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# When Goliath sells to David: explaining price gouging perceptions through power

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**Abstract**
External shocks (e.g., due to a pandemic) may lead to price jumps in the short term. Rather than being read as a signal of increased scarcity, the resulting "price gouging" is often ascribed to sellers' selfish exploitation of the crisis. In our experimental study, we investigate the drivers of fairness perceptions regarding voluntary transactions in situations of increased scarcity and explore how they pertain to the economic policy debate on price gouging restrictions. Departing from previous research, our results show that perceptions of power, not of the seller as the profiteer (mercantilism), drive fairness perceptions. The more powerful a transaction partner is assumed to be, the less the respective transaction is regarded as fair. In line with the literature, we also find that fairness perceptions are correlated with zero-sum thinking (i.e., a denial of the mutuality of benefits implied by voluntary transactions). Our study helps to better understand why some market regulations appear attractive despite suboptimal outcomes, thus revealing a mixing of the micro and the macro cosmos, against which Hayek warned. By casting a light on the psychological mechanisms behind attitudes toward markets, we aim to improve the assessment of legitimacy issues and contribute to explaining (and overcoming) the moral paradox of modernity.

**Keywords** Price gouging · Just price · Experimental ethics · Folk economic beliefs · Discourse failure

## 1 Introduction

Sudden price increases due to external shocks, such as natural disasters, regularly trigger price gouging debates. There is an extensive philosophical debate on the moral status of price gouging and price gouging restrictions (Finestone & Kingston, 2022; Sandel, 2010; Snyder, 2009; Zwolinski, 2008). Economists (and in their wake, some philosophers, too)

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make a moral argument based on the interpretation that increased prices serve as an incentive to ramp up production and alleviate scarcity (Friedman, 1971; Munger, 2011). Yet the public discussion is often fraught with price gouging allegations, and anti-price-gouging laws are regularly called for. This controversial debate can be enriched by an investigation of the intuitions underlying public perceptions of market transactions characterized by shock-induced price jumps. Therefore, in this study, we attempt to better understand folk economic perceptions of price gouging. With the help of an experimental study, we elicit fairness evaluations regarding price gouging transactions and disentangle the drivers of these fairness perceptions.

Our study is inspired by the phenomenon in which, depending on the profiteer, shock-induced price increases are evaluated quite differently: Whereas merchants selling scarce goods (e.g., in a pandemic) at a higher price are widely condemned as price gougers, the *wage gouging* of service providers (such as caretakers) is commonly welcomed as just compensation (Reese and Pies, 2021). This phenomenon has not been systematically studied. In our experiment, we empirically test for the presumed differences of fairness perceptions concerning an employee and a merchant who both profit from pandemic-induced demand in a likewise fashion. This experimental setup also allows us to gain a deeper understanding of the mental models underlying fairness evaluations and to determine whether the assumption that the seller is the profiteer (as the literature has suggested), the attribution of power asymmetries (our alternative explanation), or a mixture of both is a better predictor. Furthermore, we investigate zero-sum thinking's role in evaluating transactions of shock-induced price or wage increases while controlling for the attribution of intentionality and the assumed economic position of the potential gouger.

Our data reveal that the study participants perceive wage gouging in a pandemic as systematically fairer than price gouging. This effect is driven by the perception of the wage gouger (in our case, a caregiver) as less powerful than the price gouger (in our case, a wholesaler of face masks), which supports our conjecture that people's fairness evaluations of gouging transactions are driven by a sense of equalizing justice, according to which the weaker party should profit. This effect cannot be explained by an asymmetric attribution of intentionality or economic positions.

These insights into the folk perceptions of transactions regarded as price gouging are especially relevant in light of the ongoing debate about the legitimacy of anti-price-gouging laws and the effects these laws have (Chakraborti & Roberts, 2023). Furthermore, our study complements the public choice analysis of economic policy discourse by shedding light on the moral psychology of the discourse participants—in our case, the public in the price gouging debate.

Our paper continues as follows. In Sect. 2, we give an account of the literature that inspired and motivated our study. Section 3 contains our hypotheses and our experimental design. In Sect. 4.1, we report our results, and we discuss their theoretical and practical implications in Sect. 5.

## 2 The price gouging debate

Crises may induce sudden shortages of goods or services that are necessary to withstand or combat emergency situations. At the beginning of the COVID-19 pandemic, a severe shortage of goods such as hand sanitizers, face masks, and toilet paper occurred (NPR, 2022; PIRG, 2020). Similarly, hospitals had to cope not only with a shortage of goods

such as face masks, protective cloths, and ventilators, but also of personnel to provide the appropriate care for patients (AAMC, 2021; FDA, 2022). Shortages of this magnitude generally cause prices to increase suddenly and massively. Accordingly, at the beginning of the COVID-19 pandemic, the prices for N95 masks increased four- or fivefold (Ballentine & Egkolfopoulou, 2022); hand sanitizer prices multiplied (Taylor, 2020), and despite the price increases for toilet paper, consumers regularly confronted empty shelves (Smythe, 2021).

