Socio-Economic Review, 2022, Vol. 20, No. 3, 883–914
doi: 10.1093/ser/mwaa034
Advance Access Publication Date: 9 October 2020
Article

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Multiple market moralities: identifying distinct patterns in how consumers evaluate the fairness of price changes

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Abstract

The default position in economic psychology is that consumers evaluate the fairness of firms' pricing strategies based on a widely shared schema of market morality, operationalized by analysing the average response within a respondent pool to a given price-change scenario. Conversely, drawing on economic and cultural sociology, we argue that there are multiple, distinctive schemas that pattern consumers' moral evaluation of market pricing practices. We identify distinctive moral schemas by replicating and reanalysing scenarios from the foundational study of the fairness in pricing field (Kahneman *et al.*, 1986) with a new online survey of American adults. Using correlational class analysis, we find respondents orient to one of four different configurations of moral judgement about price-change fairness: dual-entitlement principles, free-market proponents (and opponents), retail-labour domain specificity and procedural (un)fairness. This research gives analysts new tools for more precisely specifying variation in consumer moral sentiment and raises new questions about the causes, consequences and contours of multiple market moralities.

Key words: economic sociology, consumers, fairness, prices

JEL classification: Z1 cultural economics, economic sociology, economic anthropology

1. Introduction

Scholars are increasingly interested in the morality of markets (e.g. Etzioni, 1988; Fourcade *et al.*, 2013; Xia *et al.*, 2004).[1] Moral philosophers worry about the encroachment of market logic into other spheres of social life having morally corrosive effects (Anderson 1990; Sandel, 2012), while social scientific research examines how particular *products* like sex,

blood, organs or genetic material may violate moral schemas of what should (or should not) be bought and sold in the market (Almeling, 2007; Titmuss, 1970; Zelizer, 2017), how transactors grapple with efforts to exchange morally charged goods (Healy, 2010; Prasad, 1999; Rossman, 2014), morally transgressive *exchange partners* (Chernev and Blair, 2015), the morality of the *production process*, like sweatshop labour (Prasad, 2004; Ross, 2004), and offering inferior versions of products at lower costs (Gershoff *et al.*, 2012). We contribute to this growing interest in market morality by analyzing moral interpretations of the central mechanism of market exchange itself: *pricing*. Our quantitative analysis produces four distinctive configurations of how consumers evaluate the fairness of price changes, taking a step toward more precisely specifying the number, contours and content of *multiple market moralities*.[2]

The study of pricing has long been dominated by economists and cognate fields; accordingly, the theoretical puzzles and methodologies have been structured by the central tenets of economics. Scholarship on pricing has long focused on explaining empirical patterns that are puzzling from the perspective of neoclassical economic theory, for example when producers are expected to raise prices in the face of excess demand, but they do not. Hot concert tickets sell out in minutes at face value, popular new car models have long waiting lists, parents fight over the 'it' toy at Christmas. In 1986, Kahneman, Knetsch and Thaler published a now-famous paper explaining these deviations from market theory by demonstrating that everyday consumers had judgements of fairness about price changes, which constrained firms' profit-seeking. Kahneman *et al.* (1986)—together with more than 30 years of research into the economics and psychology of fairness in pricing they subsequently inspired—developed theoretical claims about moral evaluations of 'consumers' as a general, unspecified group. Their analysis drew theoretical conclusions by analysing the percentage of total respondents who agreed with various scenarios. For example, 63% of their respondents judged it unfair to increase the price of Red Delicious apples when there was a temporary shortage. They concluded that the 'lay public' (1986, p. 729, 735)—explicitly singular and therefore implicitly monolithic—does not share economic theory's assumptions about price clearing, instead 'Community standards of fairness effectively require the firm to absorb an opportunity cost in the presence of excess demand, by charging less than the clearing price' (Kahneman *et al.*, 1986).

The disciplinary approaches that have dominated this field help explain why morality of pricing scholarship has not previously identified that there may be multiple distinctive but identifiable market moralities. The study of pricing, so central to socioeconomic market life, has long been dominated by economists, business scholars and psychologists—disciplines increasingly critiqued for employing theoretical and methodological approaches grounded in assumptions that respondents may all be presumed to be undifferentiated individual instances of 'standard subjects' (many of these critiques have been made by cultural psychologists

1 By 'moral' we mean, descriptively, states of affairs which people think *ought or ought not* obtain, or rather that respondents evaluate as *good* or *bad*, which aligns with the understanding of the term within economic sociology (Fourcade and Healy, 2007, p. 307; Rossman, 2014). By 'market morality', we mean whatever people think ought (or ought not) to be the case, specifically, in the domain of formal market exchange.

2 Following our definitions in footnote 1, we are suggesting that market moralities are 'multiple', in the sense of falling into more than one distinct configuration of judgements about the market.

productively aiming to reform their own discipline, i.e. Henrich *et al.*, 2010). Moreover, the body of research on fairness in pricing has overwhelmingly focused on college convenience samples (e.g. Homburg *et al.*, 2005). Western college convenience samples are known to be outliers in moral reasoning (Henrich *et al.*, 2010). By focusing on *average* moral evaluations across survey respondents, who are artificially homogenous due to tendencies to use college convenience samples, the analytic approach of the entire fairness-in-pricing subfield is tacitly grounded in a presumption of a single moral schema that can be found as the average abstraction across the population of respondents.

In contrast, we build on scholarship by economic sociologists (Wherry, 2008; Zelizer, 2017), cultural sociologists (Griswold, 1987; Lamont, 2012) and organizational scholars of evaluation (Salganik and Watts, 2008; Zuckerman, 2012) that argues that in many situations there may be multiple, different and sometimes-conflicting logics of evaluation. For example, Michelle Lamont argues that Americans express moral tastes that value explicit demonstrations of material wealth as signalling moral worth, whereas French Parisians morally condemn such displays as ostentatious and morally distasteful (Lamont, 1992). Many qualitative and case studies in economic sociology support the general intuition that economic morality is multiple but have not yet had a way to systematize that sense of plurality. We build on this recognition of plurality, employing a method that allows us to identify, specify and measure the presence, content and contours of multiple distinctive market moralities.

We replicate classic Kahneman *et al.* (1986) survey questions using a diverse online sample of US adults, analysing patterns of moral judgement consumers employ across a range of market-pricing scenarios. Inspired by studies of taste from the sociology of culture (Bourdieu, 1984; Lizardo, 2006), to investigate multiple moralities, we use correlational class analysis (CCA) (Boutyline, 2017), a variation on relational class analysis originally developed by Goldberg (2011).[3] This method enables us to identify whether or not there are several distinct configurations of how consumers evaluate fairness in pricing. If the conventional account of a single widely shared schema were true, there would be no meaningful partitioning of the data into schematic classes—representing one dominant moral sensibility shared by all respondents. Instead, the results of our CCA analysis partition respondents into four classes, not the presumed singular moral schema but also not infinitely polyphonous individual judgements.

We find respondents in our data evaluating price-change scenarios were oriented to one of four evaluative schemas: One class was characterized by broadly omnivorous schematic structure, arrayed according to dual-entitlement principles (Kahneman *et al.*, 1986, p. 729). The second class approximates classic free-market absolutism (Nozick, 1974), whereby firms raising prices in pursuit of profit were seen as similarly (in)acceptable across many different scenario conditions, provided firms were in a competitive environment. Two other schematic classes were characterized by a separate spheres network structure. One demonstrated strong sensitivity to whether price changes affected retail goods or labour. The final class was distinguished by particular sensitivity to procedural justice. In the conclusion, we

3 We use CCA rather than RCA for statistical reasons (see footnote 6). Because "shared schemas should result in linear dependencies between survey rows" (Boutyline, 2017, p. 2), the measure used to make classes should directly model the linear relationships between respondents (i.e. rows). This is the main difference between CCA and RCA, and our justification for using one over the other.

Table 1. Survey scenario labels and text

Name	Scenario text	Theoretically salient features
Labour scenarios		
painter	A house painter employs two assistants and pays them $9 per hour. The painter decides to quit house painting and go into the business of providing landscape services, where the going wage is lower. He reduces the workers' wages to $7 per hour for the landscaping work	Reducing wages on existing labour. • Is the reference wage context-specific? • Temporal and comparative tensions between prior wage and prevailing industry wage as reference wage. • No explicit mention of firm's relative reference profits (potential to presume profit increase at labour's expense)
redwageb	A small company employs several workers and has been paying them average wages. There is severe unemployment in the area and the company could easily replace its current employees with good workers at a lower wage. The company has been losing money. The owners reduce the current workers' wages by 5%	• Reducing wages on existing labour. • Tension between company's right to be profitable and workers' rights to reference wages • Explicit reference to shortage (jobs). By implication, competitive labour threat (prevailing market price of labour presumed to be lower)
Hiring	A business in a community with high unemployment needs to hire a new computer operator. Four candidates are judged to be completely qualified for the job. The manager asks the candidates to state the lowest salary they would be willing to accept, and then hires the one who demands the lowest salary	• Efforts to minimize wages on new labour • Explicit reference to shortage (jobs) • Explicit use of auction-style mechanism to ration labour opportunity among qualified candidates
Retail scenarios		
autoa	A shortage has developed for a popular model of automobile, and customers must now wait two months for delivery. A dealer has been selling these cars at list price. Now the dealer prices this model at $200 above list price	• Raising prices on new goods. Is it fair to sell a product above reference price in the context of (earned) shortage? • Reference transaction is both historical (past transactions) and institutional ('list') • Explicit reference to shortage (retail goods) • Implicit: earned benefit, shortage results from popularity that

