master's degree or higher level of education and Metropolitan for living in Helsinki metropolitan area (Helsinki, Espoo, Vantaa or Kauniainen). N=1706. Individuals who reported information mismatch (38 observations) are excluded.

Table S9: Pairwise comparisons of motivations by chosen reference distribution

	Low belief	Knew little	Hard to find	Useful inform.	High belief	Not interested	Most important	Other	Inform. mismatch
Diff. Occup - Age	0.035	-0.143	-0.052	0.191	-0.044	-0.007	0.044	-0.001	-0.022
P-value	(0.239)	(0.000)	(0.054)	(0.000)	(0.063)	(0.715)	(0.008)	(0.909)	(0.009)
Diff. Occup - Edu	-0.046	-0.065	0.041	0.082	0.030	0.002	0.040	-0.016	-0.020
P-value	(0.134)	(0.027)	(0.107)	(0.004)	(0.177)	(0.933)	(0.016)	(0.139)	(0.018)
Diff. Occup - Muni	0.090	-0.073	-0.028	0.178	-0.088	-0.042	0.066	-0.017	-0.006
P-value	(0.022)	(0.057)	(0.426)	(0.000)	(0.005)	(0.124)	(0.003)	(0.218)	(0.512)
Diff. Occup - National	0.025	0.031	0.053	0.180	-0.039	-0.107	0.052	-0.017	-0.020
P-value	(0.624)	(0.518)	(0.226)	(0.000)	(0.319)	(0.003)	(0.072)	(0.317)	(0.117)
Diff. Age - Occup	-0.035	0.143	0.052	-0.191	0.044	0.007	-0.044	0.001	0.022
P-value	(0.239)	(0.000)	(0.054)	(0.000)	(0.063)	(0.715)	(0.008)	(0.909)	(0.009)
Diff. Age - Edu	-0.081	0.078	0.093	-0.109	0.074	0.009	-0.004	-0.015	0.002
P-value	(0.023)	(0.032)	(0.003)	(0.000)	(0.007)	(0.704)	(0.807)	(0.267)	(0.870)
Diff. Age - Muni	0.055	0.070	0.024	-0.013	-0.044	-0.035	0.022	-0.016	0.016
P-value	(0.187)	(0.123)	(0.556)	(0.639)	(0.245)	(0.268)	(0.187)	(0.323)	(0.299)
Diff. Age - National	-0.010	0.174	0.104	-0.011	0.005	-0.100	0.008	-0.016	0.003
P-value	(0.844)	(0.002)	(0.033)	(0.752)	(0.910)	(0.013)	(0.702)	(0.402)	(0.894)
Diff. Edu - Occu	0.046	0.065	-0.041	-0.082	-0.030	-0.002	-0.040	0.016	0.020
P-value	(0.134)	(0.027)	(0.107)	(0.004)	(0.177)	(0.933)	(0.016)	(0.139)	(0.018)
Diff. Edu - Age	0.081	-0.078	-0.093	0.109	-0.074	-0.009	0.004	0.015	-0.002
P-value	(0.023)	(0.032)	(0.003)	(0.000)	(0.007)	(0.704)	(0.807)	(0.267)	(0.870)
Diff. Edu - Muni	0.136	-0.008	-0.069	0.096	-0.118	-0.044	0.026	-0.001	0.014
P-value	(0.002)	(0.858)	(0.061)	(0.007)	(0.001)	(0.155)	(0.137)	(0.959)	(0.358)
Diff. Edu - National	0.071	0.096	0.011	0.098	-0.069	-0.109	0.012	-0.001	0.001
P-value	(0.201)	(0.074)	(0.790)	(0.027)	(0.079)	(0.005)	(0.596)	(0.958)	(0.979)
Diff. Muni - Occu	-0.090	0.073	0.028	-0.178	0.088	0.042	-0.066	0.017	0.006
P-value	(0.022)	(0.057)	(0.426)	(0.000)	(0.005)	(0.124)	(0.003)	(0.218)	(0.512)
Diff. Muni - Age	-0.055	-0.070	-0.024	0.013	0.044	0.035	-0.022	0.016	-0.016
P-value	(0.187)	(0.123)	(0.556)	(0.639)	(0.245)	(0.268)	(0.187)	(0.323)	(0.299)
Diff. Muni - Edu	-0.136	0.008	0.069	-0.096	0.118	0.044	-0.026	0.001	-0.014
P-value	(0.002)	(0.858)	(0.061)	(0.007)	(0.001)	(0.155)	(0.137)	(0.959)	(0.358)
Diff. Muni - National	-0.065	0.104	0.080	0.002	0.049	-0.065	-0.013	-0.000	-0.013
P-value	(0.244)	(0.078)	(0.121)	(0.952)	(0.352)	(0.184)	(0.478)	(0.992)	(0.478)
Diff. National - Occu	-0.025	-0.031	-0.053	-0.180	0.039	0.107	-0.052	0.017	0.020
P-value	(0.624)	(0.518)	(0.226)	(0.000)	(0.319)	(0.003)	(0.072)	(0.317)	(0.117)
Diff. National - Age	0.010	-0.174	-0.104	0.011	-0.005	0.100	-0.008	0.016	-0.003
P-value	(0.844)	(0.002)	(0.033)	(0.752)	(0.910)	(0.013)	(0.702)	(0.402)	(0.894)
Diff. National - Edu	-0.071	-0.096	-0.011	-0.098	0.069	0.109	-0.012	0.001	-0.001
P-value	(0.201)	(0.074)	(0.790)	(0.027)	(0.079)	(0.005)	(0.596)	(0.958)	(0.979)
Diff. National - Muni	0.065	-0.104	-0.080	-0.002	-0.049	0.065	0.013	0.000	0.013
P-value	(0.244)	(0.078)	(0.121)	(0.952)	(0.352)	(0.184)	(0.478)	(0.992)	(0.478)

Notes: Two-sample tests of equality of proportions. Entries are differences in proportions across groups, with p-values (from two-sided tests) in parentheses.

Table S10: Tests of differences in means: misperceptions, beliefs about ranks and actual ranks between control group and endogenous treatment

	Mean of control	Mean of endog.	T-statistic	Two-sided p-value
Occupation				
Misperception	-0.137	-0.150	1.018	0.309
Belief	0.429	0.420	0.770	0.441
Rank	0.563	0.570	-0.585	0.558
Age				
Misperception	-0.133	-0.114	-1.574	0.116
Belief	0.482	0.483	-0.060	0.952
Rank	0.613	0.597	1.040	0.299
Education				
Misperception	-0.206	-0.203	-0.183	0.855
Belief	0.453	0.416	2.559	0.011
Rank	0.657	0.619	2.492	0.013
Municipality				
Misperception	-0.223	-0.220	-0.197	0.844
Belief	0.522	0.531	-0.489	0.625
Rank	0.743	0.751	-0.513	0.608
National				
Misperception	-0.222	-0.225	0.171	0.864
Belief	0.527	0.513	0.622	0.534
Rank	0.747	0.738	0.433	0.665

Notes: This table presents tests on equality of means for a given misperception among those who chose given reference distribution information (Mean of endog.) and the corresponding misperception among individuals in the control group (Mean of control).