Economists routinely explain these sudden price increases with positive demand or negative supply shocks and interpret this as "free markets at work" (Culpepper & Block, 2008). Consequently, it is difficult to determine with standard price theory when a price increase qualifies as price gouging because competitive prices are strictly determined by demand and supply. They reflect scarcity. Therefore, the revealed preferences of the transaction parties who consensually and voluntarily agree on the transaction are the economists' decisive normative criteria (Sowell, 2012). To morally evaluate prices differently, an assessment criterion beyond economics, such as the notion of a "just price" (Boyd, 2018), is necessary. For instance, what is just might be determined by the concept of the labor theory of value (i.e., how much effort was necessary to produce the commodity; Foley, 2000; Gintis & Bowles, 1981), by price increases beyond increased input costs (Lade et al., 2020), or by the exploitation of a windfall market power through exogenous distortions (Roberts & Fung, 2021).[1]

Guzmán and Munger (2014, 2020) develop a normative model to capture their theory of just market exchange. This model allows for a consistent calculation of the just price in market situations in which one party has a vastly better outside option and thus unconscionable bargaining power. In a pandemic situation like the one we use in our experimental scenario described below, the mask wholesaler and the caregiver are likewise in such a position of power because the hospital is in desperate need of their goods and services. According to the model, the stronger party's unconscionable bargaining power is reined in by prompting them to "negotiate as if the weaker party actually had the fictitious outside option" (Guzmán & Munger, 2020, p. 6). By maximizing this outside option, the procedural unfairness of the negotiation is reduced. Two aspects make the model extremely useful for the evaluation of potential price gouging cases: It (1) is open to idiosyncratic and subjective valuation of equity (total equity for the radical egalitarian, no valuation of equity for the radical libertarian and everything in between), yet given an idiosyncratic equity valuation, the model still delivers (2) a consistent just price outcome for all instances of price gouging negotiations.

Research indicates that this consistency criterion in judging price gouging (equal qualifying criteria should lead to equal judgments) might be violated. While there is a general evaluation of price gouging as among the most repugnant market transactions (Schwartz, 2023), additional aspects cause a particular moral condemnation that reveals an asymmetric evaluation: Price gouging allegations seem particularly prevalent with market newcomers as opposed to established brands with reputational capital (Cabral & Xu, 2021). Campbell (1999) finds that whether consumers consider the same price increase fair or unfair depends on the presumed motive they ascribe to the firm inferred from contextual

[1] The heterogeneity of price gouging definitions in the economic literature is also mirrored by the anti-price-gouging legislation in the US. Here, we find fuzzy formulations of what constitutes a case of price gouging, so the threshold above which a price falls under the price gouging restriction varies drastically from state to state (Buccafusco et al., 2021).

information. Reese and Pies (2021) discuss the anecdotal observation of asymmetry in price and wage gouging attribution between merchants (providing a necessary good) and employees (providing a necessary service) to draw attention to an inherent inconsistency in moral judgment. The authors illustrate this observation with the condemnation of merchants who sell desperately needed goods, such as face masks, at a high price and the moral approval of the caregiver selling their desperately needed service to a hospital. Empirical research is needed to bring such preliminary observations on the asymmetric fairness evaluation of price and wage gouging transaction to terms with the consistency postulate implicit in Guzmán's and Munger's model of just market exchange. A systematic analysis of this difference in fairness evaluations and the underlying cognitive mechanisms can shed light on so-far unaccounted normative criteria that can—once revealed—be subjected to a normative debate.

Laypeople's perceptions of the economy have been investigated by "folk economic belief" research (Bhattacharjee & Dana, 2024; Boyer & Petersen, 2017; Rubin, 2003). Systematic analysis shows that these lay beliefs systematically deviate from the canon of economic theory, but dismissing them as irrational is too simplistic (Caplan, 2002). In this line of thought, Boyer and Petersen (2017) propose a cognitive evolutionary model to predict and explain folk economic beliefs as evolved automatic inference systems in adaptation to ancestral small-scale (zero-sum) environments. Based on this model, the authors explain why certain economic policies resonate more with our evolved intuitions and are therefore more popular. Whereas folk economic beliefs about price gouging transactions have not yet been systematically explored, researchers have investigated the evaluation of everyday transactions of goods and services at average prices. Johnson et al. (2021) find that the seller of a good or service is systematically rated as better off after the transaction, whereas the buyer is considered worse off. They describe this phenomenon as "mercantilist theories of value (confusing wealth for money)." Even though Johnson et al. (2021) did not ask participants to evaluate the transaction's fairness, the clear asymmetry of the seller being considered better off and the buyer being considered worse off suggests that those transactions might not be viewed as fair. Yet this asymmetry in perception is less likely to account for the different fairness evaluations between price gouging (merchant) and wage gouging (employee) that Reese and Pies (2021) anecdotally describe, because the transaction partners in question, the mask merchant and the caregiver, are both sellers.