continued

Table 1. *Continued*

Name	Scenario text	Theoretically salient features
		increased demand beyond supply not from exogenous shock to supply.
pb	A grocery store has several months supply of peanut butter in stock that it has on the shelves and in the storeroom. The owner hears that the wholesale price of peanut butter has increased and immediately raises the price on the current stock of peanut butter	• Raising prices on existing stock of goods • Temporal tension: Does cost justification for price increases for future goods apply to current stock? • Explicit denial of shortage (retail goods)
grocery	A grocery chain has stores in many communities. Most of them face competition from other groceries. In one community the chain has no competition. Although its cost and volume of sales are the same there as elsewhere, the chain sets prices that average 5% higher than in other communities	• Relatively high prices in retail. Is it fair for a firm to increase reference profit solely because it does not face local market competition? • Explicit denial of cost or volume justifications. • Reference transaction: iteration of same firm, at the same time, in different localities
apples	A severe shortage of Red Delicious apples has developed in a community and none of the grocery stores or produce markets have any of this type of apple on their shelves. Other varieties of apples are plentiful in all of the stores. One grocer receives a single shipment of Red Delicious apples at the regular wholesale cost and raises the retail price of Red Delicious apples by 25% over the regular price	• Raising prices on new stock of goods • Does the availability of close substitutes moderate moral judgement for raising prices? • Explicit reference to shortage (retail goods) but denial of cost-justification (per item cost from supplier not increased) • Potential motivational ambiguity of price increase: increasing firm profit versus rationing access to good via price as reflection of utility
dolls	A store has been sold out of the popular Cabbage Patch dolls for a month. A week before Christmas a single doll is discovered in a storeroom. The managers know that many customers would like to buy the doll. They announce over the store's public address system that the doll will be sold by	• Implied raising prices on existing stock of goods • Explicit reference to shortage (retail goods) and consumer competition • Implied retailer did not face increased costs per unit (no cost-justification). • Explicit use of auction mechanism to ration retail good

continued

Table 1. *Continued*

Name	Scenario text	Theoretically salient features
	auction to the customer who offers to pay the most.	• Potential motivational ambiguity: increasing firm profit versus rationing access to good via price as reflection of utility
Rental scenario fixedinc	A landlord owns and rents out a single small house to a tenant who is living on a fixed income. A higher rent would mean the tenant would have to move. Other small rental houses are available. The landlord's costs have increased substantially over the past year and the landlord raises the rent to cover the cost increases when the tenant's lease is due for renewal	• Raising prices on existing contract (tenant). Are cost-justified increases in price considered fair even with a highly sympathetic consumer? • Explicit denial of shortage (housing)

consider the broader implications of our approach for economic sociology, organizational studies, consumption and market morality. Analysing differences in how individuals judge the fairness of pricing decisions illuminates concretely variations in everyday people's taken-for-granted ways of thinking, contributing to a theoretical synthesis of evaluations of pricing and a culturally inflected moral turn within economic sociology, consumer research and organizational studies.

2. Fairness in pricing: previous studies

In 1986, Kahneman, Knetsch and Thaler challenged the long-standing assumption within economics that firms' profit-seeking is constrained only by supply and demand (and legality). Instead, they argued *fairness* may be an additional extra-organizational influence on labour or consumer markets. What the market will bear is not what individuals will morally tolerate: even if there is a 'market-clearing' price whereby a firm could increase prices and still sell all their goods—e.g. an in-demand concert—people may nevertheless judge increasing prices to market-clearing levels as *unfair*.

Analyzing survey responses to a variety of pricing scenarios (see Table 1), Kahneman *et al.* developed the *dual entitlement* principle (1986, p. 729), arguing consumers' moral evaluations of fairness involved simultaneous consideration of two sometimes-conflicting entitlements: consumers' entitlement to a reference price and firms' entitlement to a reference profit. These references could be anchored in prevailing market prices, institutionalized in listed prices like a car's sticker price, or a precedent set by a prior 'reference transaction' in the case of repeat exchanges (1986, p. 729). People then judged the fairness of actions based

on whether the action violated either transactor's ability to maintain their reference (1986, p. 729). Therein lies the challenge: in the real world, a buyer's entitlement to a reference price may be in tension with a seller's entitlement to a reference profit. How would people adjudicate when those entitlements were in conflict? Kahneman *et al.* concluded that consumers judge price increases as fair when a firm raises prices at transactors' expense to protect the firm's reference profit—for example, price increases justified by commensurate increases in the firm's costs—but otherwise judge as unfair firms that increase prices, such as in response to exogenous scarcity of consumer goods or a surplus of unemployment that might cheapen labour prices.

Kahneman *et al.*'s (1986) heavily cited[4] work catalysed a large subsequent research tradition on fairness in pricing, which has, for example routinely affirmed that consumers find it unfair when a firm raises prices to profit from increases in demand—called 'price gouging' (Frey and Pommerehne, 1993).[5] Later work argued consumers care about the motives behind price increases and tend to assume price increases arise from efforts to increase profits at consumers' expense (Ferguson *et al.*, 2011). Consumers view prices as more unfair when they cannot understand how the price was determined or the reasons behind an increase (Urbany *et al.*, 1989; Bechwati *et al.*, 2009). Consumers attribute greater fairness to price increases due to rising material costs (Grewal *et al.*, 2004) but are less tolerant of non-product cost inputs like retail environment costs (Bolton and Alba, 2006). New technologies—like the Internet—enabled new practices in pricing, including 'differential' pricing, which is often considered unfair (Haws and Bearden, 2006). For example, consumers raged against Amazon's short-lived attempt to charge loyal, repeat consumers more for the same products (Cox, 2001).

Notice: the above studies infer about 'consumers' as an undifferentiated group. It is true on *some items* that there is consensus among respondents about whether something is fair or unfair. For example, in Kahneman *et al.*'s (1986) original survey, 91% of respondents thought it unfair for a landlord to increase rent after finding out the tenant had taken a job close to the house—increasing profits through differential pricing based on inside information about a *specific* exchange partner. Similarly, respondents broadly agreed (80%) that it was fair for a firm to eliminate year-end bonuses in a year in which the firm had lost money.

However, this research is replete with scenarios producing much more divided responses. Kahneman *et al.*'s respondents were split 63–37% on whether it was fair for a house painter who decided to switch into landscaping to lower the wages of his existing employees. Urbany *et al.* (1989) found even for a 'cost-justified' 25-cent increase in ATM fees, only 57.9% of respondents considered it to be 'fair' while over 40% disagreed. Gao (2009) found considerable divergences on several of the Kahneman scenarios between Switzerland and China. Such strong but widely varying responses to some pricing scenarios are evidence that

4 As of May 2020, this work has 4,390 citations on Google Scholar, or 1,513 according to the more conservative Web of Science. Moreover, citations continue to grow each year: according to Google Scholar the foundational article has received 900 new citations in works that were published since 2016. The journal is one of the most prestigious in the field of economics; to put the Kahneman *et al.* citations in context, among the articles published in that journal that decade, the average citations are only 70 and the median are only 15 (Web of Science).

5 Among the voluminous literature this article spawned, we necessarily selectively review the most relevant work that substantially engages with fairness in pricing both theoretically and empirically.

consumers' frameworks for understanding the morality of market decisions are not as unified as prior research has presumed.

The presumption of underlying agreement in moral judgement of prices is further undermined by acknowledging potential biases in widely used convenience samples. The majority of fairness-in-pricing studies are still conducted on college student populations (e.g. c.f. Urbany *et al.*, 1989; Frey and Pommerehne, 1993; Cox, 2001; Homburg *et al.*, 2005), with quite a few targeting business and economics undergraduates or MBAs (e.g. Campbell, 1999; Maxwell, 2002; Darke and Dahl, 2003; Martin *et al.*, 2009).[6] The homogeneity in these samples thereby bias towards more homogenous responses, and yet these studies still find sometimes-large variation in respondent's moral judgements of some scenarios, suggesting that there is important variation in judgements that remains unexamined.[7]

Ultimately, the field has generated important insights about how consumer moral sentiment constrains firm decisions, but despite important strides by cultural psychologists in other areas, fairness in pricing has yet to effectively integrate the sociological emphasis on plurality, a gap we fill by examining quantitatively whether there are different moral schemas of fairness in pricing which people express, and if so, how the underlying logics of consumers market morality may differ systematically.

3. Sociological approaches to market moralities and schemas

The starting point for many of these debates is the view that market exchanges are fundamentally about impersonal exchanges of individual utility (Nozick, 1974; Anderson, 1990). Therefore, in this view, the market is a sphere in which autonomous individuals are free to pursue their personal desires, whatever they may be and equally free to exit exchanges to express their dissatisfaction. Thus, in this position, which we refer to as 'free-market absolutism', any exchange will be moral (i.e. absolute), provided that there is a 'free market' which meets the criteria of fair competition, enabling the individual expression of desire and allowing for exit. Within this perspective, then, the morality of market actions is largely free from considerations of the impact of individual choices on social others. Thus, 'the market is understood to be a sphere in which one is free, within the limits of the law, to pursue one's personal advantage unrestrained by any consideration for the advantage of others' (Anderson, 1990, p. 182). More recently, interest in the intersection of markets and morality has exploded among organizational and economic sociologists (e.g. Fourcade *et al.*, 2013; Abend, 2014; Granovetter, 2017). In contrast to the views above, economic sociologists argue 'markets are explicitly moral projects' (Fourcade and Healy, 2007, p. 299). The sociological approach reframed public debates as more than a quarrel between pro- and anti-market

6 Those studies not conducted on college students involve 'intercept interviews' wherein a researcher approaches potential respondents waiting in a particular commercial venue, such as airports (e.g. Lindenmeier and Tscheulin, 2008; Mattila and Choi, 2006) or hotels (e.g. Oh, 2003).