Table S11: Tests of differences in means: misperceptions, beliefs about ranks and actual ranks, between exogenous and endogenous treatments

	Mean of exog.	Mean of endog.	T-statistic	Two-sided p-value
Occupation				
Misperception	-0.123	-0.150	2.044	0.041
Belief	0.419	0.420	-0.061	0.952
Rank	0.544	0.570	-1.981	0.048
Age				
Misperception	-0.124	-0.114	-0.882	0.378
Belief	0.473	0.483	-0.711	0.477
Rank	0.597	0.597	0.002	0.999
Education				
Misperception	-0.199	-0.203	0.246	0.806
Belief	0.459	0.416	3.002	0.003
Rank	0.657	0.619	2.521	0.012
Municipality				
Misperception	-0.216	-0.220	0.230	0.818
Belief	0.517	0.531	-0.695	0.487
Rank	0.732	0.751	-1.126	0.260
National				
Misperception	-0.211	-0.225	0.691	0.490
Belief	0.521	0.513	0.322	0.748
Rank	0.731	0.738	-0.320	0.749

Notes: This table presents tests on equality of means for a given misperception among those who chose given reference distribution information (Mean of endog.) and those who were assigned given reference distribution information (Mean of exog.).

Table S12: Marginal effects on the reasons for choice of reference group

	Low believed rank	Knew little	Hard to find	Useful information	High believed rank	Not interested	Most important	Other
Female	0.169*** (0.021)	0.014 (0.023)	-0.023 (0.020)	-0.051** (0.020)	-0.109*** (0.018)	-0.034* (0.016)	0.005 (0.011)	-0.005 (0.008)
High education	-0.144*** (0.027)	0.083** (0.026)	0.011 (0.023)	0.063** (0.022)	0.054** (0.020)	-0.015 (0.019)	0.029* (0.012)	0.020* (0.009)
Metropolitan	-0.070* (0.027)	0.038 (0.027)	0.008 (0.024)	0.039 (0.022)	0.048* (0.020)	0.020 (0.019)	0.043*** (0.012)	-0.005 (0.010)
Observations	1706	1706	1706	1706	1706	1706	1706	1706

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression on the reasons for choice of reference group. The dependent variable is a reason offered as a motivation for the choice of a reference distribution. The reasons are defined as binary variables and listed in Table S2. Predictors are self-reported demographic characteristics defined as binary variables. Female is an indicator for being a woman, High education is an indicator for having a master's degree or higher level of education, Spouse is for living with spouse, Child(ren) for living with a child or children and Metropolitan for living in Helsinki metropolitan area (Helsinki, Espoo, Vantaa or Kauniainen).

Table S13: Marginal effects on the motivations for choice of reference group controlling for choices

	Low believed rank	Knew little	Hard to find	Useful information	High believed rank	Not interested	Most important	Other
Female	0.166*** (0.021)	0.011 (0.022)	-0.024 (0.020)	-0.054** (0.019)	-0.107*** (0.018)	-0.031 (0.016)	0.005 (0.011)	-0.005 (0.008)
High education	-0.150*** (0.027)	0.080** (0.025)	0.014 (0.023)	0.064** (0.021)	0.057** (0.020)	-0.014 (0.019)	0.031* (0.012)	0.019* (0.009)
Metropolitan	-0.073** (0.027)	0.036 (0.027)	0.005 (0.024)	0.033 (0.022)	0.052* (0.020)	0.024 (0.019)	0.040*** (0.012)	-0.003 (0.010)
Chosen ref. distr. (baseline cat. Occupation):								
Age	-0.038 (0.029)	0.147*** (0.031)	0.057* (0.028)	-0.192*** (0.023)	0.049* (0.025)	0.007 (0.021)	-0.045** (0.014)	-0.003 (0.010)
National	-0.019 (0.050)	-0.043 (0.047)	-0.061 (0.040)	-0.203*** (0.033)	0.028 (0.041)	0.109* (0.044)	-0.049* (0.022)	0.020 (0.022)
Education	0.053 (0.031)	0.058 (0.030)	-0.037 (0.025)	-0.089** (0.027)	-0.028 (0.022)	0.003 (0.021)	-0.042** (0.015)	0.016 (0.012)
Municipality	-0.085* (0.037)	0.081* (0.041)	0.024 (0.036)	-0.178*** (0.029)	0.094** (0.035)	0.046 (0.031)	-0.064*** (0.015)	0.018 (0.017)
Observations	1706	1706	1706	1706	1706	1706	1706	1706

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression on the reasons for choice of reference group. The dependent variable is a reason offered as a motivation for the choice of a reference distribution. The reasons are defined as binary variables and listed in Table S2. Regressors include self-reported demographic characteristics that are defined as binary variables and the chosen reference distribution (omitted: reference distribution Age). Female is an indicator for being a woman, High education is an indicator for having a master's degree or higher level of education, Spouse is for living with spouse, Child(ren) for living with a child or children and Metropolitan for living in Finland's metropolitan area (Helsinki, Espoo, Vantaa or Kauniainen).

Table S14: Subjective well-being and chosen reference distribution

	(1) Satisf. with income	(2) Fairness	(3) Wage satisfaction	(4) Life satisf.	(5) Job satisf.	(6) Job meaningfulness
Chosen ref. distr. (baseline cat. Occupation):						
Age	0.218*** (0.058)	0.159** (0.058)	0.277*** (0.070)	0.136* (0.060)	0.152* (0.067)	0.084 (0.070)
National	0.051 (0.098)	0.116 (0.094)	-0.051 (0.123)	-0.128 (0.129)	-0.107 (0.132)	-0.104 (0.125)
Education	0.080 (0.061)	0.152** (0.058)	0.009 (0.071)	-0.044 (0.063)	-0.074 (0.068)	0.042 (0.067)
Municipality	0.395*** (0.075)	0.281*** (0.068)	0.260** (0.086)	-0.005 (0.078)	-0.063 (0.087)	-0.099 (0.096)
Observations	1664	1664	1515	1664	1515	1515

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the associations between subjective well-being, motivations for choosing a reference distribution and the chosen reference distribution. Occupational reference group as the baseline category. Dependent variables are satisfaction with own income (column 1), perceived fairness of own income (column 2), wage satisfaction (column 3), life satisfaction (column 4), job satisfaction (column 5), perceived job meaningfulness (column 6).

