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THE IMPACT OF CHILDHOOD SOCIOECONOMIC STATUS ON ADULT REACTIONS TOWARD QUANTITY SURCHARGES

DISSERTATION

A dissertation submitted in partial fulfillment of the

requirements for the degree of Doctor of Philosophy in the

College of Business and Economics

at the University of Kentucky

By

Wenjing Li

Lexington, Kentucky

Co- Directors: Dr. David M. Hardesty, Professor of Marketing

and Dr. Adam W. Craig, Professor of Marketing

Lexington, Kentucky

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ABSTRACT OF DISSERTATION

THE IMPACT OF CHILDHOOD SOCIOECONOMIC STATUS ON ADULT REACTIONS TOWARD QUANTITY SURCHARGES

Quantity surcharges have been widespread in the marketplace for decades. However, little is known about what kinds of consumers and under what conditions they are more likely to be impacted by this pricing practice. The current research contributes to the existing literature by investigating how a person's childhood socioeconomic status affects their reaction toward quantity surcharges during adulthood. Across four studies, we find that childhood socioeconomic status has a positive impact on the purchase of a large and surcharged package size. However, when the economic conditions are threatening, the positive effect of childhood socioeconomic status disappears. The current research also provides a theoretical explanation for the interaction effect of childhood socioeconomic status and economic conditions. The focus on acquiring sufficient resources accounts for the interaction effect.

KEYWORDS: Childhood Socioeconomic Status, Quantity Surcharges, Package size, Economic Condition

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THE IMPACT OF CHILDHOOD SOCIOECONOMIC STATUS ON ADULT REACTIONS TOWARD QUANTITY SURCHARGES

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Dedicated to my dear family and friends.

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CHAPTER ONE
INTRODUCTION

Quantity surcharges, a practice in which the per-unit price of a large package is higher than that of a smaller one, have been widespread in the marketplace for decades (Abdulai, Kuhlgatz, and Schmitz 2009; Clerides and Courty 2017; Manning, Sprott, and Miyazaki 1998; Sprott, Manning, and Miyazaki 2003; Widrick 1979a, b). Since this pricing practice violates the well-entrenched consumer expectation of receiving a quantity discount, most existing research has focused on investigating why it occurs (Gerstner and Hess 1987; Joseph, Subramaniam, and Patil 2013; Sprott, Manning, and Miyazaki 2003). Although understanding why quantity surcharges happen is definitely important, knowing which consumers and under what conditions they are more likely to purchase the surcharged size would be very beneficial to consumers and to society as a whole. However, very little research has examined what kind of consumers and under what conditions they are more likely to be influenced by this pricing practice. Grocery expenditures are essential for every household in the United States, with total expenses reaching $703.9 billion in 2013 (Elitzak 2014). With such an enormous amount of grocery purchases, even a small surcharge could have a significant impact on consumers. The current research assesses a person's childhood socioeconomic status (SES) to determine how it impacts consumer reactions toward quantity surcharges.

We find that consumers' tendency to purchase a surcharged size is affected by their childhood socioeconomic status (SES) and the current economic environment. When the current economic environment is normal, consumers of low childhood SES are *less* vulnerable to quantity surcharges than those of high childhood SES. When the

economic conditions are threatening, consumers of low childhood SES are as likely as those of high childhood SES to purchase a surcharged item. The effect of childhood SES is independent of consumers' current SES. By investigating the impact of childhood SES on adults' quantity surcharge purchase behaviors, the current research contributes to the pricing and consumer decision-making literature in several ways. First, to our knowledge, this research is some of the first to examine the impact of childhood SES on consumers' reactions toward a pricing practice. In addition, we demonstrate that the vulnerability of consumers to quantity surcharges is impacted in specific ways by their childhood SES. Consumers who grew up in a poor family are less likely to purchase a surcharged size than those who grew up in a relatively wealthy family. However, this immunity to being influenced by quantity surcharges disappears when economic situations worsen. When facing economic recession, those of low childhood SES are as likely as those of high childhood SES to purchase a surcharged size. Moreover, we identify the underlying mechanism that drives this change for those of low childhood SES. That is, the concern of obtaining sufficient resources in the condition of economic recession. These findings have significant implications for both marketing practitioners and policy makers.