7 The few fairness in pricing studies examining categorical differences in evaluations of fairness are all based on convenience samples, and focus almost exclusively on gender effects (Beldona and Namasivayam, 2006; Campbell, 1999; Heo and Lee, 2011). Beyond gender, some recent work analyses categorical distinctions, for example, by examining different market-derived roles: high-power versus low-power consumers (Jin *et al.*, 2014), frequent versus infrequent consumers, present versus prospective customers (Tsai and Lee, 2007), paying with personal versus company funds (Nguyen *et al.*, 2016) or loyal versus first-time customers (Martin *et al.*, 2009; Fassnacht and Mahadevan, 2012).

intellectual factions, and recast the pro-market stance, discussed above, as one particular morality among many (Amable, 2011).

The moral turn within economic sociology has afforded detailed attention to how the public draws moral boundaries about what should—and should not—be sold. For example, life insurance was once considered morally reprehensible because it put a price on human life (Zelizer, 2017), previewing current debates about creating a market for human organs (Healy, 2010). Others have looked at how consumers' moral judgements about the production process—for example, goods produced in 'sweatshops'—affects their willingness to buy (Prasad *et al.*, 2004). Ultimately, much work in this vein has focused on the morality of *which* goods should be sold and *how* those goods should be produced; but despite strong theoretical affinities, the moral turn in economic sociology has been strangely silent on consumers' moral judgements about pricing—a core mechanism of market exchange itself (Beckert, 2011; Franssen and Velthuis, 2016).[8]

Central to morality are 'judgments [which] may be articulated more or less openly, or simply remain buried . . .' (Fourcade and Healy, 2007, p. 305). Like all evaluations, these judgments are structured by schemas (Ignatow, 2009; Vaisey, 2009). Schemas are general cognitive structures for making sense of the world *in situ*, which are composited and generalized from people's particular life experiences—they are how an individual's past impacts their present understanding (Ghosh and Gilboa, 2014; Shing and Brod, 2016; Wood *et al.*, 2018). These cognitive structures, 'with broad strokes, represent the characteristics of people, places, objects or events and allow us to infer what these entities do, where they fit, and what to expect of them' (Cerulo, 2010, p. 117; see also Mandler, 2014; Strauss and Quinn, 1997). In the same way that 'the internalization of moral meanings and practices need not operate through explicit instruction' (Hitlin and Vaisey, 2013 , p. 61), moral judgements are often not explicit rule-following, but rather automatic pattern recognition based on moral schemas (Ignatow, 2009), a form of non-declarative personal culture (Lizardo, 2017).[9]

Following this literature, we argue that multiple market moralities are better identified by looking at the configuration of judgements across a variety of different scenarios rather than by single responses to particular contents (i.e. the specific or average answers to an isolated question). Critically, the configuration of moral judgements identified in our study are not applied in a top-down process (e.g. Thornton, 2004), but rather emerge inductively from similar response patterns within data. To identify these patterns, we use a relatively new partitioning method called *correlational class analysis*—described below. As an appropriate demonstration of our approach, we apply this method to a replication of the ubiquitous problem of fairness in pricing.

8 For example, Velthuis (2003) is one of the few to explicitly examine prices, but looks at their symbolic rather than moral dimension.

9 Herein, we analyze the subset of 'moral judgments' that operate like 'tastes', as studied in cognitive and cultural sociology, under the conditions of relatively quick snap judgments about multifaceted scenarios. This does not mean that all moral judgements operate like tastes in this sense or exhaustively reflect non-declarative culture, nor negate the possibility of moral commitments arrived at through thorough deliberate reasoning.

Table 2. Frequency distributions across nine pricing scenarios used in CCA

Label	Completely unfair	Unfair	Acceptable	Completely Fair	Median response
Painter (pnt)	137 (16.73)	316 (38.58)	317 (38.71)	49 (5.98)	U
Auto (aut)	80 (9.77)	161 (19.66)	419 (51.16)	159 (19.41)	A
Reduced Wage (rdw)	56 (6.84)	254 (31.01)	406 (49.57)	103 (12.58)	A
Fixed Income (fxd)	36 (4.40)	98 (11.97)	453 (55.31)	232 (28.33)	A
Peanut Butter (pb)	69 (8.42)	222 (27.11)	414 (50.55)	114 (13.92)	A
Grocery (grc)	87 (10.62)	372 (45.42)	320 (39.07)	40 (4.88)	U
Apples (app)	58 (7.08)	233 (28.45)	397 (48.47)	131 (16.00)	A
Dolls (dll)	146 (17.83)	165 (20.15)	305 (37.24)	203 (24.79)	A
Hiring (hrn)	105 (12.82)	201 (24.54)	404 (49.33)	109 (13.31)	A

Note: See Table 1 for the scenario prompts. Percentages in parentheses. $N = 819$.

4. Data and methods

4.1 Sample

The data come from an Internet survey administered via Qualtrics in June 2015 with respondents recruited from Amazon Mechanical Turk, or 'MTurk' ($N = 920$). MTurk is a site in which requesters may post any task—here, survey completion—and offer compensation to workers who complete the task. We restricted the survey to adults living in the USA. As a check on quality workers, we excluded individuals with approval rates below 95% on previous MTurk tasks and included multiple unmarked attention-check questions. Due to data requirements of the analytical procedure (described below), we excluded cases if they had missing data across any of the nine scenarios used in the analysis ($N = 81$; see Table 1 for the scenario prompts, Table 2 for frequency distributions).[10]

MTurk has recently grown in popularity as a tool for social science experiments and surveys, with results from MTurk samples increasingly appearing in prestigious journals (Arceneaux, 2012; Berinsky *et al.*, 2012; Paolacci and Chandler, 2014). Compared to traditional college student samples, MTurk respondents are more demographically diverse (Buhrmester *et al.*, 2011; Casler *et al.*, 2013), more attentive to text and directions (Hauser and Schwarz, 2016), and produce as-good or better data (Paolacci *et al.*, 2010; Buhrmester *et al.*, 2011; Minton *et al.*, 2013). Although Internet surveys have limitations, it remains a considerable improvement on the biases found in traditional college-based samples (Gosling *et al.*, 2004; Henrich *et al.*, 2010).

MTurk panels are more reflective of national demographics than college convenience samples but, understandably, less representative than labour-intensive national probability samples (for a review of representativeness, see (Goodman and Paolacci, 2017). Compared to face-to-face samples like the Current Population Survey, MTurk respondents are similar in terms of gender and regional distribution but are on average somewhat more educated (16.2 versus 13.2 year). MTurk respondents are younger (32.3 versus 46 years), with

10 Imputation strategies are generally not a good idea with schema-based class partition methods. As Goldberg (2011, p. 1415) notes, '[m]ean-based imputations might unjustifiably force clear positions where they do not exist, whereas regression-based imputations would artificially override sociodemographic heterogeneity'.

concomitantly lower mean incomes ($45k versus $55k) and more never-married people (50.6% versus 25.7%). Compared to the American National Elections Study 2008 panel, MTurk panels also contain more home renters (52.7% versus 32%) and more non-religious respondents (41.8% versus 26.9%; Berinsky *et al.*, 2012). MTurk panel respondents are similar to nationally representative panels in terms of percentages of employment (by sector and industry) and rural–urban residence (Huff and Tingley, 2015). Compared to other Internet samples, MTurk respondents are slightly older, have a slightly greater percentage of non-White participants and have a similar gender division slightly favouring females (Buhrmester *et al.*, 2011).

Our survey instrument included a series of pricing scenarios that respondents were prompted to rate on a four-point scale from 'completely unfair' to 'completely fair' (following the original survey, the middle categories were 'unfair' and 'acceptable'). We focused our analysis on nine scenarios, which are listed in Table 2 along with their univariate frequency distributions and median response categories. Note that respondents only provide an ordinal moral judgement of the scenario, we do not have access to qualitative explanations for their judgement, an area we flag for future research.

4.2 Analytic plan

To identify different schematic configurations of market morality, we use CCA to examine patterns in the relative moral evaluation among nine different scenarios in our dataset (see Table 2). Further details on our choice of scenarios are in Supplementary Appendix A. CCA is a graph-partitioning method used to find the classes (or groups) of respondents with similar response patterns across a set of attitudinal variables and the associated schematic understandings defining the distinctions between these classes (Boutyline, 2017). Other partitioning methods such as latent class analysis (LCA) and hierarchical clustering group together respondents selecting the same response categories. In contrast, CCA groups together respondents who answer questions with similar *patterns* of adjudication—that is, those respondents who make similar relative evaluations among items for making sense of some domain. This is a critical distinction when responses are not merely categorical, but ordinal (as ours are).

For example, consider Figure 1, which adapts an example in previous schematic-class analysis studies (Goldberg, 2011, p. 1405; Boutyline, 2017, p. 357). Linda rates the first three scenarios as 'acceptable', scenarios four and five as 'completely fair' and scenarios six and seven as 'acceptable'. John rates the first three scenarios as 'completely unfair', scenarios four and five as 'unfair' and scenarios six and seven as 'completely unfair'. Linda and John never give the exact same response score to any scenario. However, like Linda, John sees scenarios four and five as relatively the most fair, while the other five scenarios are equally fair (or unfair). Linda and John may never report the same response to any question, but the underlying moral worldview is nevertheless similar as reflected in the exact same pattern of *relative adjudication*.