Table S15: Subjective well-being, motivations and chosen reference distribution

	(1)	(2)	(3)	(4)	(5)	(6)
	Satisf. with income	Fairness	Wage satisfaction	Life satisf.	Job satisf.	Job meaningfulness
Low believed rank	-0.461*** (0.053)	-0.380*** (0.057)	-0.599*** (0.065)	-0.273*** (0.059)	-0.217** (0.067)	-0.196** (0.068)
Knew little	0.129** (0.049)	-0.009 (0.050)	0.107 (0.057)	0.017 (0.053)	0.041 (0.058)	0.009 (0.058)
Hard to find	0.057 (0.052)	-0.050 (0.055)	-0.021 (0.062)	0.035 (0.056)	-0.001 (0.066)	-0.084 (0.066)
Useful information	-0.067 (0.054)	-0.010 (0.058)	-0.047 (0.065)	0.079 (0.061)	-0.051 (0.069)	-0.073 (0.068)
High believed rank	0.421*** (0.065)	0.037 (0.059)	0.447*** (0.067)	0.129 (0.067)	0.207** (0.072)	0.177* (0.071)
Not interested	-0.106 (0.071)	-0.037 (0.076)	0.011 (0.089)	-0.034 (0.085)	-0.031 (0.090)	-0.078 (0.092)
Most important	0.017 (0.096)	-0.022 (0.096)	0.088 (0.107)	-0.112 (0.113)	0.031 (0.106)	0.026 (0.110)
Other	0.150 (0.137)	0.018 (0.147)	0.314* (0.148)	-0.043 (0.144)	0.103 (0.150)	0.089 (0.159)
Chosen ref. distr. (baseline cat. Occupation):						
Age	0.150** (0.057)	0.146* (0.060)	0.209** (0.067)	0.127* (0.063)	0.118 (0.068)	0.058 (0.071)
National	0.032 (0.093)	0.103 (0.092)	-0.075 (0.111)	-0.120 (0.126)	-0.118 (0.130)	-0.119 (0.125)
Education	0.097 (0.058)	0.167** (0.059)	0.029 (0.067)	-0.025 (0.063)	-0.068 (0.068)	0.045 (0.068)
Municipality	0.294*** (0.070)	0.242*** (0.069)	0.151 (0.083)	-0.034 (0.078)	-0.111 (0.088)	-0.143 (0.096)
Observations	1664	1664	1515	1664	1515	1515

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the associations between subjective well-being and reasons offered as motivation for choosing income rank information about a given reference distribution, and the chosen reference distribution. Dependent variables are satisfaction with own income (column 1), perceived fairness of own income (column 2), wage satisfaction (column 3), life satisfaction (column 4), job satisfaction (column 5), perceived job meaningfulness (column 6).

Table S16: Job search intentions, motivations and chosen reference distribution

	(1) Model 1	(2) Model 2
Low believed rank	0.654*** (0.192)	0.653*** (0.193)
Knew little	0.127 (0.184)	0.094 (0.186)
Hard to find	0.097 (0.202)	0.096 (0.203)
Useful information	0.347 (0.201)	0.428* (0.205)
High believed rank	-0.456 (0.303)	-0.470 (0.305)
Not interested	0.279 (0.283)	0.253 (0.284)
Most important	-0.234 (0.387)	-0.191 (0.388)
Other	0.218 (0.489)	0.179 (0.490)
Chosen ref. distr. (baseline cat. Occupation):		
Age		0.389 (0.223)
National		0.584 (0.344)
Education		0.355 (0.215)
Municipality		0.196 (0.306)
Observations	1664	1664

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression estimating the associations job search intentions and reasons offered as motivation for choosing income rank information about a given reference distribution (Model 1), and the chosen reference distribution (Model 2). The dependent variable is an indicator that equals 1 if participant is “very likely” to report intentions to search for a new job within the next six months, and 0 otherwise.

Table S17: Paired t-tests of perceived rank in chosen versus highest-ranked reference distribution, by chosen distribution

	Mean (chosen)	Mean (highest)	t statistic	Two-sided p-value
Occupation	0.421	0.596	-31.657	0.000
Age	0.486	0.613	-20.874	0.000
Education	0.419	0.601	-23.895	0.000
Municipality	0.533	0.626	-10.265	0.000
National	0.505	0.590	-8.558	0.000

Notes: The table reports paired t-tests comparing respondents' perceived rank in their chosen reference group with their perceived rank in the group in which they believe they rank highest. Tests are conducted separately for each chosen reference group. "Mean (chosen)" and "Mean (highest)" denote the average perceived ranks within each group. The t-statistic corresponds to a two-sided test of equality of means.

Table S18: Paired t-tests of rank in chosen versus highest-ranked reference distribution, by chosen distribution

	Mean (chosen)	Mean (highest)	t statistic	Two-sided p-value
Occupation	0.569	0.777	-32.995	0.000
Age	0.599	0.765	-31.175	0.000
Education	0.618	0.786	-20.940	0.000
Municipality	0.754	0.781	-7.699	0.000
National	0.732	0.772	-8.200	0.000

Notes: The table reports paired t-tests comparing respondents' actual rank in their chosen reference group with their actual rank in the group in which they rank highest. Tests are conducted separately for each chosen reference group. "Mean (chosen)" and "Mean (highest)" denote the average ranks within each group. The t-statistic corresponds to a two-sided test of equality of means.

Table S19: Wilcoxon signed rank tests: Beliefs

Chosen group	Observations	Z	p-value
1	341	-15.642	0.000
2	93	-7.570	0.000
3	340	-15.520	0.000
4	167	-10.300	0.000
5	772	-23.232	0.000

Table S20: Wilcoxon signed rank tests: Ranks

Chosen group	Observations	Z	p-value
1	341	-15.993	0.000
2	93	-7.754	0.000
3	340	-15.642	0.000
4	167	-8.436	0.000
5	772	-23.547	0.000

0.1 Results: Effects of rank information on subjective well-being

Table S21: Average treatment effects

	(1) CHOICE	(2) AGE	(3) MUNICIPALITY	(4) EDUCATION	(5) OCCUPATION	(6) NATIONAL
Income satisfaction	0.038 (0.042)	0.104* (0.049)	0.140** (0.050)	0.088 (0.049)	-0.017 (0.051)	0.147** (0.052)
Fairness	0.141*** (0.042)	0.192*** (0.047)	0.209*** (0.049)	0.130** (0.049)	0.081 (0.049)	0.142** (0.050)
Wage satisfaction	0.053 (0.046)	0.116* (0.052)	0.069 (0.053)	0.129* (0.052)	-0.027 (0.054)	0.124* (0.054)
Life satisfaction	0.076 (0.043)	0.048 (0.050)	0.038 (0.050)	0.046 (0.051)	0.020 (0.051)	0.061 (0.050)
Job satisfaction	0.021 (0.045)	-0.038 (0.053)	0.042 (0.053)	0.024 (0.053)	-0.007 (0.053)	0.017 (0.054)
Job meaningfulness	0.045 (0.045)	-0.014 (0.053)	0.038 (0.054)	-0.023 (0.052)	-0.034 (0.054)	-0.003 (0.054)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the average treatment effects on subjective well-being.