To bring both these observations to term, we propose the attribution of power[2] asymmetries as a new explanation for differences in fairness evaluations of transactions. Our explanation posits that the relative power perception of the transaction partners, not their functional roles as sellers, predicts the fairness evaluation of a transaction. Therefore, in a situation of a shock-induced price increase, we expect the fairness evaluation to be

[2] We chose to test power as an explanatory variable, because power-based arguments figure prominently in the price gouging discourse (e.g., exploitation arguments presuppose power differences between the transaction partners). Beyond the price gouging question, we deem power perception a relevant concept of folk beliefs regarding issues of social policy, minimum wage, climate justice, and many more. The *APA Dictionary of Psychology* defines (social) power as the capacity to influence others, even when they try to resist this influence, and names sources such as the control of rewards, coercive power, and others. To our knowledge, there is no systematic investigation of what drives the attribution of power in (market) actors from an observer perspective, though we deem economic positions, information asymmetries, and reputation important components. This study is a first attempt to investigate the perception of power in the fairness evaluations of market transactions and can, thus, only take a first step toward gaining a better understanding of the concept.

asymmetric in the sense that a transaction is regarded as unfair if the presumably more powerful transaction partner profits and that it is regarded as fair if the presumably less powerful transaction partner profits. Therefore, we hypothesize that a sense of equalizing justice (and not just an assumed difference in bargaining power) guides moral evaluations of market transactions. Such a translation of perceived power asymmetries into fairness evaluations can be explained against the background of a prevailing inequity aversion (Fehr & Schmidt, 1999). Along this line, the asymmetric moral evaluations Reese and Pies (2021) discuss could result from asymmetric power attributions—in other words, from a folk economic perception (bias) that a "price gouging" face mask merchant is per se more powerful than a "wage gouging" caregiver.

Both the mercantilist theory of value hypothesis and our alternative power attribution hypothesis imply zero-sum thinking. Against the economic proposition of voluntary transactions being mutually beneficial, zero-sum thinking precludes the possibility that both transaction partners better themselves and each other through the transaction. Such mutuality is denied. Therefore, according to this mindset, by necessity, one transaction partner is expected to be worse off.

Such zero-sum thinking has been shown to be at the core of various folk economic beliefs (Rubin, 2003) and to be detrimental to cooperative problem-solving (Andrews Fearon et al., 2021; Davidai & Trepper, 2023). Popular accounts of zero-sum thinking include Paul Ehrlich's predictions of mass starvation occurring due to the population explosion (Ehrlich, 2017), economist Leister C. Thurow's interpretation of microeconomics as zero-sum (Thurow, 1980), and the Club of Rome's predictions (Meadows et al., 1972), which are echoed in the recent post-growth movement and are still reflected in current research (Jackson, 2019, 2021). The fact that these accounts extended far beyond professional circles indicates that zero-sum thinking resonates with the general public. Zero-sum thinking can also be found in folk economic beliefs on the right side of the aisle, such as the claim that immigrants steal jobs and are a threat to the in-group (Esses et al., 1998), or the conception that black Americans gain (e.g., jobs) at the expense of white Americans (Davidai & Tepper, 2023).

The asymmetry in evaluating transactions' fairness, with one party profiting from a shock-induced price or wage increase, could also occur due to a difference in the perception of intentionality. Research has shown that the moral evaluation of an action influences its assumed intentionality (Knobe, 2003): The famous Knobe effect shows that people are prone to attribute negative side effects to intentional action, but not positive side effects. A similar effect can anecdotally be found in the price gouging debate when increased prices (e.g., for gas) are attributed to oil companies' price gouging, whereas decreased prices at the gas station are attributed to system effects such as deflation or increased competition.[3] This asymmetric (mis-)attribution of motives often occurs when the results of a systematic process are perceived as bad—for example, when the phenomenon of decreasing salaries is attributed not to a recession but to employers' greed.

Based on these analyses, the moral evaluation of transaction partners may hinge on the attribution of intentionality. Regarding the attribution of a seller as a price gouger, this would indicate that the more intention people attribute to the seller in charging a higher price, the more likely they are to evaluate the seller's offer as price gouging. In that sense, stronger intentionality may be associated with stronger agency in setting the price, as

[3] This example is taken from a Twitter thread from Senator Elizabeth Warren and economist Lawrence White.

opposed to being subjected to mechanisms such as increased input costs. Following the logic of equalizing justice, we conjecture that if an agent who is perceived as less intentional profits from a shock-induced price or wage increase, this would be seen as fairer than when an agent with stronger intention profits.

Besides intentionality as a rival explanation for asymmetric fairness evaluations of price gouging cases, we also put forward a narrower explanation: assumed divergent economic positions of the gouging transaction partners. The phenomenon of power-driven fairness evaluation, which we investigate in this study, could be explained by various perceived vulnerabilities resulting from divergent levels of income and wealth, for example, those of mask wholesalers or caregivers. The power explanation as well as the alternative explanation of differing economic positions both supersede purely situational factors such as bargaining power captured by the theory of just market exchange.

Research on the folk economic beliefs on price gouging not only enriches the philosophical debate; it is also particularly relevant for the economic policy debate. Due to the dynamics of liberal societies, public opinion is ultimately reflected in policy making (Caplan & Stringham, 2005). To avoid discourse failure (e.g., through misattribution of the moral norms of small-scale groups onto large-scale anonymous societies; Hayek, 1991), we propose to complement the public choice analysis of economic policy discourse (see, e.g., Pincione & Tesón, 2006) by shedding light on the psychological drivers of lay people's moral evaluation of market transactions.