CCA is particularly adept at capturing inversion, where respondents share a similar overall pattern of relative adjudication, but diametrically differ in their opinions—the classic example from prior CCA analysis would be respondents who like all music except heavy metal, and those who like only heavy metal and nothing else: both share a schematic understanding of musical taste that views heavy metal as opposed to all other forms. In the example in Figure 1, Kate would also be classified as relying on the same moral schema as Linda

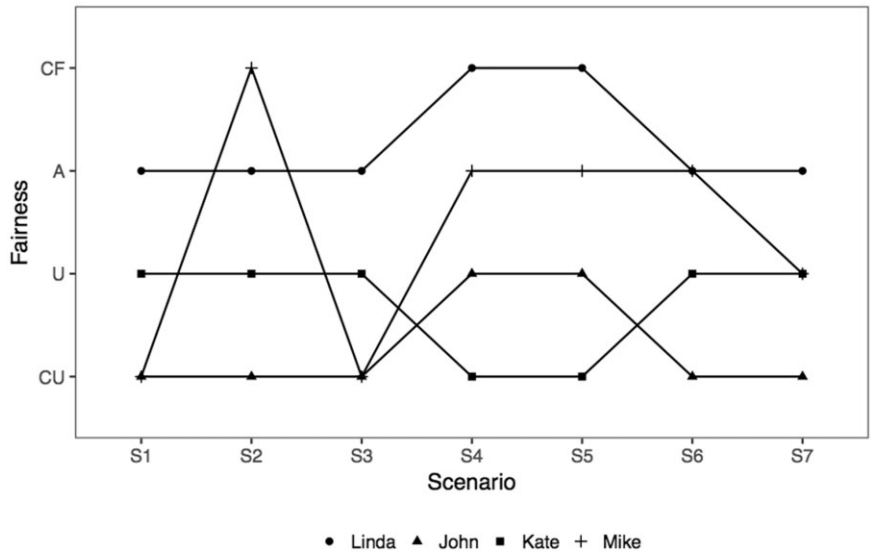

Figure 1. Example responses across scenarios.

and John because her pattern of adjudication is the inverse of theirs. While Linda and John see scenarios four and five as the most fair and the other five on the same level of fairness, Kate sees these same scenarios as the *least* fair and the other five on the same level of fairness. CCA would cluster these three respondents together because they all share a similar underlying moral schema reflected in the pattern of relationships among scenarios. Finally, Mike is drawing on a different moral schema, because his pattern of adjudication is 'different but not antithetical' to the others (Goldberg, 2011, p. 1405; for an overview of the transformations captured through CCA, see Boutyline, 2017, pp. 355–358).

In contrast, LCA would not be appropriate to this analysis because LCA clusters people who give the exact same response on as many items as possible without considering ordinal relationships among response options. Relative to 'completely fair', LCA would not see 'fair' as any more similar than 'completely unfair'—a categorical distinction that makes sense when analyzing preferences for pizza toppings but is less sensible for ordinal responses. LCA would likely lump together John and Mike, because they give the same response on two items; conversely, it would never put Linda, John and Kate together in a class because they never give the same answer to any question. CCA's focus on relative patterns of adjudication between survey items is important for this study, because, we argue that respondents who provide different manifest rankings across scenarios but nonetheless seem to provide the rankings with similar relative patterns of judgement are tapping into the same underlying moral schema for evaluating the conditions put in front of them.

Mathematically, CCA functions by first finding all pairwise schematic similarities between respondents—where 'schematic similarity' is a measure of the degree to which any two respondents (say i and j) have similar patterns of adjudication within their respective attitudinal survey item vectors $\mathbf{x}$ and $\mathbf{y}$ (Boutyline, 2017; Goldberg, 2011). CCA operationalizes schematic similarity using Pearson's absolute correlation coefficient, based on the

observation that, as Boutyline (2017, pp. 356, 360–362) notes, respondent i follows the same relative pattern as respondent j if $\mathbf{y}$ is a linear transformation of $\mathbf{x}$—where $\mathbf{y} = \mathbf{x}$ (identity), $\mathbf{y} = -\mathbf{x}$ (inverse), $\mathbf{y} = \beta\mathbf{x}$ (scaling), $\mathbf{y} = \mathbf{x} + \alpha$ (vertical shift), or through some combination of these operations, assuming a linear-additive relationship between $\mathbf{y}$ and $\mathbf{x}$ such that $\mathbf{y} = \alpha + \beta\mathbf{x}$ and where $\beta \neq 0$. Formally, the absolute Pearson's correlation between the ith and jth respondents, r_{ij}, across a scenario vector $\mathbf{k}$ where $\mathbf{k} = [k_1, k_2, \ldots, k_n]$ and n is the total number of scenarios, is found with:[11]

$$r_{ij} = \left|\frac{\mathrm{Cov}(\mathbf{x}, \mathbf{y})}{sd(\mathbf{x})sd(\mathbf{y})}\right| \tag{1}$$

where, as before, $\mathbf{x}$ and $\mathbf{y}$ are the response vectors for respondents i and j, respectively, across the scenario vector $\mathbf{k}$ with no missing data.

The resulting square matrix of all possible pairwise absolute correlations is then treated as a fully connected graph. After removing all correlations not statistically significant at $\alpha = 0.05$ (or whatever significance level is preferred), the graph is then partitioned based on the class solution that maximizes the graph's modularity score, Q (Clauset *et al.*, 2004, p. 2; Newman, 2006, p. 5):

$$Q = \frac{1}{2m}\sum_{ij}[A_{ij} - P_{ij}]\delta(g_i, g_j) \tag{2}$$

where:

$$P_{ij} = \frac{k_i k_j}{2m} \tag{3}$$

A_{ij} is the weight of the observed tie (i.e. the observed absolute Pearson correlation coefficient) between respondents i and j, P_{ij} is the probability of some weighted tie between i and j if the weighted edges were placed at random but with the weighted vertex degrees the same as those observed in A, k_i and k_j are their respective weighted degrees, m is the sum of the weighted edges in the graph and $\delta(g_i, g_j)$ is an indicator function that equals 1 if i and j are in the same class and 0 if otherwise (see Newman, 2006, pp. 4–6 for more detail). A high Q indicates that there is more observed 'internal connectivity' within the classes than one would expect if the ties within the classes were placed at random (Newman and Girvan, 2004, p. 8; Good, *et al.*, 2010, p. 1). In other words, higher Q values indicate stronger community structure in the graph (Aloise *et al.*, 2010, p. 2). CCA relies on an eigenvector-based modularity maximization technique given the computational demands of exact optimization (Newman, 2006).

Our analysis resulted in a four-class solution, with an $N = 819$ (after list-wise deletion across the nine scenarios) and a $Q = 0.33$. This modularity score suggests a meaningful community structure in these data, as it is above the recommended value of 0.3 (Clauset *et al.*, 2004, p. 2). The analysis removed 20 cases from consideration (thus arriving at 819

11 Unlike the operationalization of schematic similarity by CCA's predecessor (relational class analysis), a measure called 'relationality' (RCA; Goldberg, 2011, pp. 1406–1407), the between-respondent Pearson's absolute correlations is more reliable and robust to violations of linearity (Boutyline, 2017, pp. 373–379).

valid cases from the full sample of 839) because they exhibited no within-respondent variation across the nine scenarios.[12] This four class solution is robust to a multiple group invariance test for the presence of only one response pattern (Boutyline and Vaisey, 2017, pp. 1442–1443) and a gap statistic test for diminishing returns in modularity maximization (DiMaggio and Goldberg, 2018) (see Supplementary Appendix B for more details on these goodness-of-fit tests). In standard CCA and RCA (Relational Class Analysis) fashion (Goldberg, 2011; Baldassarri and Goldberg, 2014; Boutyline, 2017), we interpret each class by way of a series of class-specific, variable-by-variable correlation networks and matrices.

5. Multiple market moralities

Discussed previously, much prior fairness in pricing research tacitly presumed a single moral schema reflected in average evaluations of the fairness of market actions. If true, when CCA partitioned the respondents into classes, we would expect no meaningful partition—suggesting one dominant schema shared by all respondents. Instead, we find evidence of multiple and distinctive understandings of market fairness: the CCA analysis partitions respondents into four classes (supported by a multiple group invariance test, see Supplementary Appendix B). Table 3 presents an overview of the four schematic classes.

For each schematic class, we represent the structure of their market morality by looking at the strength and distribution of the correlations between their moral adjudications of different price-change scenarios. The configuration of inter-item correlations for each class is illustrated both in network and matrix forms. Within the networks, each node represents one of the scenarios from the survey, and the edges connecting them to statistically significant correlations (at $\alpha = 0.05$) between scenario responses. We used darker and thicker lines to represent stronger correlations, omitting correlations where $|r_{ij}| < 0.15$ for legibility. The distances between nodes are scaled using the Fruchterman Reingold method—a force-directed algorithm drawing together nodes with strong correlations and repels those with weak correlations. Statistically significant positive correlations are represented with solid edges and statistically significant negative correlations are represented with dashed edges.

In two classes, all or most scenarios are positively correlated with one another—yielding an interconnected network of moral adjudications with some peripheral scenarios. Following prior studies of schematic class analysis, we refer to these two classes as variants of *moral omnivores*. Omnivorous classes tend to be characterized by a heterarchical pattern (Goldberg, 2011, p. 1417). This does not mean they value all items equally or indiscriminately. Rather they do not display patterned hierarchies that would clearly evaluate some subset of scenarios as more (or less) similar. Conversely, the other two classes are variants on a *separate spheres* pattern wherein the inter-item correlations *within* retail scenarios and within labour scenarios are stronger than the correlations *between* those groups of scenarios.

Recall that the CCA method clusters together respondents who share a similar structure of overall moral adjudication but may be diametrically opposed in the substantive valence

12 The CCA algorithm allows cases with no within-respondent variation to form their own class. However, this would have resulted in a class of only 20 respondents—introducing questions of external validity and statistical power for future inference tests on the class solution. We therefore chose to bypass an interpretation of these cases as a distinct class.