Table S22: Average effects of information

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Income satisfaction					
Assigned information	0.104* (0.049)	0.140** (0.050)	0.088 (0.049)	-0.017 (0.051)	0.147** (0.052)
Chosen information	0.155** (0.059)	0.333*** (0.075)	0.017 (0.062)	-0.063 (0.050)	-0.012 (0.099)
Fairness					
Assigned information	0.192*** (0.047)	0.209*** (0.049)	0.130** (0.049)	0.081 (0.049)	0.142** (0.050)
Chosen information	0.205*** (0.059)	0.327*** (0.069)	0.198*** (0.059)	0.046 (0.050)	0.162 (0.095)
Wage satisfaction					
Assigned information	0.116* (0.052)	0.069 (0.053)	0.129* (0.052)	-0.027 (0.054)	0.124* (0.054)
Chosen information	0.252*** (0.069)	0.235** (0.086)	-0.016 (0.070)	-0.025 (0.054)	-0.076 (0.123)
Life satisfaction					
Assigned information	0.048 (0.050)	0.038 (0.050)	0.046 (0.051)	0.020 (0.051)	0.061 (0.050)
Chosen information	0.201** (0.061)	0.060 (0.078)	0.021 (0.063)	0.065 (0.050)	-0.063 (0.130)
Job satisfaction					
Assigned information	-0.038 (0.053)	0.042 (0.053)	0.024 (0.053)	-0.007 (0.053)	0.017 (0.054)
Chosen information	0.170* (0.068)	-0.045 (0.088)	-0.056 (0.069)	0.018 (0.052)	-0.088 (0.132)
Job meaningfulness					
Assigned information	-0.014 (0.053)	0.038 (0.054)	-0.023 (0.052)	-0.034 (0.054)	-0.003 (0.054)
Chosen information	0.120 (0.071)	-0.064 (0.096)	0.078 (0.068)	0.036 (0.052)	-0.069 (0.125)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the average treatment effects of assigned and chosen income rank information on subjective well-being.

Table S23: Difference between average treatment effects in assigned and chosen information choice vs exogenous info treatment! –Satu

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Income related measures					
Income satisfaction	0.052 (0.058)	0.192** (0.074)	-0.071 (0.060)	-0.045 (0.050)	-0.158 (0.099)
Fairness	0.013 (0.055)	0.118 (0.067)	0.068 (0.057)	-0.035 (0.048)	0.020 (0.094)
Wage satisfaction	0.136* (0.069)	0.166 (0.086)	-0.145* (0.070)	0.002 (0.055)	-0.200 (0.123)
Non-income related measures					
Life satisfaction	0.153* (0.061)	0.023 (0.078)	-0.026 (0.063)	0.045 (0.050)	-0.124 (0.129)
Job satisfaction	0.208** (0.068)	-0.086 (0.088)	-0.080 (0.069)	0.025 (0.053)	-0.105 (0.132)
Job meaningfulness	0.133 (0.071)	-0.102 (0.097)	0.101 (0.068)	0.069 (0.054)	-0.066 (0.126)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating average treatment effects (ATE) of choosing vs. being assigned income rank information on income and non-income related dimensions of subjective well-being. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation.

Table S24: Average treatment effects, pooled, control group as baseline

	(1) Income satisfaction	(2) Fairness	(3) Wage satisfaction	(4) Life satisfaction	(5) Job satisfaction	(6) Job meaningfulness
Assigned information	0.092* (0.039)	0.151*** (0.039)	0.082* (0.041)	0.042 (0.039)	0.007 (0.041)	-0.007 (0.041)
Chosen information	0.038 (0.042)	0.141*** (0.042)	0.053 (0.046)	0.076 (0.043)	0.021 (0.045)	0.045 (0.045)
Constant	0.000 (0.036)	-0.000 (0.036)	0.000 (0.037)	0.000 (0.036)	-0.000 (0.037)	-0.000 (0.037)
<i>N</i>	6120	6120	5647	6120	5647	5647

Table S25: Average treatment effects, pooled exogenous info as baseline

	(1) Income satisfaction	(2) Fairness	(3) Wage satisfaction	(4) Life satisfaction	(5) Job satisfaction	(6) Job meaningfulness
Chosen information	-0.055* (0.027)	-0.010 (0.026)	-0.029 (0.031)	0.034 (0.028)	0.014 (0.030)	0.052 (0.031)
Constant (baseline group exo mean)	0.092*** (0.016)	0.151*** (0.015)	0.082*** (0.017)	0.042** (0.016)	0.007 (0.017)	-0.007 (0.017)
<i>N</i>	5348	5348	4929	5348	4929	4929

Table S26: Effect of information on satisfaction with own disposable income

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.101 (0.193)	0.909*** (0.205)	0.826*** (0.164)	0.311* (0.142)	0.708*** (0.208)
Exo-info	-0.004 (0.059)	-0.019 (0.079)	-0.109 (0.067)	-0.095 (0.055)	0.119 (0.083)
Exo-info $\times$ Misperception	-0.862** (0.263)	-0.713* (0.278)	-0.965*** (0.234)	-0.606** (0.206)	-0.089 (0.291)
Endo-info	0.101 (0.068)	0.134 (0.120)	-0.211* (0.082)	-0.130* (0.057)	-0.059 (0.169)
Endo-info $\times$ Misperception	-0.472 (0.314)	-0.895* (0.395)	-1.115*** (0.286)	-0.479* (0.195)	-0.214 (0.619)
Constant	0.013 (0.044)	0.202*** (0.059)	0.170*** (0.048)	0.042 (0.040)	0.157** (0.059)
Exo=Endo	2.599 (0.107)	1.693 (0.193)	1.564 (0.211)	0.396 (0.529)	1.118 (0.290)
Exo $\times$ Misp.=Endo $\times$ Misp.	1.621 (0.203)	0.220 (0.639)	0.273 (0.601)	0.400 (0.527)	0.041 (0.840)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	2.091 (0.148)	0.003 (0.954)	0.527 (0.468)	0.161 (0.688)	0.159 (0.690)
Observations	1852	1663	1845	2262	1586