From this approach, understanding folk economic beliefs about price gouging transcends psychological l'art pour l'art. It gets at the bottom of public narratives that influence economic policies, such as price regulations in a pandemic aimed at making scarce goods more available or rental control in big cities aimed at ensuring more affordable housing. Understanding the fundamental mental models on which the perception of price gouging is based may ultimately help policymakers form policies that incorporate people's deeply rooted convictions (e.g., for equalizing justice) without defying basic economic logic. Next to enriching the philosophical debate on price gouging, studying the folk beliefs of price gouging can also move the policy debate forward by explaining the appeal of certain positions and evaluating their instrumental value against the background of the present political system.

## 3 Hypotheses and study design

### 3.1 Hypotheses

With our study, we first want to test in a controlled setting whether we find the expected asymmetric fairness evaluations of price and wage gougers in a pandemic-induced price and wage increase for which, so far, only anecdotal evidence exists. Therefore, we create two scenarios: one in which a caregiver (employee) profits from a shock-induced wage increase of 30% and one in which a wholesaler of face masks (merchant) profits from a shock-induced price increase of 30%. Our first hypothesis intended to establish the phenomenon is the following.

*Fairness Asymmetry Hypothesis* The price increase in the wholesaler scenario is seen as less fair than the wage increase in the caregiver scenario.

Given that we find an asymmetric fairness evaluation, we continue to investigate its drivers. Studies have shown that in transactions, the seller is generally seen as better

off than the buyer ("mercantilism"). This suggests that the perception of the seller as the profiteer could be an indicator of fairness evaluations. Even if a price gouger (mask wholesaler) and a wage gouger (caregiver) both sell a good or service, respectively, we still do not know whether both are perceived as sellers *to an equal extent*. If mercantilism has explanatory power, then the perception of a transaction partner as a seller should predict the fairness evaluation of the transaction: Transactions in which the transaction partner who is more strongly perceived as a seller profits from a shock-induced wage or price increase should be seen as less fair than situations in which the transaction partner who is less perceived as a seller profits in the same way. In our experimental design, both profiteers—the caregiver and the mask wholesaler—are sellers from an economic perspective. However, to put the mercantilist explanation to the test, we control whether both profiteers are also *perceived* as sellers to equal degrees. It is conceivable, for instance, that the seller of a commodity is more strongly perceived as a seller than the seller of one's labor. We derive a first potential explanation of what drives different fairness evaluations from the Mercantilism Hypothesis below.

*Explanation 1: Mercantilism Hypothesis* A transaction partner's perception as a seller drives the fairness evaluation. The more the profiting transaction partner is perceived as a seller, the less fair the transaction is perceived to be.

We propose an alternative explanation for asymmetric fairness evaluations in transactions characterized by a shock-induced price or wage increase. In contrast to the *Mercantilism Hypothesis*, we expect the respective transaction partner's perceived position of power to drive fairness evaluations in a sense of equalizing justice: If a transaction partner who is perceived as less powerful profits from a shock-induced price or wage increase, the transaction is evaluated as fairer than if a transaction partner who is perceived as more powerful profits in the same way. We thus derive our Power Hypothesis.

*Explanation 2: Power Hypothesis* Relative power attributions drive fairness evaluations. The less powerful the profiting seller is perceived to be, the fairer the transaction is evaluated to be.

It should be noted that the two formulated explanations are not mutually exclusive; both could drive the fairness evaluation of shock-induced price increases. To further test our power hypothesis, we control for the attributed intentionality and for the assumed divergent economic positions of the potential price or wage gouger.

In the literature, zero-sum thinking has been shown to be a predominant concept in evaluating everyday transactions (Johnson et al., 2021). That means that only one transaction partner is seen as the winner, and the other transaction partner is seen as the loser. Based on these findings, we stipulate that these zero-sum evaluations would correlate with the evaluation of the transaction as less fair (because at least one party becomes worse off). In our study, we systematically test the assumed relation between zero-sum thinking and fairness evaluation. We hypothesize that zero-sum thinking plays a role in evaluating transactions that might involve perceived price gouging. Specifically, our hypothesis is as follows.

*Zero-Sum Hypothesis* Fairness evaluations are negatively correlated with zero-sum thinking.

### 3.2 Study design

We preregistered our hypotheses, measures, and planned analyses at https://aspredicted.org/vn985.pdf. For data collection, we conducted an online vignette study programmed with Qualtrics and disseminated through the PrimePanels of the crowd researching provider

**Table 1** Conditions and treatments

| | Perception as seller | Perception of power |
|---|---|---|
| Caregiver scenario | Treatment 1 | Treatment 3 |
| Wholesaler scenario | Treatment 2 | Treatment 4 |

CloudResearch. The study took approximately ten minutes to complete. We asked participants for their consent to participate in the study and paid them $1.50 for participating.

Vignette experiments are scenarios constructed to assess dependent variables that allow researchers to control for independent variables (Aguinis & Bradley, 2014). Our vignettes described a situation in which two transaction partners entered into a contract against the background of increased scarcity induced by COVID-19. All participants read *one* of the two vignettes described below:

[1] Consider the following scenario. During the coronavirus crisis, there is a desperate need for caregivers to work in hospitals. A hospital is hiring a new caregiver. Due to increased demand, he receives a wage that is 30% higher than is customary.
[2] Consider the following scenario. During the coronavirus crisis, there is a desperate need for face masks in hospitals. A wholesaler is selling face masks to the hospital. Due to increased demand, he receives a price that is 30% higher than is customary.