Table 3. Summary of schematic classes

Schematic class		Description	% of Sample
Omnivores			
A.	Dual-Entitlement	Approximates scholarly theories of dual-entitlement, tempered by consideration of scarcity- and cost-justification	19.2
B.	Free Market Proponents (and Opponents)	Approximates free market absolutism: it is generally (un)acceptable for firms to make any legal decisions in pursuit of profit so long as firms are in a competitive market.	10.0
Separate spheres			
C.	Labour-Retail	Retail and labour occupy separate spheres of moral judgement reasoning; oriented towards the substantive domain of pricing	23.3
D.	Procedural (Un)Fairness	Characterized by correlations within retail and within labour which are somewhat stronger than those between retail and labour; oriented towards notions of procedural (un)fairness	47.5

they assign to particular items. In other words, the method will cluster together those respondents whose response patterns are 'inversions' of one another (Boutyline, 2017, p. 356). The extent to which an observed correlation approaches −1 reflects the extent to which the *i*th respondent's response pattern vector approaches a perfect inversion of the *j*th respondent's response pattern vector. Drawing on the previous example, a person whose musical taste is for anything-but heavy metal is an inversion of the taste pattern of the person who likes only heavy metal. As such, to assess inversion, we computed the matrix of statistically significant inter-person correlations (i.e. the matrix partitioned by CCA but before taking the absolute value of the correlations) and then grouped the respondents by CCA class. We then calculated the percentage of each class's statistically significant correlations that were negative. Inter-person negative correlations are fewest in the two omnivorous classes—11% in Class A and 13% in Class B—compared with 18% for Class C and 31% for Class D. This evidence suggests inversion was a less frequent schematic transformation in the two omnivorous classes. Throughout the text, we represent words that imply directionality with a parenthetical prefix—as in (un)fair—to remind readers of the possibility of inversion.

Before we analyze patterns within classes and differences between classes, it is worth clarifying the language we use. Unless otherwise mentioned, whenever we refer to a correlation (or an average of correlations) in one class as being significantly different from a correlation observed in another class, those differences are statistically significant using a two-tailed independent samples *z*-test at $P < 0.05$ or better. For illustrative purposes, it is sometimes helpful to simplify the complexity. Recall each scenario has four response categories,

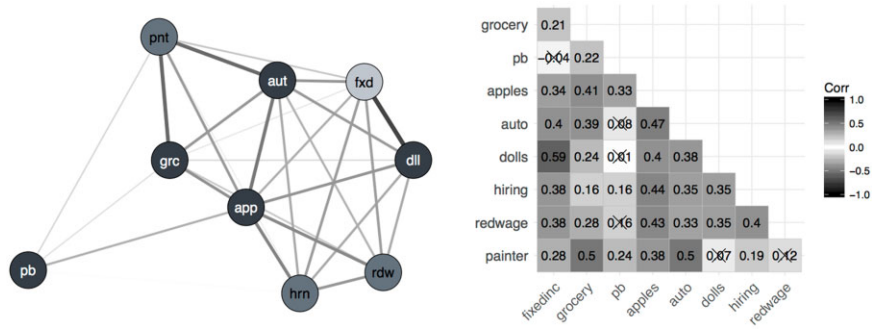

Figure 2. Correlation network and matrix for dual-entitlement omnivores.

Note: Network (left panel) plots all statistically significant and class-specific inter-item bivariate correlations at $P < 0.05$ (two-tailed). Additionally, any correlation where $|r_{ij}| < 0.15$ is not displayed. Positive correlations are represented with straight lines; negative correlations are represented with dashed lines. The darker and thicker the edge, the stronger the association between the nodes. The distances between nodes are scaled using the Fruchterman Reingold method—a force-directed algorithm that draws together nodes with strong correlations and repels those with weak correlations. Repulsion factor is equal to 1.86. $N_{members} = 157$. Node colours correspond to the following transaction types: seller–buyer (black), employer–employee (dark grey) and landlord–tenant (light grey). Heat map (right panel) displays all class-specific inter-item bivariate correlations. The darker the cell, the larger in absolute value the correlation. Statistically non-significant correlations at $P < 0.05$ are displayed with an '*x*' over the number (two-tailed). Scenario names to which the acronyms correspond can be found in Table 2.

ranging from very unfair to very fair. Therefore, we use the phrase 'evaluate positively' to mean selecting either acceptable or very fair as the response, whereas 'evaluating negatively' indicates a response of unfair or very unfair. Similarly, because CCA is inherently relative—i.e. more concerned with each respondent's evaluation of a particular scenario relative to other scenarios—at times we refer to the proportion of respondents in a given class who rated a scenario as a most- or least-fair scenario.[13]

5.1 Class A: dual-entitlement omnivores

Our analysis partitioned 19.2% of the sample into a schematic class whose moral adjudication network is generally omnivorous—characterized by a large number of statistically significant positive correlations among most scenarios. We argue the relationships among the response items in this network are arrayed according to an underlying morality that, to a surprising extent, approximates scholarly theories of dual-entitlement, tempered by consideration of scarcity- and cost-justification.

13 For example, consider one respondent who evaluated all scenarios either unfair or acceptable, while another respondent's evaluations ranged from very unfair to very fair. Both respondents might see the painter scenario as least-fair, even if they selected different absolute response categories (unfair and very unfair, respectively). Note also that we use the language of a least-fair scenario because for any given respondent, multiple scenarios may share that least-fair response category.

Recall, the theory of dual-entitlement argued that consumers are entitled to a *reference price* and firms are entitled to a *reference profit*. Kahneman *et al.* argued consumers generally find it fair if firms increase prices when reference profits are threatened—for example, by rising production costs—even if that increase comes at the expense of consumers or labourers. To the right of the network diagram (Figure 2, left panel) are a set of questions that are most clearly aligned with Kahneman *et al.*'s argument. *Fixed income* describes a landlord who faces increased costs and raises rent prices to cover those costs. *Reduced wages* describes a small company paying average wages but which has been losing money and so reduces wages by 5%. Where reference profits are explicitly threatened, this class judged increasing prices acceptable. *Dolls* and *hiring* are both scenarios involving rationing scarce resources by auction. Both omnivorous classes are characterized by a particularly strong coupling between the *fixed income* and *dolls* scenarios (see Figure 2, right panel). In general, this strong correlation is produced because members of both omnivorous classes tend to evaluate both of these scenarios positively (82% of Class A and 87% of Class B, respectively), although there is some inversion (8.9% of Class A and 8.5% of Class B view both scenarios as unfair or very unfair).

In this class, *apples* and *auto* occupy central positions in the network: they have the highest average correlations with the other scenarios (see Figure 3). In absolute terms, their average correlation in this class is higher than the average correlation of any other scenario in any other class. *Apples* and *auto* are also significantly more correlated in Class A than the other omnivorous class, Class B (0.47 versus 0.16; $z = 2.52$, $P = 0.01$). Both scenarios deal with price increases where products are scarce but without increases in producer costs (i.e. not 'cost-justified') and without threat to the reference profit. Both also involve the availability of functional substitutes: someone who does not want to buy the one scarce and costly variety of apples or cars can buy other varieties of apples or cars.[14]

In the mid-left of the network is a slightly dissociated couplet of *painter* and *grocery*. Both scenarios ask participants to evaluate the fairness of increasing prices not because of more central dual-entitlement concerns of producer cost increases or product scarcity, but rather the surrounding context. *Painter* describes a firm changing wages of its existing employees when the employer decides to leave painting and enter landscaping, where the industry-based reference wage is lower. *Grocery* describes a chain of stores that charges prices 5% higher in one community where it faces no competition, even though the cost and volume of sales are the same. The correlation between *painter* and *grocery* is significantly higher in this class than any other ($z_{AB} = 3.82$, $P = 0.0001$; $z_{AC} = 3.66$, $P = 0.0003$; $z_{AD} = 3.42$, $P = 0.0006$), indicating that members of this class are more likely to evaluate those two scenarios as similarly (un)fair. Members of this class see both scenarios as comparable but differ in their valence: 52.8% of the class evaluate both scenarios negatively, while 22.9% of the class evaluate both scenarios positively.

The unusually strong coupling of *hiring* and *reduced wages*, which are both relatively disassociated from the other labour scenario (*painter*), further supports the interpretation that moral adjudications in this class are oriented to dual-entitlement principles: accepting violations of reference price when a firm's reference profit is threatened. This class is the only one with a relatively high correlation between *hiring* and *reduced wages*, which is

14 The two scenarios differ primarily in the cost of the items and that the availability of close substitutes is explicitly part of the framing of the apples scenario and only implicit in the cars scenario.