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on satisfaction with disposable income. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

Table S27: Effect of information on perceived fairness of own income

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.089 (0.195)	0.484* (0.206)	0.621*** (0.165)	0.374** (0.136)	0.407* (0.207)
Exo-info	0.149** (0.057)	0.034 (0.079)	-0.026 (0.066)	0.041 (0.053)	0.085 (0.077)
Exo-info $\times$ Misperception	-0.340 (0.257)	-0.796** (0.279)	-0.768*** (0.231)	-0.286 (0.194)	-0.250 (0.282)
Endo-info	0.225** (0.069)	0.133 (0.111)	0.044 (0.078)	-0.015 (0.057)	0.258 (0.152)
Endo-info $\times$ Misperception	0.200 (0.320)	-0.867* (0.385)	-0.752** (0.264)	-0.438* (0.191)	0.435 (0.587)
Constant	0.012 (0.044)	0.108 (0.056)	0.127** (0.045)	0.051 (0.039)	0.090 (0.057)
Exo=Endo	1.392 (0.238)	0.789 (0.374)	0.785 (0.376)	1.010 (0.315)	1.332 (0.249)
Exo $\times$ Misp.=Endo $\times$ Misp.	3.140 (0.077)	0.036 (0.850)	0.004 (0.952)	0.621 (0.431)	1.390 (0.239)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	3.247 (0.072)	0.004 (0.953)	0.072 (0.789)	0.856 (0.355)	1.483 (0.223)
Observations	1852	1663	1845	2262	1586

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on perceived fairness of own disposable income. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

Table S28: Effect of information on wage satisfaction

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.094 (0.198)	0.666** (0.220)	0.744*** (0.181)	0.128 (0.166)	0.496* (0.225)
Exo-info	0.074 (0.065)	0.040 (0.088)	-0.039 (0.075)	-0.057 (0.061)	0.180* (0.086)
Exo-info $\times$ Misperception	-0.322 (0.277)	-0.097 (0.308)	-0.801** (0.254)	-0.227 (0.227)	0.296 (0.309)
Endo-info	0.212** (0.081)	0.314* (0.141)	-0.075 (0.091)	-0.048 (0.062)	-0.150 (0.216)
Endo-info $\times$ Misperception	-0.325 (0.389)	0.326 (0.507)	-0.256 (0.335)	-0.159 (0.223)	-0.332 (0.758)
Constant	0.013 (0.046)	0.151* (0.062)	0.157** (0.053)	0.018 (0.043)	0.111 (0.062)
Exo=Endo	2.888 (0.089)	3.742 (0.053)	0.147 (0.701)	0.022 (0.882)	2.342 (0.126)
Exo $\times$ Misp.=Endo $\times$ Misp.	0.000 (0.993)	0.703 (0.402)	2.671 (0.102)	0.102 (0.749)	0.692 (0.406)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	0.096 (0.756)	1.247 (0.264)	1.620 (0.203)	0.098 (0.755)	1.040 (0.308)
Observations	1707	1544	1701	2090	1477

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on wage satisfaction. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

Table S29: Effect of information on life satisfaction

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.247 (0.189)	0.562** (0.194)	0.642*** (0.165)	0.192 (0.140)	0.458* (0.194)
Exo-info	-0.006 (0.063)	0.006 (0.077)	-0.028 (0.067)	-0.037 (0.057)	0.037 (0.077)
Exo-info $\times$ Misperception	-0.417 (0.267)	-0.133 (0.270)	-0.350 (0.230)	-0.445* (0.194)	-0.088 (0.268)
Endo-info	0.151* (0.074)	-0.024 (0.132)	-0.099 (0.084)	0.043 (0.057)	-0.132 (0.252)
Endo-info $\times$ Misperception	-0.405 (0.325)	-0.384 (0.438)	-0.581* (0.293)	-0.165 (0.199)	-0.310 (0.960)
Constant	0.033 (0.045)	0.125* (0.054)	0.132** (0.047)	0.026 (0.041)	0.102 (0.057)
Exo=Endo	4.522 (0.034)	0.051 (0.821)	0.714 (0.398)	1.961 (0.162)	0.451 (0.502)
Exo $\times$ Misp.=Endo $\times$ Misp.	0.001 (0.971)	0.333 (0.564)	0.636 (0.425)	2.082 (0.149)	0.054 (0.816)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	0.206 (0.650)	0.263 (0.608)	0.741 (0.389)	2.510 (0.113)	0.110 (0.740)
Observations	1852	1663	1845	2262	1586

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on life satisfaction. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are F-statistics (p-values in parentheses) from Wald tests of coefficient equality.

Table S30: Effect of information on job satisfaction

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.200 (0.198)	-0.001 (0.223)	0.395* (0.179)	-0.019 (0.161)	0.065 (0.219)
Exo-info	-0.019 (0.063)	0.121 (0.086)	-0.032 (0.073)	0.001 (0.061)	0.020 (0.084)
Exo-info $\times$ Misperception	0.166 (0.288)	0.366 (0.301)	-0.262 (0.255)	0.066 (0.217)	0.020 (0.303)
Endo-info	0.094 (0.085)	0.061 (0.145)	-0.107 (0.088)	0.016 (0.061)	-0.024 (0.228)
Endo-info $\times$ Misperception	-0.624 (0.381)	0.457 (0.512)	-0.237 (0.311)	-0.013 (0.216)	0.291 (0.821)
Constant	0.027 (0.045)	-0.000 (0.062)	0.083 (0.051)	-0.003 (0.043)	0.015 (0.060)
Exo=Endo	1.773 (0.183)	0.171 (0.679)	0.708 (0.400)	0.058 (0.810)	0.037 (0.848)
Exo $\times$ Misp.=Endo $\times$ Misp.	4.184 (0.041)	0.032 (0.857)	0.007 (0.935)	0.152 (0.697)	0.109 (0.741)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	2.353 (0.125)	0.002 (0.960)	0.017 (0.895)	0.072 (0.788)	0.050 (0.822)
Observations	1707	1544	1701	2090	1477

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on job satisfaction. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