After reading the vignette, all participants stated their level of agreement with the statement "The higher wage [price] level is fair" on a Likert scale from 1 ("fully disagree") to 7 ("fully agree"), which constitutes our dependent variable, the evaluation of the transaction's fairness. We elicited our main explanatory variables in a between-subjects design (see Table 1); therefore, we randomly assigned our participants to one of four treatments. We elicited either participants' perception of power ("In general, a hospital is more powerful than a caregiver [wholesaler]") or perception as a seller ("The caregiver [wholesaler] sells his labor [goods] to the hospital") regarding the profiting transaction partner. Participants again had to signal their level of agreement with the respective statements on a Likert scale from 1 ("fully disagree") to 7 ("fully agree").

We controlled for the profiting transaction partner's perceived intentionality by asking participants for their level of agreement with the statement "The caregiver [wholesaler] *intentionally* sells labor [goods] to the hospital" on the familiar 7-point Likert scale. Controlling for participants' perception of the profiting transaction partner's economic position was achieved by asking them to complete the statement "Overall, caregivers' [wholesalers'] income levels are …" on a scale from 1 ("too low") to 7 ("too high").

We elicited participants' inclination toward zero-sum thinking by asking them to evaluate how well-off they think each partner was after the transaction described above. Participants could either answer that both partners are better off through the transaction (no zero-sum thinking) or that only the seller or only the buyer is better off, and the other transaction partner loses. The latter two answers constitute a case of zero-sum thinking. Afterwards, participants had to answer a series of post-experiment questions (see Appendix 1) and demographic questions.

## 4 Results

In total, 562 subjects participated in the experiment. Of these, 491 (87.4%) passed our attention check question and were therefore included in our analyses.

We first test our *Fairness Asymmetry Hypothesis*, which states that the wage increase in the caregiver scenario is seen as fairer than the price increase in the wholesaler scenario. We therefore compare fairness evaluations between the caregiver and the wholesaler scenarios (see Table 1). The average perceived fairness in the caregiver scenario is 5.41 (SD = 1.71), whereas the average perceived fairness in the wholesaler scenario is 2.88 (SD = 1.74). As hypothesized, the wage increase in the caregiver scenario is evaluated as substantially fairer than the equally large price increase in the wholesaler scenario ($p < 0.001$, two-sided M.W.U test).

**Result 1** The *Fairness Asymmetry Hypothesis* is corroborated by the fact that the wage increase in the caregiver scenario is evaluated as fairer than the price increase in the wholesaler scenario.

This provides empirical support for the existence of the phenomenon, described so far only anecdotally, that the fairness of shock-induced price jumps is evaluated differently depending on the profiteer. The question is what drives these highly diverging evaluations. In Sect. 3, we introduced two explanations for the observed effect that are not mutually exclusive.

We first test for the *Mercantilism Hypothesis*. Remember that it starts with the observation from previous research that sellers are generally considered better off in voluntary transactions (based on a confusion of wealth and money called "mercantilism"). Under this premise, a shock-induced price increase benefitting the already advantaged seller would be considered particularly unfair. The lower fairness attributed to the price increase when the wholesaler benefits as opposed to when the caregiver benefits may then arise if the wholesaler is more strongly perceived as a seller than the caregiver. To investigate this scenario, we measure the degree to which people agree with the statement that the caregiver sells labor to the hospital and compare this to the measured degree to which they agree that the wholesaler sells goods to the hospital. We thus compare Treatments 1 (n = 125) and 2 (n = 116), as Table 1 shows. The average agreement with the statement that the caregiver sells to the hospital is 4.82 (SD = 1.79), whereas the average agreement with the statement that the wholesaler sells to the hospital is 4.14 (SD = 2.25). The wholesaler, whose advantage from a price increase is considered less fair, is perceived less strongly as a seller than the caregiver, whose advantage from a wage increase is considered fairer ($p = 0.018$, two-sided M.W.U. test). This result does not support the *Mercantilism Hypothesis.*

The results of a regression that we summarize in Table 2 provide further evidence against the *Mercantilism Hypothesis*. We regress fairness evaluations on the agreement with the statement that the seller sells to the hospital while controlling for the scenario, the seller's ascribed intentionality, the seller's assumed economic position ("position"), and the interaction terms between the scenario and each of the other three main variables. We also included age, gender, and education level as demographic control variables.

Our regression shows that, contrary to the *Mercantilism Hypothesis*, the perception of fairness in price increases benefiting the seller tends to increase when there is a stronger agreement that the seller sells to the hospital.