CHAPTER TWO
CONCEPTUAL BACKGROUND

Quantity Surcharges

Retailers usually offer multiple package sizes for the same product (same brand, type of packaging, and quality) to cater to different consumers. Normally, consumers expect to receive a discount when purchasing large quantities (Granger and Billson 1972; Manning, Sprott, and Miyazaki 1998). That is, consumers often believe that the more you buy, the cheaper the per-unit price. This belief regarding quantity discounts led to the burgeoning of warehouse retailers, such as Sam's Club and Costco, trying to sell products in bulk. However, contrary to this core consumer belief, quantity surcharges have been widely found in the market place (Abdulai, Kuhlgatz, and Schmitz 2009; Clerides and Courty 2017; Joseph, Subramaniam, and Patil 2013; McGoldrick and Marks 1985; Widrick 1979a, b). Quantity surcharges occur when the per-unit price of a larger package is higher than that of an otherwise identical smaller package (Binkley and Bejnarowicz 2003; Nason and Della Bitta 1983; Widrick 1979a, b). The occurrence of quantity surcharges has been found to be between 11.5%-34% across different time and geographic locations (Agrawal, Grimm, and Srinivasan 1993; Cude and Walker 1984; Palla, Boutsouki, and Zotos 2010). For some product categories, such as tuna, the incidence of quantity surcharges can be as high as 85% (Widrick 1979a). Previous research suggests that the high incidence of quantity surcharges is caused by price competition, price promotion, and pricing errors, as well as retailers' conscious pricing practices (Gupta and Rominger 1996; Sprott, Manning, and Miyazaki 2003; Widrick 1979b, 1985; Zotos and Lysonski 1993).

Factors Influencing Retailer Usage of Quantity Surcharges

Since the incidence of quantity surcharges is high, under what conditions do retailers employ this practice? Retailers may use quantity surcharges to exploit the widely-held consumer expectation of quantity discounts (Widrick 1985). According to some survey data, a large percentage of consumers expect large packages to have lower per-unit prices (Kunreuther 1973; Zotos and Lysonski 1993). Many consumers have formed this heuristic belief of "quantity discounts." Retailers may implement quantity surcharges to take advantage of this heuristic belief to charge higher prices. Other retailers may employ quantity surcharges for those products that consumers have a propensity to purchase in a larger package size (Agrawal, Grimm, and Srinivasan 1993). For some products, such as laundry detergent and paper towels, that have very long expiration windows and are usually used very frequently, consumers often prefer to purchase larger package sizes to save themselves some shopping trips.

Certain types of costs can also affect retailers' decisions to levy a quantity surcharge. When compared with shelf products, refrigerated and frozen items have higher carrying costs. Retailers charge higher unit prices for large packages to compensate for their higher carrying costs (Agrawal, Grimm, and Srinivasan 1993). The hassle associated with consuming several small packages also provides a justification for the use of quantity surcharges (Joseph, Subramaniam, and Patil 2013). The consumption of some products (e.g., canned tuna, soup, and beans) generates some hassle. Consumers must open the cans before using them and dispose of the cans afterward. Thus, fewer packages may be more desirable. Retailers may impose a surcharge on a larger package size as a result of the greater demand generated by higher consumer convenience.

Factors Influencing the Purchase of Surcharged Products

Price Consciousness. Consumers often believe that large quantities are associated with discounts. For consumers to detect quantity surcharges, they must pay special attention to the unit price information. In many grocery shopping environments, the unit price information is not very salient (Kilbourne 1974; Miyazaki, Sprott, and Manning 2000; Nason and Della Bitta 1983). Some stores do not provide this information (Crown, Sefcik, and Warfield 2017). In addition to locating unit price information, consumers must compare the unit prices of different package sizes to determine the one with the best value. If unit price information is missing, consumers have to calculate it in order to avoid quantity surcharges or to simply select the product with the lowest total price. All of these processes of detection and comparison take time and extra effort. Thus, only those consumers who are very price conscious are willing to spend the extra time and cognitive effort to do so to save money. When the costs of time for information search are high or exceed the savings, it might be rational for some consumers to simply avoid unit price comparisons (Binkley and Bejnarowicz 2003; Clerides and Courty 2017).