Table S31: Effect of information job meaningfulness

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.002 (0.187)	0.063 (0.214)	0.355* (0.169)	-0.183 (0.146)	0.056 (0.210)
Exo-info	0.002 (0.063)	0.065 (0.085)	-0.049 (0.072)	-0.048 (0.063)	0.007 (0.085)
Exo-info $\times$ Misperception	0.122 (0.283)	0.128 (0.302)	-0.112 (0.238)	-0.149 (0.211)	0.051 (0.301)
Endo-info	0.102 (0.084)	-0.008 (0.164)	-0.037 (0.091)	0.029 (0.061)	-0.156 (0.236)
Endo-info $\times$ Misperception	-0.156 (0.349)	0.238 (0.573)	-0.551 (0.288)	-0.027 (0.204)	-0.390 (0.826)
Constant	0.000 (0.045)	0.014 (0.060)	0.075 (0.049)	-0.026 (0.043)	0.013 (0.059)
Exo=Endo	1.406 (0.236)	0.200 (0.654)	0.017 (0.895)	1.503 (0.220)	0.474 (0.491)
Exo $\times$ Misp.=Endo $\times$ Misp.	0.584 (0.445)	0.037 (0.847)	2.329 (0.127)	0.341 (0.559)	0.285 (0.593)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	0.183 (0.669)	0.003 (0.959)	1.426 (0.233)	0.647 (0.421)	0.342 (0.559)
Observations	1707	1544	1701	2090	1477

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on perceived job meaningfulness. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

Table S32: Effect of information on subjective well-being, pooled treatments

	(1) Income satisfaction	(2) Fairness	(3) Wage satisfaction	(4) Life satisfaction	(5) Job satisfaction	(6) Job meaningfulness
Misperception	0.781*** (0.211)	0.580** (0.210)	0.575* (0.239)	0.574** (0.199)	0.182 (0.233)	0.060 (0.217)
Exo-info	-0.076 (0.056)	0.031 (0.054)	-0.007 (0.062)	-0.049 (0.055)	-0.002 (0.060)	-0.018 (0.059)
Misperception $\times$ Exo-info	-0.922*** (0.225)	-0.657** (0.222)	-0.467 (0.253)	-0.494* (0.212)	-0.041 (0.247)	-0.056 (0.232)
Endo-info	-0.063 (0.034)	-0.005 (0.034)	-0.027 (0.039)	0.030 (0.035)	-0.003 (0.038)	0.028 (0.039)
Misperception $\times$ Endo-info	-0.060 (0.125)	0.028 (0.121)	0.023 (0.142)	-0.019 (0.128)	-0.095 (0.137)	-0.144 (0.135)
Constant	0.143** (0.052)	0.106* (0.050)	0.108 (0.058)	0.105* (0.051)	0.034 (0.056)	0.011 (0.054)
Observations	6120	6120	5647	6120	5647	5647

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on subjective well-being (models 1-6). The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is defined as belief minus rank in the reference group corresponding to the exogenously assigned or chosen reference group in exogenous and endogenous information treatments and the average of all misperceptions for individuals in the control group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned income rank information and Endo-info is an indicator for choosing the income rank information.

0.2 Results: Effects on donation to charity, voluntary tax and lottery ticket purchase

Table S33: Effect of information on donation to charity

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Extensive margin					
Misperception	-1.260* (0.493)	-0.682 (0.469)	-0.324 (0.433)	-0.558 (0.356)	-0.361 (0.545)
Exo-info	-0.128 (0.145)	-0.023 (0.187)	-0.110 (0.170)	-0.140 (0.137)	-0.075 (0.199)
Exo-info $\times$ Misperception	0.317 (0.696)	0.246 (0.652)	-0.023 (0.598)	-0.126 (0.486)	0.239 (0.730)
Endo-info	-0.091 (0.180)	-0.217 (0.322)	0.058 (0.222)	-0.111 (0.140)	-0.241 (0.427)
Endo-info $\times$ Misperception	0.649 (0.835)	0.430 (1.142)	0.917 (0.725)	0.097 (0.485)	0.639 (1.538)
Constant	1.240*** (0.104)	1.243*** (0.133)	1.324*** (0.123)	1.319*** (0.099)	1.310*** (0.146)
Intensive margin					
Misperception	1.574 (0.952)	2.363* (0.944)	2.439** (0.818)	1.055 (0.694)	2.909** (1.012)
Exo-info	-0.316 (0.323)	-0.583 (0.400)	-0.064 (0.351)	0.210 (0.294)	-0.374 (0.408)
Exo-info $\times$ Misperception	-4.267** (1.423)	-2.981* (1.374)	-2.028 (1.184)	-1.056 (0.971)	-3.736** (1.434)
Endo-info	0.076 (0.398)	-1.126 (0.701)	-0.635 (0.459)	0.333 (0.294)	-1.963* (0.927)
Endo-info $\times$ Misperception	0.151 (1.741)	-4.966* (2.354)	-1.698 (1.543)	-0.080 (0.976)	-8.546** (3.280)
Constant	10.636*** (0.220)	10.946*** (0.275)	10.918*** (0.240)	10.566*** (0.206)	11.061*** (0.284)
Exo=Endo	0.931 (0.335)	0.899 (0.343)	0.611 (0.434)	0.215 (0.643)	2.949 (0.086)
Exo $\times$ Misp.=Endo $\times$ Misp.	5.723 (0.017)	0.468 (0.494)	0.547 (0.460)	1.252 (0.263)	1.488 (0.223)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	5.315 (0.021)	0.602 (0.438)	0.170 (0.680)	1.156 (0.282)	1.933 (0.164)
Observations	1835	1654	1836	2249	1576

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Logit and OLS regressions with standard errors in parentheses estimating the effects of assigned and chosen income rank information on donating money (0, 5, 10, 15 EUR) to charity using a two-part model. The top panel reports estimates from a logit regression, where the outcome is an indicator for whether the participant donated a positive amount (i.e. the extensive margin of giving). The bottom panel reports estimates from an OLS regression, where the outcome is euro amount donations, conditional on giving (i.e. the intensive margin of giving). Reported test statistics are Wald χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality across equations.