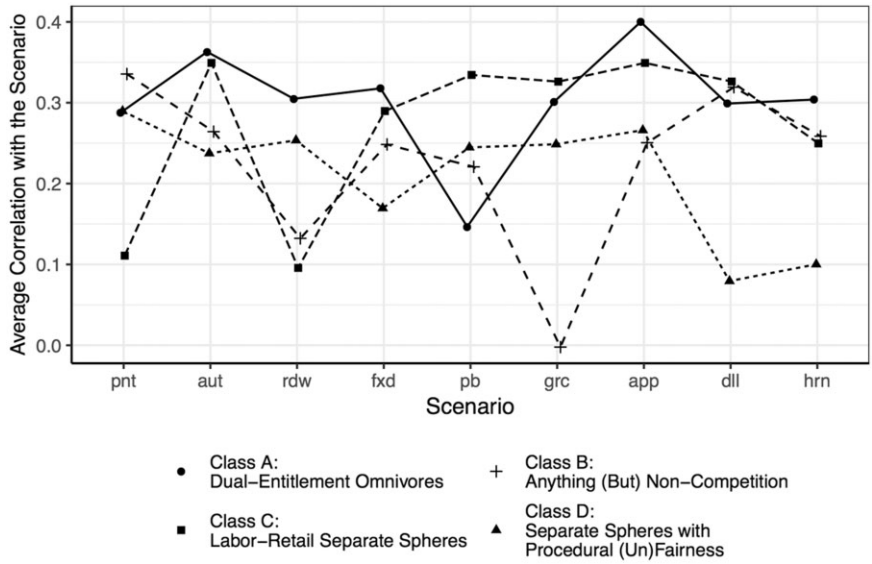

Figure 3. Average weighted degree centrality per scenario for each schematic class.

statistically higher than any other class ($z_{AB} = 2.7$, $P = 0.01$; $z_{AC} = 3.16$,$P = 0.001$; $z_{AD} = 2.86$, $P = 0.002$). In *hiring*, a firm is hiring new employees and there is no explicit past history of a reference labour price (wage). Similarly, in the *reduced wages* scenario, the firm reduces wages on existing employees in a context where the firm has been losing money—threatening the firm's reference profit.[15] Therefore, there are no violations of a reference price resulting from a violation of the firm's reference profit. In contrast, in the *painter* scenario, the firm's wage change represents a loss to employees' past reference wage-price without threatening the firm's reference profit, and thus this scenario is predictably decoupled from the other two labour scenarios.

5.2 Class B: free-market proponents (and opponents)

Our analysis identifies a second class, comprising 10.0% of our sample, also showing an omnivorous network structure wherein most scenarios are moderately and positively correlated with each other. The significant correlations in this class are somewhat sparser than in class A.[16] This class is distinctive from the dual-entitlement omnivores in ways that suggest a different sensibility organizing their moral adjudications. Notably, several of the correlations expected based on the theoretical frameworks of cost-justification and dual-entitlement found in omnivorous Class A, such as the correlation between *apples* and *auto*, are not statistically significant here (see Figure 4). Instead we argue that this class more closely

15 Both hiring and reduced wage scenarios also explicitly invoke the idea of unemployment and competition among workers, in contrast to the painter scenario, which does not.

16 In Class A, 86.1% of all possible inter-item correlations are above the threshold of ±0.15, whereas in Class B only 69.4% are. Class A also has nearly twice as many inter-item correlations above ±0.3 (21 vs 12).

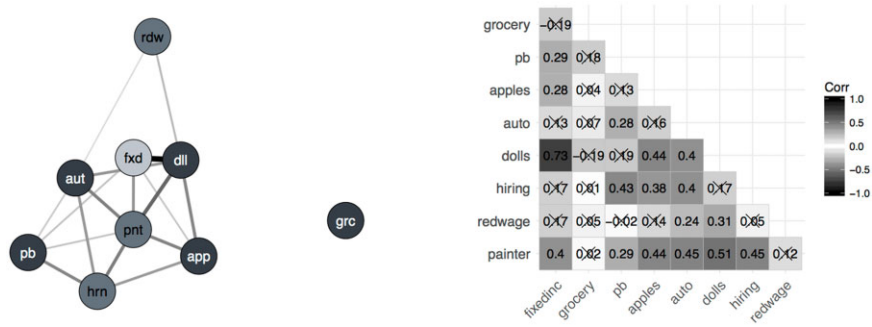

Figure 4. Correlation network and matrix for free market proponents (and opponents).
Note: See Figure 3 caption for interpretation details. $N_{members} = 82$. Repulsion factor for the spacing algorithm set to 1.25 (rather than 1.86, as for the other classes) in order to make the left panel more legible in light of the 'grc' ('grocery') isolate.

approximates free-market absolutists: it is generally (un)acceptable for firms to make any legal decision in pursuit of profit so long as firms are in a competitive market, which gives consumers or employees the ability to seek out alternatives.

Grocery is the only scenario violating the free-market principle of competition, and tellingly, here *grocery* is a network isolate, unlike in the first omnivorous class (Figure 4, see also Figure 3). *Grocery* describes a chain of stores charging prices 5% higher in one community where it faces no competition, even though the cost and volume of sales are the same. We term this class 'free-market proponents (and opponents)', which approximates an anything-but structure (see Boutyline, 2017), in which respondents in this class strongly disapprove of the non-competitive scenario.

Prior research on schematic networks has often found anything-but structures to be locations of inter-person inversion (e.g. Bryson, 1996). There is some moderate inversion (or some combination of transformations that includes inversion) in this class overall: about 13% of the statistically significant inter-person correlations were negative. However, members generally converge on interpreting the grocery scenario negatively. Both those who approve and disapprove of firms' pursuit of profit in other scenarios nevertheless converge on agreeing that profiting in non-competitive environments is particularly unfair.[17]

It is difficult to overstate the extent to which members of this class view the *grocery* scenario as morally distinctive and unfair: 27% of the class rated *grocery* 'very unfair' and an additional 60% rated it 'unfair'. For context, 61% of this class rated *none* of the scenarios 'very unfair', and 30% rated only one scenario as 'very unfair'. Even when the lowest absolute evaluation was higher than 'very unfair', a striking number of respondents in this class evaluated *grocery* a least-fair scenario (79%), compared to only half of Class A, a third of Class C, and a quarter of Class D. Among those in this class who evaluated grocery as a least-fair scenario, 46% evaluated no other scenario as comparably unfair. In contrast,

17 There are only three members of this class (3.7%) who view grocery as the relatively most-fair scenario and evaluate a majority of other scenarios as substantially less fair.

among the dual entitlement omnivores who gave *grocery* a least-fair evaluation, none of them saw it as the uniquely least-fair scenario.

The CCA method groups together respondents who share an overall structural understanding of the relations among elements, including those who are diametrically opposed in their absolute moral judgements. The inter-person inversion in this class is fairly low (13%), meaning that there are some anti-market absolutists—that is, those who tend to negatively appraise most scenarios—but numerically the class is dominated by free-market absolutists. As might be expected by a class numerically dominated by free-market absolutists, across all scenarios this schematic class is significantly more likely to evaluate scenarios as 'acceptable'. Taken together with the oppositional stance to *grocery*, we argue this is indicative of an understanding that interprets a wide range of firm practices as permissible under fair market competition, even if the respondent does not affectively *like* the choice. Indeed, our survey included a follow up question in which respondents indicated whether they liked or disliked the action the firm took in the described scenario. Across all scenarios, respondents in this class were significantly more likely to deem a scenario 'acceptable' *and* yet report disliking the firm's action.

5.3 Class C: labour-retail separate spheres

This schematic class, representing 23.3% of the sample, is visually distinguished by two groups of variables with strong within-group correlations and weak between-group correlations. One grouping contains all the scenarios describing price increases affecting consumers in retail environments, while the other is a couplet including the two scenarios about wage-price changes affecting existing employees (see Figure 5, left panel). This suggests that, for this class, retail and labour occupy separate spheres of moral judgement. The spheres are disassociated, not negatively correlated[18]: peoples' answers about retail questions are predictive of their other answers on retail questions, and peoples' answers about labour questions are predictive of their answers about labor questions, but answers on retail questions are not predictive of their answers on labour questions (and vice versa). Members of this class who share a similar appraisal of, for example, the retail scenarios may have widely differing moral evaluations of the labour scenarios.

Within this class, the moral evaluation of any given retail scenario is strongly correlated with their evaluation of all other retail scenarios (see Figure 5, right panel). This class is distinguished by a particularly strong grouping among retail scenarios: the average pairwise correlation among the five retail scenarios (0.51) is significantly higher than in any other class ($z_{CA} = 2.43$, $P = 0.02$; $z_{CB} = 2.54$, $P = 0.01$; $z_{CD} = 3.69$, $P = 0.0002$). If we consider the correlations among any items in the network, then the strong correlations within the retail grouping in this class still stands out as among the highest correlations among any items in any network.[19]

Overall, the network topography suggests a moral adjudication strongly oriented to the substantive domain of pricing, even eliding differences in particular scenarios that are quite

18 A negative correlation between the clusters would suggest those who saw the retail scenarios as relatively fair appraised the labour scenarios as relatively unfair, and vice versa.

19 This class has five inter-item correlations stronger than 0.5 (three of which are above 0.6) and they are all located within the retail grouping. In contrast, Class A has only three correlations above 0.5 anywhere in the schematic network, Class B has only two, and Class D has none.

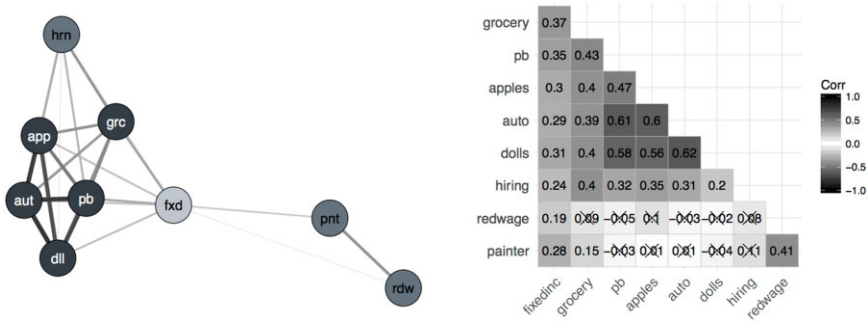

Figure 5. Correlation network and matrix for labour-retail separate spheres.
Note: See Figure 3 caption for interpretation details. $N_{members} = 191$.

substantial theoretically. For example, theoretically, the *dolls* scenario is about rationing scarce and in-demand consumer goods through a spontaneous auction. The *grocery* scenario is theoretically about whether consumers view taking advantage of a monopoly position to increase profits as unfair even when that exploitation is mild (a 5% increase in prices). Theoretically, the *peanut butter* scenario is about whether cost-justification is tied to particular goods: the original study observed, 'A firm is only allowed to protect itself at the transactor's expense against losses that pertain directly to the transaction at hand. . .The assignment of costs to specific goods explains why it is generally unfair to raise the price of old stock when the price of new stock increases' (Kahneman *et al.*, 1986, p. 733). In other words, the theoretically significant variations built into each of those scenarios in the experimental design could not be more dissimilar, and yet this class positions *dolls* as significantly more highly correlated with *peanut butter* and *grocery* (0.58 and 0.40, respectively) than in any other class,[20] drawing on the underlying substantive similarity of taking place in the retail pricing domain.