**Table 2** Regression of perceived fairness on agreement with statement that seller sells to hospital

| | Estimate | Std. error | t value | *p* value |
|---|---|---|---|---|
| (Intercept) | −33.233 | 11.401 | −2.915 | **0.004** |
| Scenario (wholesaler = 1) | −1.443 | 0.974 | −1.482 | 0.140 |
| Seller | 0.280 | 0.082 | 3.414 | **< 0.001** |
| Intentionality | −0.081 | 0.077 | −1.055 | 0.293 |
| Position | −0.270 | 0.093 | −2.914 | **0.004** |
| Age | 0.019 | 0.006 | 3.326 | **0.001** |
| Gender (female = 1) | 0.209 | 0.203 | 1.028 | 0.305 |
| Education | 0.007 | 0.049 | 0.142 | 0.887 |
| Scenario × seller | −0.108 | 0.106 | −1.020 | 0.309 |
| Scenario × intent | 0.003 | 0.102 | −0.028 | 0.977 |
| Scenario × economic | 0.033 | 0.151 | 0.218 | 0.828 |

We included scenario and gender as dummy variables. Bold *p* values are significant at the 1% level

**Result 2** The *Mercantilism Hypothesis* is refuted. Stronger perception of the gouger as a seller does not lead to the evaluation of the transaction as less fair.

However, we also observe that the perception of fairness in a transaction tends to decrease when the profiting transaction partner is perceived to have a stronger economic position. Prima facie, this may suggest that the asymmetry in fairness evaluations of transactions is narrowly driven by the perception of their divergent economic position rather than by the perception of some more general power asymmetry.

In the next step, we test the *Power Hypothesis* as an alternative explanation for the pattern in fairness perceptions. As explained above, this hypothesis posits that assumed relative power differences between interaction partners drive public fairness evaluations. It leads to the expectation that price increases which provide benefits for sellers who are perceived as more powerful are evaluated as less fair. To test this hypothesis, we compared people's agreement with the statement that the hospital is generally more powerful than the respective seller for the caregiver and wholesaler scenarios. We therefore compare Treatments 3 (n = 126) and 4 (n = 124), as Table 1 shows. The average agreement with the statement that the hospital is generally more powerful than a caregiver is 4.99 (SD = 1.71), whereas the average agreement with the statement that the hospital is generally more powerful than a wholesaler is 4.13 (SD = 1.79). These results imply that the wholesaler is perceived as relatively more powerful (vis-à-vis the hospital) than the caregiver (vis-à-vis the hospital) ($p < 0.001$, two-sided M.W.U test). The results of a regression, summarized in Table 3, provide further support for the *Power Hypothesis*. Here, we regress fairness evaluations on the seller's perceived power while controlling for the scenario, the seller's ascribed intentionality, the seller's assumed economic position ("position"), and the interaction terms between the scenario and each of the other three main variables. As demographic control variables, we again include age, gender, and education level.

The regression shows that the less power is ascribed to the seller (i.e., the more powerful the hospital is perceived as compared to the seller), the fairer the price increase benefitting the seller is perceived to be. This is a general tendency that applies equally to the wholesaler and caregiver scenarios. Moreover, the negative effect of a stronger assumed economic position on fairness evaluations, as previously observed, vanishes if

**Table 3** Regression of perceived fairness on perceived power

| | Estimate | Std. error | t value | *p* value |
|---|---|---|---|---|
| (Intercept) | −32.268 | 11.756 | −2.745 | **0.007** |
| Scenario (wholesaler = 1) | 0.061 | 0.927 | 0.066 | 0.947 |
| Power | 0.463 | 0.085 | 5.440 | **< 0.001** |
| Intentionality | 0.015 | 0.081 | 0.188 | 0.851 |
| Position | 0.031 | 0.100 | 0.306 | 0.760 |
| Age | 0.018 | 0.006 | 3.059 | **0.003** |
| Gender (female = 1) | −0.642 | 0.212 | −3.035 | **0.003** |
| Education | 0.039 | 0.052 | 0.755 | 0.451 |
| Scenario × power | −0.204 | 0.118 | −1.722 | 0.086 |
| Scenario × intent | −0.043 | 0.120 | −0.357 | 0.721 |
| Scenario × economic | −0.252 | 0.158 | −1.593 | 0.113 |

We include scenario and gender as dummy variables. Bold *p* values are significant at the 1% level

**Table 4** Regression of perceived fairness on zero-sum thinking

| | Estimate | Std. error | t value | *p* value |
|---|---|---|---|---|
| (Intercept) | −34.461 | 8.563 | −4.024 | **< 0.001** |
| Scenario (wholesaler = 1) | −1.338 | 0.580 | −2.306 | 0.022 |
| Zero-sum (yes = 1) | −0.921 | 0.251 | −3.668 | **< 0.001** |
| Intentionality | 0.052 | 0.058 | 0.895 | 0.371 |
| Position | −0.116 | 0.071 | −1.635 | 0.103 |
| Age | 0.021 | 0.004 | 4.703 | **< 0.001** |
| Gender (female = 1) | −0.234 | 0.153 | −1.526 | 0.128 |
| Education | 0.043 | 0.037 | 1.156 | 0.248 |
| Scenario × zero-sum | 0.326 | 0.335 | 0.971 | 0.332 |
| Scenario × intent | −0.099 | 0.079 | −1.246 | 0.213 |
| Scenario × economic | −0.088 | 0.112 | −0.792 | 0.429 |

We include scenario, zero-sum thinking, and gender as dummy variables. Bold *p* values are significant at the 1% level

one controls for power perceptions. This indicates that power is not simply reducible to income and wealth. These overall results imply that differences in perceptions of relative power between seller and buyer have the best explanatory power in determining the moral evaluations of market transactions.

**Result 3** The *Power Hypothesis* is corroborated. Stronger perception of the gouger as powerful leads to the evaluation of the transition as less fair.