Table S34: Effect of information on donation as voluntary tax

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Extensive margin					
Misperception	-0.029 (0.390)	0.001 (0.411)	0.564 (0.342)	-0.025 (0.293)	0.393 (0.430)
Exo-info	-0.010 (0.130)	-0.014 (0.168)	-0.262 (0.144)	-0.036 (0.121)	-0.327* (0.166)
Exo-info $\times$ Misperception	-0.065 (0.570)	-0.184 (0.587)	-0.946* (0.477)	-0.017 (0.413)	-0.479 (0.585)
Endo-info	-0.310 (0.169)	0.070 (0.281)	0.016 (0.184)	-0.172 (0.124)	-0.972* (0.445)
Endo-info $\times$ Misperception	-0.621 (0.749)	0.578 (0.961)	-0.005 (0.633)	0.194 (0.430)	-2.866 (1.564)
Constant	-0.583*** (0.091)	-0.579*** (0.117)	-0.468*** (0.101)	-0.583*** (0.085)	-0.494*** (0.120)
Intensive margin					
Misperception	1.793 (1.328)	2.281 (1.357)	2.716* (1.093)	0.549 (0.953)	3.234* (1.451)
Exo-info	0.101 (0.452)	-0.274 (0.578)	0.566 (0.504)	0.473 (0.427)	-0.190 (0.591)
Exo-info $\times$ Misperception	-1.651 (1.968)	-1.555 (1.897)	-1.365 (1.576)	0.970 (1.367)	-1.761 (1.986)
Endo-info	-0.164 (0.617)	-1.484 (0.856)	0.161 (0.616)	0.445 (0.430)	-0.614 (1.753)
Endo-info $\times$ Misperception	-3.110 (2.753)	-5.234 (3.576)	-2.049 (1.990)	0.735 (1.384)	-9.958 (6.669)
Constant	8.000*** (0.319)	8.264*** (0.408)	8.267*** (0.346)	7.838*** (0.289)	8.447*** (0.422)
Exo=Endo	0.779 (0.378)	1.559 (0.212)	0.038 (0.846)	0.125 (0.724)	0.351 (0.554)
Exo $\times$ Misp.=Endo $\times$ Misp.	0.477 (0.490)	0.624 (0.429)	0.015 (0.903)	0.000 (0.986)	2.402 (0.121)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	0.602 (0.438)	0.838 (0.360)	0.003 (0.960)	0.012 (0.914)	1.919 (0.166)
Observations	1835	1654	1836	2249	1576

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Logit and OLS regressions with standard errors in parentheses estimating the effects of assigned and chosen income rank information on donating money (0, 5, 10, 15 EUR) as a voluntary tax using a two-part model. The top panel reports estimates from a logit regression, where the outcome is an indicator for whether the participant donated a positive amount (i.e. the extensive margin of giving). The bottom panel reports estimates from an OLS regression, where the outcome is euro amount donations, conditional on giving (i.e. the intensive margin of giving). Reported test statistics are Wald χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality across equations.

Table S35: Effects of information on spending money on lottery tickets

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Extensive margin					
Misperception	0.051 (0.377)	-0.631 (0.393)	-0.296 (0.326)	-0.250 (0.279)	-0.677 (0.408)
Exo-info	-0.123 (0.124)	-0.107 (0.162)	-0.221 (0.139)	-0.178 (0.116)	-0.121 (0.159)
Exo-info $\times$ Misperception	-0.095 (0.549)	0.116 (0.566)	-0.064 (0.460)	-0.421 (0.400)	0.108 (0.556)
Endo-info	-0.398* (0.158)	0.470 (0.278)	-0.195 (0.178)	-0.045 (0.118)	-0.142 (0.375)
Endo-info $\times$ Misperception	-0.489 (0.717)	1.672 (0.943)	-0.363 (0.593)	-0.178 (0.401)	-0.941 (1.363)
Constant	0.085 (0.088)	-0.060 (0.113)	0.018 (0.098)	0.045 (0.082)	-0.070 (0.116)
Intensive margin					
Misperception	-0.796 (1.075)	0.997 (1.121)	-0.307 (0.978)	-0.027 (0.800)	0.297 (1.171)
Exo-info	0.118 (0.386)	-0.113 (0.505)	0.256 (0.436)	0.081 (0.368)	0.649 (0.521)
Exo-info $\times$ Misperception	-0.446 (1.719)	-0.907 (1.636)	0.381 (1.358)	-0.250 (1.203)	1.884 (1.730)
Endo-info	0.542 (0.491)	0.413 (0.867)	0.327 (0.604)	0.325 (0.367)	0.991 (1.286)
Endo-info $\times$ Misperception	-0.185 (2.035)	1.550 (2.899)	-0.610 (1.939)	-0.162 (1.185)	1.629 (4.186)
Constant	8.427*** (0.261)	8.759*** (0.352)	8.466*** (0.305)	8.526*** (0.254)	8.598*** (0.355)
Exo=Endo	0.081 (0.776)	1.454 (0.228)	0.023 (0.878)	0.917 (0.338)	0.057 (0.811)
Exo $\times$ Misp.=Endo $\times$ Misp.	0.003 (0.954)	1.701 (0.192)	0.412 (0.521)	0.063 (0.802)	0.087 (0.768)
Exo+Exo $\times$ Misp.=Endo+Endo $\times$ Misp.	0.000 (0.995)	1.778 (0.182)	0.229 (0.632)	0.207 (0.649)	0.031 (0.860)
Observations	1835	1654	1836	2249	1576

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Logit and OLS regressions with standard errors in parentheses estimating the effects of assigned and chosen income rank information on spending money (0, 5, 10, 15 EUR) on Lotto lottery tickets using a two-part model. The top panel reports estimates from a logit regression, where the outcome is an indicator for whether the participant donated a positive amount (i.e. the extensive margin of giving). The bottom panel reports estimates from an OLS regression, where the outcome is euro amount donations, conditional on giving (i.e. the intensive margin of giving). Reported χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality across equations.

0.3 Results: Effects on earned income and new work contracts (using non-public administrative records data)

Table S36: Effect of income rank information on earned income (log) in 2021

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	-0.842*** (0.239)	-0.575* (0.274)	-0.569** (0.206)	-0.601*** (0.177)	-0.500 (0.305)
Exo-info	0.062 (0.076)	0.090 (0.110)	-0.017 (0.089)	0.070 (0.064)	-0.133 (0.119)
Exo-info $\times$ Misperception	0.244 (0.360)	0.393 (0.392)	0.170 (0.289)	0.556* (0.233)	-0.412 (0.424)
Endo-info	0.029 (0.091)	0.177 (0.149)	0.152 (0.085)	0.029 (0.066)	-0.059 (0.221)
Endo-info $\times$ Misperception	0.510 (0.436)	0.827 (0.578)	0.365 (0.258)	0.340 (0.218)	0.328 (0.790)
Constant	-0.110* (0.055)	-0.126 (0.079)	-0.115 (0.064)	-0.081 (0.050)	-0.110 (0.082)
Exo=Endo	0.136 (0.712)	0.346 (0.556)	4.022 (0.045)	0.480 (0.488)	0.113 (0.737)
Exo $\times$ Misp. = Endo $\times$ Misp.	0.343 (0.558)	0.558 (0.455)	0.587 (0.444)	1.190 (0.275)	0.887 (0.346)
Exo + Exo $\times$ Misp. = Endo + Endo $\times$ Misp.	0.343 (0.558)	0.558 (0.455)	0.587 (0.444)	1.190 (0.275)	0.887 (0.346)
Observations	1835	1653	1836	2245	1575

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. OLS regressions with robust standard errors in parentheses estimating the effects of assigned and chosen income rank information on earned income (log) in 2021. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald F-statistics (p-values in parentheses) from tests of coefficient equality.