As further evidence that this class is oriented to the substantive domain of pricing, the two items almost-completely disassociated from the main retail cluster both pertain to changes in the wage-price of existing labour: *painter* and *reduced wages*. *Painter* and *reduced wages* are relatively strongly correlated in both separate spheres classes (0.41 and 0.40, respectively), especially by contrast to the two omnivorous classes where the correlation between those two scenarios is not statistically significant even at $P < 0.10$. However, as expected from the decoupling of retail and labour, respondents in this class who have similar moral judgements of the retail scenarios vary widely in their evaluation of the labour scenarios. To illustrate: among members of this class who consistently evaluated all five retail scenarios positively (41.8% of class), 35% of them interpret both *reduced wages* and *painter* negatively, 20% interpret both scenarios positively and 45% see one positively and the other negatively.

We argue the dissociation of *hiring* from the other two scenarios is further evidence of the underlying sensitivity to substantive differences in the labour pricing domain rather than

20 The only exception is the difference in the *dolls-grocery* correlation between Class C and Class A, where $z = 1.65$ and $P = 0.1$.

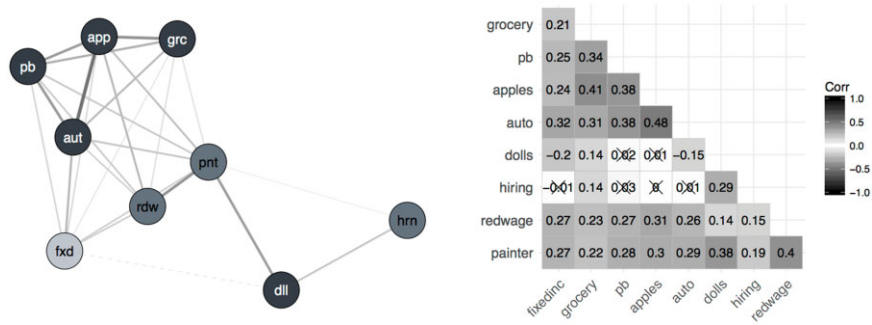

Figure 6. Correlation network and matrix for separate spheres with procedural (un)fairness.
Note: See Figure 3 caption for interpretation details. $N_{members} = 389$.

theoretical similarities. *Painter* and *reduced wages* both share a substantive effect on existing workers, in contrast to the *hiring* scenario, which describes the procedure for wage-setting when initiating a new hire. The folk understanding of the substantive domain of labour may categorically differentiate between wage-changing and wage-setting, or likewise between existing workers and new hires.

5.4 Class D: separate spheres with procedural (un)fairness

This schematic class, representing 47.5% of the sample, exhibits a weaker form of the separate spheres structure, characterized by correlations *within* retail and within labour which are somewhat stronger than those *between* retail and labour (see Figure 6, left panel).[21] Unlike the previous separate spheres class, this class is further oriented to notions of procedural (un)fairness, reflected particularly in their response to auctions. This is indicated by the most visually distinctive topographical feature of this network: the couplet of *hiring* and *dolls*, which are the only two scenarios that share a focus on the use of auction to ration scarce goods or opportunities.

Auctions are a classic representation of economic rationality, because auctions allow people to express their different underlying utility functions via offered prices, and thereby economists conventionally believe auctions are an efficient means of allocating scarce goods while maximizing utility. In the *dolls* scenario, a store has been sold out of a doll that is in high demand; the week before Christmas they find a single doll in the back storeroom, and announce that it will be sold in an auction. In the *hiring* scenario, there is high unemployment and a company brings in four equally qualified potential recruits and asks them each to state the lowest salary they would accept, hiring the one who asks the least. Both cases involve goods or job opportunities that are in short supply, with excess demand. Both entail logic of distributing the opportunity to the person who pays the most or offers the least, respectively.

Members of this class are divided on the *dolls* scenario, with 28% giving it a most-fair evaluation and 57% giving it a least-fair evaluation. By comparison, members of other classes skew much more positively on *dolls*, with 58% of the prior class and more than two-

21 Unlike the prior class, however, the labour grouping is not markedly disassociated.

thirds of both omnivore classes viewing *dolls* as a most-fair scenario. Interestingly, this group has a statistically significant negative correlation between *dolls* and *auto* that is just below the 0.15 cut-off for visualization in the network diagram (see Figure 6, right panel). In this class, only 19.5% of respondents view *dolls* and *auto* as comparably (un)fair, compared with 61% of the labour-retail class and a plurality of both omnivore classes (42% and 54%, respectively). Instead, among those in this class who see *dolls* as a least-fair scenario, 52.9% view *auto* as a most-fair scenario; conversely, of those who see *dolls* as a most-fair scenario, 49.5% of them see *auto* as a least-fair scenario. Cumulatively, nearly half the members of this class view *dolls* and *autos* as diametrically opposed, a unique pattern by comparison to the other classes.[22]

Taken together, the topological features distinctive of this schematic class suggest moral adjudication that is broadly similar in structure to the retail-labour separate spheres class, but which is distinctively oriented towards notions of procedural (un)fairness. Voluminous prior scholarship has examined the conceptual distinctions between distributive and procedural justice (Thibaut and Walker, 1975 ; Leventhal, 1980). Distributive justice refers to the perceived fairness of allocated *outcomes*, while procedural justice refers to the perceived fairness of the allocation *process* itself. Said differently, people may not only care about the ultimate apportionment of benefits, but may also care, and care differently, about how the decisions about apportioning among potential beneficiaries were made (Frey et al., 2004) .

We argue the key topographical features distinctive of this schematic class—*hiring/dolls* on the one hand, and a statistically negative correlation with *auto*—may be invoking two conceptually distinct aspects of distributive and procedural (un)fairness: mechanism and voice. Prior research on procedural justice has found that people often perceive outcomes as more fair when there are opportunities for people to voice their opinions (Folger, 1977), even in circumstances where people know their opinions will not affect outcomes (Lind *et al.*, 1990). Conversely, other research finds that people significantly differentiate among different procedural mechanisms for rationing scarce goods, whereby queueing (first-come, first-served) and lottery are perceived as significantly more fair than auction (Bies *et al.*, 1993).[23] The negative correlation between *dolls (*auction as a mechanism to ration scarce goods) and *auto* (unilateral price increase without voice) suggests that this class is characterized by a group of people who share a similar orientation to procedural (un)fairness that structures their interpretation of market morality, but those who view procedural voice positively tend to view procedural mechanisms negatively, and vice versa.

6. Towards a theory of multiple market moralities?

Our findings raise interesting questions that extend prior theorizing about market moralities. In pursuit of mid-range theory, we introduce a new way of thinking about market moralities that is both plural and systematic. We find a class of people whose evaluation of scenarios

22 In the other classes, *dolls* and *auto* are evaluated as diametrically opposed by only 19.7, 7.3 and 2.1% of the class, respectively.

23 Auctions may also imply a tension between different understandings of procedural and distributive fairness, whereby auctions involve the equal application of rules (a form of procedural fairness) but auctions privilege those who can pay the most or accept the least wages (potentially a form of distributive unfairness).

closely approximates normative philosophical arguments about absolute morality of free markets, which holds that any individual pursuit of material gain is acceptable in the context of a competitive market. However, we also identify a class of people whose moral evaluations closely approximate theorized concerns about procedural justice, which have argued that (un)fairness inheres in the particular *means* of apportioning resources and opportunities. More recently, Kahneman *et al.* argued that people balanced dual entitlements, willing to accept losses to reference prices if they were justified by increases in costs or other conditions that would threaten the firm's reference profits, and once again we find a subset of people whose evaluations approximates that perspective. However, none of these applies so broadly as to constitute the 'average' person's moral stance. At a minimum, our findings call to mind the famous fable of the blind men and the elephant, each holding on to only one part of the empirical reality. But it may also be that there is no elephant, no singular unifying parsimonious theory that explains the heterogeneity of evaluation patterns people employ. There may be some price-changing conditions that invoke near-universal moral approval or condemnation (e.g. many people judge as unfair a large increase in prices to take advantage of a monopoly position if it is not justified by increased costs borne by the retailer, see Supplementary Appendix A). Price changes in market exchanges occur under an array of different conditions, including but not limited to: the identities of the transactors, the magnitude of the price change, the reason for the price increase, features of the item or labour, how that item or labour related to a larger field of its peers, which may be more or less similar. Such conditions, either singly or in combination, may be prioritized differently by different schematic classes. Said differently, people in different schematic classes express patterns of moral judgement that are sensitive to different conditions. For example, some appear to be particularly attentive to whether the price-increase affected retail goods or labour, while others were not attentive to that distinction.