Concerning our demographic variables, we find that the older subjects are, the less likely they are to perceive the shock-induced price increase as fair. Female participants are also more likely to consider the price increase unfair than male participants.

Finally, we turn toward the *Zero-Sum Hypothesis* by analyzing the relationship between zero-sum thinking and the asymmetric fairness evaluations of a shock-induced wage increase benefitting a caregiver versus a shock-induced price increase benefitting a

wholesaler. In the caregiver condition, 61 of 251 participants (24.3%) engaged in zero-sum thinking. In the wholesaler condition, 118 of 240 participants (49.2%; about twice as many) did so. This difference is statistically significant ($p < 0.001$, chi-square test).

Table 4 summarizes the results of a regression of fairness perceptions on zero-sum thinking when we control for the scenario, ascribed intentionality, assumed economic positions ("position"), and the interaction terms between scenario and each of the other three variables. We again include age, gender, and education as demographic variables. These results confirm that zero-sum thinking is negatively correlated with fairness evaluations.

**Result 4** The *Zero-Sum Hypothesis* is corroborated. Participants who engage in zero-sum thinking tend to evaluate a shock-induced price increase as less fair.

## 5 Discussion and conclusion

Our findings show that the perception of power drives the fairness evaluation of transactions characterized by shock-induced price increases, whereas the mercantilist explanation does not hold for the contexts we investigated. This constitutes evidence against the universality of the mercantilist explanation that has been shown to be a reliable predictor for the evaluation pattern of zero-sum evaluation of everyday goods in contexts without increased scarcity (Johnson et al., 2021). Power also remained the most potent explanatory variable for fairness evaluations when we controlled for the attributed intentionality and the assumed divergent economic positions of the potential price gougers. Additionally, we find that participants who engage in zero-sum thinking evaluate the transaction as less fair, which suggests that zero-sum thinking and fairness evaluation of shock-induced price jumps are negatively related. Participants who perceive a transaction as zero-sum are less likely to evaluate this transaction as fair.

In our scenarios, we keep the hospital's weak bargaining position constant by stressing its "desperate need" for caregivers and face masks. We also keep the bargaining power of the caregiver and the wholesaler constant by attributing to both of them a 30% higher price or wage than is customary. Therefore, the normative output of the just market exchange model (Guzmán & Munger, 2020) would suggest that the higher prices of the wholesaler and the caregiver are equally morally permissible—depending on the observer's idiosyncratic equity valuation. Yet we find that the moral evaluation of the transaction outcome does not exclusively hinge on the current situation and the outside options of the negotiation partners: People's fairness evaluations are driven by a *general* perception of power differences between caregiver and wholesaler. In a nutshell, for people's moral evaluation, the identity of a transaction party and hence the identity-based perception of this party as relatively more or less powerful *in general* seems to matter and not just the current situation of potentially asymmetric bargaining power.

Given the strong empirical connection we found between the perception of power and the fairness evaluation of price gouging transactions, we can raise the *normative* question of how adequate this attribution of power actually is. Does the price gouger in fact hold an exploitative position of market power? Alternatively, may they—as our title suggests—appear big and powerful as Goliath, but can, in the concrete situation, be overwhelmed by a seemingly small and powerless but actually superior David? After all, the discounter Aldi (to use an example from the German discounter market) is a big and powerful company,

especially in contrast to its customers, some of which struggle to make ends meets. However, a closer look shows that Aldi faces stiff competition from discounters such as Lidl or Penny, which provides the potential Aldi customer appealing outside options and, thus, bargaining power. Research on the gap between the perceived profit margins of US companies and the actual profit, which is about five times less than assumed by the public (Perry, 2015), suggests that folk beliefs about the economy might be systematically skewed. This raises further questions: Might certain market actors exploit our power-perception-driven fairness evaluations by deliberately appearing small and powerless to sway public opinion in their favor and gain rents (i.e., appearing weak and worthy of regulatory protection against competitors at the expense of consumers and tax payers)? Empirical research on the moral drivers of folk economic and folk ethical beliefs can help reveal where possible biases might be exploited by political rent-seekers. Even more generally: Further research needs to explore this seemingly rich concept of power in market actors and what drives the underlying patterns of perception. This might reveal a systematic fallacy in people's judgments—the tendency to be impressed by categories that should be irrelevant to (and are misleading for) a moral evaluation.

The asymmetry we found in structurally similar cases of price and wage gouging indeed reveals an asymmetry in moral judgments, as Reese and Pies (2021) assumed. Until further analysis shows that the asymmetric fairness evaluations we detect reflect a normatively valid difference, this inconsistency casts some doubt on whether folk economic moral judgments have normative validity and are, therefore, an adequate base for policies. Our argument to question the normative status of feelings refers to a long philosophical tradition. It is, for instance, in line with the following statement by John Stuart Mill (1861): "That a feeling is bestowed on us by Nature, does not necessarily legitimate all its promptings." Additionally, reservations against feelings of anger in the context of price gouging regulation join the well-established philosophical argument that feelings of disgust should be kept out of political discussions on regulating race relations or homosexual relationships (Nussbaum, 2010).