Table S37: Effect of income rank information on having a new work contract between September-December 2021

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.044 (0.041)	0.037 (0.038)	0.009 (0.036)	0.033 (0.033)	0.043 (0.036)
Exo-info	0.007 (0.012)	-0.023 (0.017)	0.023 (0.014)	0.009 (0.012)	-0.005 (0.013)
Exo-info $\times$ Misperception	-0.020 (0.056)	-0.088 (0.056)	0.081 (0.049)	-0.013 (0.044)	0.005 (0.052)
Endo-info	0.006 (0.015)	0.015 (0.021)	-0.007 (0.020)	0.017 (0.012)	0.018 (0.024)
Endo-info $\times$ Misperception	-0.029 (0.070)	-0.020 (0.076)	-0.087 (0.060)	0.002 (0.043)	0.029 (0.097)
Exo=Endo	0.015 (0.901)	2.784 (0.095)	2.381 (0.123)	0.486 (0.485)	0.866 (0.352)
Exo $\times$ Misp. = Endo $\times$ Misp.	0.017 (0.896)	0.784 (0.376)	8.038 (0.005)	0.135 (0.714)	0.060 (0.806)
Exo + Exo $\times$ Misp. = Endo + Endo $\times$ Misp.	0.017 (0.896)	0.784 (0.376)	8.038 (0.005)	0.135 (0.714)	0.060 (0.806)
Observations	1720	1559	1711	2119	1468

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression with standard errors in parentheses estimating the effects of assigned and chosen income rank information on having a new work contract in October-December 2021. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality.

Table S38: Effect of income rank information on having a new work contract between October-December 2021

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	-0.005 (0.034)	0.022 (0.034)	-0.039 (0.033)	0.017 (0.030)	-0.004 (0.031)
Exo-info	0.007 (0.011)	-0.012 (0.014)	0.034* (0.014)	0.005 (0.011)	0.003 (0.012)
Exo-info $\times$ Misperception	0.017 (0.047)	-0.064 (0.047)	0.114** (0.044)	-0.042 (0.038)	0.043 (0.044)
Endo-info	0.013 (0.012)	0.004 (0.019)	0.014 (0.018)	0.019 (0.010)	0.028 (0.018)
Endo-info $\times$ Misperception	0.020 (0.054)	-0.046 (0.064)	0.009 (0.053)	0.008 (0.037)	0.052 (0.067)
Exo=Endo	0.247 (0.619)	0.614 (0.433)	1.825 (0.177)	1.856 (0.173)	2.179 (0.140)
Exo $\times$ Misp. = Endo $\times$ Misp.	0.004 (0.951)	0.079 (0.779)	4.372 (0.037)	2.236 (0.135)	0.019 (0.892)
Exo + Exo $\times$ Misp. = Endo + Endo $\times$ Misp.	0.004 (0.951)	0.079 (0.779)	4.372 (0.037)	2.236 (0.135)	0.019 (0.892)
Observations	1720	1559	1711	2119	1468

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression with standard errors in parentheses estimating the effects of assigned and chosen income rank information on having a new work contract in October-December 2021. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality.

Table S39: Effect of income rank information on having a new work contract between November-December 2021

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	0.010 (0.028)	0.024 (0.030)	-0.013 (0.026)	-0.002 (0.025)	0.006 (0.031)
Exo-info	0.002 (0.009)	-0.008 (0.011)	0.019 (0.010)	0.005 (0.010)	0.010 (0.011)
Exo-info $\times$ Misperception	-0.020 (0.038)	-0.062 (0.040)	0.054 (0.034)	-0.021 (0.032)	0.024 (0.040)
Endo-info	0.010 (0.009)	-0.011 (0.019)	0.008 (0.013)	0.018* (0.009)	0.030 (0.015)
Endo-info $\times$ Misperception	-0.003 (0.043)	-0.087 (0.055)	-0.000 (0.041)	0.018 (0.031)	0.031 (0.056)
Exo=Endo	0.619 (0.431)	0.023 (0.878)	0.873 (0.350)	2.640 (0.104)	2.148 (0.143)
Exo $\times$ Misp. = Endo $\times$ Misp.	0.171 (0.680)	0.244 (0.621)	2.008 (0.156)	2.036 (0.154)	0.019 (0.892)
Exo + Exo $\times$ Misp. = Endo + Endo $\times$ Misp.	0.171 (0.680)	0.244 (0.621)	2.008 (0.156)	2.036 (0.154)	0.019 (0.892)
Observations	1720	1559	1711	2119	1468

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression with standard errors in parentheses estimating the effects of assigned and chosen income rank information on having a new work contract in November-December 2021. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality.

Table S40: Effect of income rank information on having a new work contract in December 2021

	(1) Age	(2) Municipality	(3) Education	(4) Occupation	(5) National
Misperception	-0.005 (0.021)	-0.015 (0.025)	-0.007 (0.026)	-0.008 (0.016)	0.001 (0.020)
Exo-info	0.006 (0.006)	0.007 (0.010)	0.017 (0.010)	0.002 (0.007)	0.004 (0.007)
Exo-info $\times$ Misperception	0.008 (0.026)	-0.006 (0.029)	0.028 (0.030)	-0.012 (0.019)	0.008 (0.025)
Endo-info	0.008 (0.007)	0.001 (0.016)	0.012 (0.011)	0.007 (0.006)	0.012 (0.010)
Endo-info $\times$ Misperception	0.016 (0.029)	-0.024 (0.040)	0.002 (0.034)	0.015 (0.020)	0.002 (0.032)
Exo=Endo	0.096 (0.757)	0.143 (0.705)	0.454 (0.500)	0.862 (0.353)	0.924 (0.337)
Exo $\times$ Misp. = Endo $\times$ Misp.	0.092 (0.762)	0.266 (0.606)	0.946 (0.331)	2.634 (0.105)	0.034 (0.855)
Exo + Exo $\times$ Misp. = Endo + Endo $\times$ Misp.	0.092 (0.762)	0.266 (0.606)	0.946 (0.331)	2.634 (0.105)	0.034 (0.855)
Observations	1720	1559	1711	2119	1468

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects estimated from logistic regression with standard errors in parentheses estimating the effects of assigned and chosen income rank information on having a new work contract in December 2021. The dependent variable is standardized by subtracting the control group mean from each observation and then dividing by the control group standard deviation. Misperception is belief minus rank in the reference group corresponding to the exogenously assigned and chosen reference group. The difference in percentage points is divided by 100, so a misperception of 0.01 means that the believed rank is 1 percentage point higher than the actual position. Exo-info is an indicator for being assigned the respective income rank information and Endo-info is an indicator for choosing the respective income rank information. Exo-info and Endo-info equal 0 if the respondent is in the control group. Reported test statistics are Wald χ^2 -statistics (p-values in parentheses) from joint tests of coefficient equality.