This implies that it may be more theoretically fruitful to identify the conditions that provide the most parsimonious leverage for formalizing different moral adjudication patterns, and analyzing the extent to which they are replicable across different domains. For example, two schematic classes have broadly omnivorous structures whereas the other two classes have some separate-spheres structures differentiating scenarios that involve pricing *people* (labour) from those that involve pricing *things* (retail), which may resonate with some moral philosophy about forms of valuation that place greater moral weight on interpersonal social obligations and ethics of care (Anderson, 1990). Under such a rationale, a change to the price of workers' compensation would never be morally equivalent to the changing price of a consumer good, no matter how many other scenario conditions—such as scarcity or firm profitability—were otherwise similar.

More broadly, our analysis offers a means to begin identifying which market moralities are truly mainstream—that is, sentiments broadly shared across the population—but in a manner sensitive to the historical and cultural constitution of morality, and which can consider the possibility that the hegemony of different market moralities may rise and fall. The method we employ also provides a means to identify which types of market behaviour excite particularly contentious evaluations. A majority of our sample view stores auctioning a scarce resource positively (*dolls*), but at the same time, a third of the sample viewed *dolls* as a least-fair scenario. Therefore, rather than profit maximization or reference prices, we find many people are particularly sensitive to procedural and distributive justice, as well as whether pricing activities are occurring in labour versus retail situations.

Finally, a mid-level theory of multiple market moralities orients us towards a consideration of the causes and consequences of the fragmentation of the market morality of the consuming public. In recent decades, free-market principles have seeped into popular discourse and risen in political saliency, culminating in intense debates over the virtues of the free market, both among scholars and in public. Some argue markets are inherently a morally corrupting influence, while others argue a just society is whatever arises from an unfettered free-market because any voluntary exchanges in such a market are just and fair (Nozick, 1974; Fourcade and Healy, 2007). Increasing public exposure to assertions about the morality of the free market has the potential to increase consumers' permissiveness for price manipulation, but also to fragment the public over what constitutes fair market practices.

The proliferating logic of free market absolutism may have disproportionately resonated with particular people, while other groups may feel repulsed or reject those lines of reasoning entirely in favour of alternative rationales, which would result in categorically distinct clusters of moral judgements about the market. Our findings raise fascinating questions about whether consumers' moral evaluation of pricing fairness has always been plural or fragmented—but prior analysis failed to identify it—or whether consumers are becoming more polarized over time, clustering into increasingly distinctive moral schematic classes. Understanding the contours, causes and consequences of the fragmentation of consumers' moral tastes is a promising new research avenue for social scientists interested in the social foundations of evaluation and the moral components of markets.

Economic sociology has nurtured the general intuition from qualitative analyses and case studies that economic morality is multiple. In this spirit, we offer a new way to identify, specify and measure the presence and contours of multiple moralities. Our analysis suggests the multiplicity of moral judgements are not infinitely polyphonous, constituting a sort of individual idioculture, but rather cluster into identifiable schematic understandings shared by some, though not all, of the population. There is fragmentation of judgement but there are discernable patterns within those judgements such that patterns of individual adjudication cluster meaningfully. In other words, there is not one market morality, but there also is not an infinite number, and this is an early step towards a longer project of specifying them.

7. Summary and future research

Our analysis identified multiple, distinctive, market moralities using CCA (Boutyline, 2017). We find respondents in our data evaluating price-change scenarios were oriented to one of four evaluative schemas: (a) dual-entitlement principles; (b) free-market proponents (and opponents); (c) retail-labour domain specificity and (d) procedural (in)justice. The evaluative schema of one omnivorous class arrayed items according to dual-entitlement principles. The network of the second omnivorous class was suggestive of classic free-market absolutism (Nozick, 1974), across many scenarios consistently evaluating firms raising prices in pursuit of profit as (un)acceptable, so long as they were in a competitive context. Two other schematic classes were characterized by a separate spheres network structure. One such class suggested strong sensitivity to the substantive domain of pricing, with retail scenarios strongly clustered together and disassociated from labour scenarios. The final class was a weaker form of separate spheres distinguished by particular sensitivity to procedural justice.

We view CCA as an important methodological tool for studying the multiplicity of moral tastes that should be of considerable use and interest to scholars interested in beginning the

project of better measuring and specifying the multiplicity of economic morality in general, and fairness in pricing particularly. Beyond fairness in pricing, CCA would also be useful for a large field of analogous research on consumer sentiment more broadly—from product taste to brand loyalty. CCA inductively identifies schematic classes by finding patterns in how individuals directly evaluate a variety of diverse pricing scenarios. By employing a method that algorithmically discerns groups based on patterns of responses, our analysis avoids methodologically imposing a priori assumptions about the schematic 'worldviews' one expects to find (Lee and Martin, 2015). CCA offers researchers interested in the variety of economic moralities an efficient method for identifying the primary ways schema-level variance can manifest. Furthermore, the method of exposing people to a variety of theoretically informed scenarios also has the virtue of uncovering variations in people's decisions under different conditions, including conditions that are theoretically significant but occur infrequently, are difficult to observe directly, or invoke social desirability bias.

Theoretically and empirically, this project is part of a growing sociology of evaluation, which has to date been dominated by debates about the taste for musical genres or other cultural products (Lamont, 2012). Taste and evaluation are sociologically important phenomena that are much broader than musical taste, and advancing this body of theory requires expanding substantive focus to better investigate theoretical generalizability and illuminate boundary conditions. There are some ways findings from the field of musical taste transpose surprisingly well to the domain of market moral judgement, particularly in some of the underlying structures of the schematic classes (e.g. omnivorousness or anything-but structures), which raises interesting questions about whether these are general features of taste fields. However, our study suggests that some of the same features making musical taste a helpful domain of evaluation for early theory-building may also be ways musical taste is systematically different from many other domains in which people regularly confront and evaluate dissimilar options. First, many people have a preconceived feeling about musical genres—e.g. someone may think they do not like heavy metal even if they have never heard the music—which is based on varying degrees of prior lived experience. In contrast, our study exposes people to scenarios, many of which respondents may not have a preconceived taste they could articulate in a rule-like way, as in 'I know I do not like heavy metal'. The scenarios intentionally build in tensions, putting a firm's reference profit and individuals' reference price at odds such that there are no clear win-win options. The scenarios are therefore multifaceted, and our results suggest that different groups of respondents may attend to different facets of the same scenario.

Secondly, as a field of taste, music comprises a relatively well recognized, exhaustive and mutually exclusive set of genres about which one can have a judgement (see Goldberg, 2011). However, the same is not true for types of market behaviour nor numerous other fields of evaluation. We therefore view this as an important extension because this polyphony of situations more closely approximates conditions of relative evaluations people frequently confront in everyday life, in which multiple different and inseparable aspects of a situation or object must be evaluated. When people select a new doctor they confront choices that vary in their personality, educational background, prior experience, clinical practice setting, hospital privileges and more. When potential home-buyers encounter the market they evaluate homes varying in size, cost, distribution of rooms, neighbourhood, school system, lifestyle amenities and more. The objects being evaluated have particular configurations of those many different characteristics; that multifaceted complexity is an

unavoidable aspect of their evaluation of the field of choices. One doctor may be an impatient man who graduated *cum laude* from Harvard Medical School with lots of prior experience, practicing in a clinic far from the city centre. Another may be a warm young man with a degree from a local college with little prior experience practicing at a nearby clinic. Different people meeting the same field of choices may have different characteristic preferences on any given facet and when confronted with imperfect choices, may prioritize different aspects. Our multifaceted scenarios thereby approximate many domains of evaluation in the complexity of the social world.

It is important to underscore that the market moralities we identify based on analysis of the present data should be subjected to future research. For example, our online sample of US adults is a step in the right direction, improving on college-aged convenience samples; however, it also has methodological limitations. We suggest future research might seek to replicate results with a nationally representative sample, samples from different cultural contexts, or engage theory-testing with deductive methods. It is an open empirical question whether the specific combinations of moral judgements identified herein will generalize to other samples, populations, scenarios or types of moral judgement beyond fairness (e.g. 'loyalty' or 'care'—see Haidt, 2012). We have taken a mid-range theory approach; however, those interested in pursuing a more parsimonious general theory of multiple market moralities might find it productive to construct new scenarios that systematically vary the features of moral scenarios identified in our analysis (reflected both in Table 1 and the schematic class descriptions).

Our research also raises questions that future research might productively explore through quantitative or qualitative methods, or by fruitfully combining the two. For example, scholars interested in the more conscious deliberative aspects of moral reasoning might ask respondents to reason aloud as they think through different scenarios. Furthermore, future qualitative and quantitative analyses of respondents' reasoning and justifications in particular scenarios could advance analysis of the extent to which respondents are making judgements based on declarative cognition such as well-reasoned moral commitments, or exercising more non-declarative evaluations based on gut reactions (Lizardo, 2017).

That there are classes that judge market pricing behaviour differently also raises questions about whether there are differences in the conditions under which schematic groups will translate their moral judgements into action, sanctioning businesses for practices they perceive as unfair by leaving or protesting publicly. The finding that those most similar to free-market absolutism are significantly more likely to judge an action as acceptable but also say they dislike that action raises interesting questions about the role of affect (or lack thereof) in consumer judgement. Finally, as future work refines understanding of different schematic classes, it would be fascinating to examine age-, period- and cohort-related demographic predictors of schematic class membership, to better understand how aspects of lived experience correlate with patterned tendencies in market moralities.

Acknowledgements

We thank Omar Lizardo, Terence McDonnell, and the Culture Workshop at the University of Notre Dame for helpful comments on the project and paper.

Funding

The project was funded by University of Notre Dame, Office for the Vice President of Research, Faculty Scholarship Research Program Initiation Grant.

Supplementary material

Supplementary material is available at *Socio-Economic Review* online.

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