Hayek (1991) famously describes the problem of living in two worlds at once—the microcosm of our small bands, such as our families, and the macrocosm of society as a whole (extended order). He emphasized that these two worlds need different sets of rules. The intuitive attempt to apply the rules of the macrocosm to the small-band logic of the microcosm would likely crush the microcosm, and vice versa, the attempt to apply the rules of the microcosm to the extended order of the macrocosm would likely destroy the macrocosm. This poses the intellectual challenge of applying two sorts of morality to the two worlds that we inhabit simultaneously. Pies (2020) emphasizes a fundamental asymmetry in sensitivity to both types of moral confusion. The danger of crushing the microcosm seems well acknowledged by contemporary philosophers, who warn that the market system may colonize the lifeworld (Habermas, 1981). Yet philosophers seem to have largely neglected the opposite danger of destroying the macrocosm. They thus tend to have a blind spot for what Pies (2020) calls the "moral paradox of modernity," the peculiar phenomenon in which modern society turns moral desiderata into reality in an unprecedented way while facing fundamental moral reservations against its functional logic.

Against this background, it is important to note that various price gouging regulations may be explained (and criticized) in light of our findings. When price gouging is particularly salient and the group being gouged is perceived to be particularly vulnerable, price restrictions tend to find public support and eventually become legal code. One example is the regulations in some US states that impose additional civil fines for

charging higher prices to people of 65 years or above (Buccafasco et al., 2021), a regulation clearly targeted to protect relatively more vulnerable seniors. Generally, policy debates on price gouging often focus on goods and services in business-to-consumer markets. It remains an open question whether there are less salient price gouging cases higher up the supply chain as yet uncaptured. Furthermore, it is also unknown whether targeted income transfers to vulnerable groups may reduce public pressure for anti-price-gouging laws.

While we have investigated the fairness evaluations of specific price gouging cases, we have not yet investigated whether and how these fairness perceptions feed into policy preferences. Research indicates that voters prefer policies that follow the right kind of intentions rather than bring about welfare-enhancing consequences (Marie et al., 2021). This could explain why anti-price-gouging laws are popular despite their questionable effects on scarcity: Restricting prices is a *visible-hand* solution to the perceived problem of suppliers charging too high prices. To this solution, a clear benevolent motive can be ascribed: saving consumers from exploitation. The *invisible-hand* solution of ensuring viable competition that can deal with scarcity via the signal of free-floating prices inherently lacks a benevolent motive and is, therefore, prima facie less appealing. While anti-price-gouging laws are meant to directly alleviate the burden of the increased costs on consumers, especially in times of crises, our results suggest that these laws may very well resonate with citizens' perceptions. However, whether these laws and the moral intuitions they are based on are normatively valid can be questioned (Munger, 2011; Zwolinski, 2008, 2009).

Our research provides a complementary approach to the public choice analysis of discourse failure. Pincione and Tesón (2006) analyze the incentive structures that lead to discourse failure as a combination of the rational irrationality of voters (the information costs exceed the gains of being informed) and the posturing of policy makers who have their own rents to gain (e.g., reelection) and therefore serve the ill-informed will of the people. Our analysis of the folk economic beliefs of price gouging adds to this public choice analysis. By looking at the cognitive drivers of how people evaluate price gouging transactions, we can better understand why certain convictions might be especially hard to change, even if the problem of costly information could be solved. Our findings reveal that learning that unrestricted prices are the best means to extend supply may not satisfy people's sense of equalizing justice. Our participants find a transaction fair in which the weaker party profits. However, a market solution of unrestricted prices leads to—at least at first—suppliers' profit and, only as a consequence, consumers' benefit. Therefore, we have to anticipate resistance against unrestricted prices in a situation of sudden scarcity induced by a natural disaster or a pandemic. A better understanding of the psychological mechanisms behind folk economic beliefs, such as the evaluation of price gouging, can help us to better understand economic policy discourse failure and enable us to test ways to mitigate the resistance against *invisible-hand* solutions as well as to promote functional institutional arrangements that call for counterintuitive thinking instead of relying on moral intuition.

Our inquiry into price gouging illustrates the need for interdisciplinary research. While a normative analysis brings to light the moral claims, an empirical analysis is required to finally evaluate (and possibly criticize) the legitimacy of these moral claims. On one hand, we have to ask questions to better understand the economic analysis of the situation: Do we have a competitive market? Will unrestricted prices decrease scarcity in this case? On the other hand, we have to ask questions that refer to the psychological analysis of the moral convictions involved: Are there illegitimate inconsistencies? Do people apply the wrong kind of morality? The cross-fertilization of these perspectives offers a promising path, and not only for advancing the normative policy debate on price gouging. It may also improve

the public policy discourse more generally and contribute to a functioning economic policy discourse on which welfare-enhancing policymaking relies.

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**Data availability** Data and materials will be provided on reasonable request.

## Declarations

**Competing interest** The authors declare that no competing interests exist.

**Ethical approval** The research was approved by the institutional review board of the Leibniz Institute of Agricultural Development in Transition Economics (IAMO), Halle, Germany.

**Human and animal rights** Statement Regarding Research Involving Human Participants and/or Animals: The investigation was conducted according to the principles expressed in the Declaration of Helsinki.

**Informed consent** Written consent was obtained from all participants prior to the study.



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