Low-Income Consumers. For consumers with low income, every penny saved has high marginal utility. These consumers are often more price conscious and are more willing to search for lower prices (Mullainathan and Shafir 2013). Given their low income level, the opportunity cost of comparing unit prices is not that high for them. Thus, they are more likely to detect quantity surcharges when compared with high income consumers. Although consumers who are currently poor tend to be more price conscious, they also face other constraints that could impact their choices of package size (Kunreuther 1973). Consumers with low income tend to have lower budgets for each

shopping trip. They may be unable to purchase a larger size of all of the products on their shopping lists. These consumers usually live in a small apartment or house where there is not enough space for storing too many large-sized products (Kunreuther 1973). As a result, when faced with the decision of which package to purchase, the unit price is not the only factor consumers who are currently poor must take into consideration. Other factors, such as budget for each trip and storage space, also play a role.

Thus far, even though we know which factors could potentially impact the purchase of surcharged products, we still do not know what types of consumers are more heavily influenced by surcharge practices. Previous research has suggested that some factors, such as childhood socioeconomic status, could have life-long lasting effects in many aspects of behavior (Griskevicius et al. 2011a, 2011b, 2013; Mittal and Griskevicius 2014; Mittal et al. 2015; White et al. 2013). How childhood socioeconomic status influences people's reaction toward quantity surcharges is unknown. Will unit price information matter more for those consumers who grew up poor in their purchasing decisions relative to package size? Growing up with few resources, people could be more likely to form the habit of calculating unit prices to make their limited resources exert the greatest utility. How will this greater price consciousness formed during childhood affect their reaction toward quantity surcharges when they are adults? To understand the impact of childhood experiences on adulthood, we need to delve into life history theory.

Life History Theory

Life history theory, a branch of the evolutionary biological framework, was developed to address how and when organisms allocate their limited resources among

competing tasks for survival and reproduction (Giudice, Gangestad, and Kaplan 2015; Stearns 1992). To survive on this planet, all organisms, including humans, have to expend enough energy for growth and maintaining their body. Not only do organisms strive to survive, they also have to successfully reproduce to prevent extinction, which also requires energy. However, an organism can only capture a certain amount of energy from the environment over its lifespan. The energy spent on one task (e.g., growth) cannot simultaneously be spent on other tasks, like competing for a mate. Thus, the tradeoff of allocating limited resources is faced by all organisms. How to divide energy for the greatest inclusive fitness constitutes the fundamental trade-off investigation of life history theory (Hill 1993).

Fundamental Trade-offs in Life History Theory

The energy an organism captures from the environment can either be used for current reproduction or for activities that promote future reproduction. At any point in time in their life, organisms can only capture a certain amount of energy from the environment and use it for all kinds of activities. They can use energy to promote the growth and maintenance of their bodies (somatic effect). For instance, they can use energy to build a larger body size. Or, they can use it to strengthen their immune system. They can also use it for acquiring new knowledge and skills. All of these activities will help to enhance their future reproduction. By developing a larger body size, an organism has a better chance to survive and evade predators and win intra-sexual competitions. A strong immune system can help combat disease and parasites. Obtaining more skills and knowledge can increase energy capture rates in the future. As such, an organism can achieve a longer lifespan to harvest more energy and gain more time for future

reproduction. The amount of energy spent in facilitating future reproduction cannot simultaneously be used for current reproduction. To successfully reproduce right now, organisms must expend energy to find and compete for a mate (current reproduction). In addition, courtship, gestation, giving birth, and childcare (current reproduction) all demand considerable amounts of energy. Although investing in somatic effort could increase future reproduction, the future is always uncertain as there is a possibility of dying without realizing the investment in future reproduction. Thus, for every unit of energy captured, organisms must decide whether to spend it on somatic effort or on current reproduction.

After organisms decide to reproduce, they face another trade-off. That is, increasing offspring quality or increasing offspring quantity (Bielby et al. 2007). An organism only has a certain amount of energy available for reproduction. Each additional offspring would mean a decrease in the average investment per offspring. The amount of energy received by each offspring closely relates to the quality of it. With greater energy invested, offspring will have a better chance to survive and be less likely to die due to lack of food or predators. They will also have more opportunities to learn new skills and greater knowledge to be better prepared for the future.

The Fast-Slow Continuum of Life History Theory

All the trade-offs made by an organism depict its life history strategy (Figueredo et al. 2005; White et al. 2013). At one end of the life history strategy continuum is the slow strategy. Organisms that pursue a slow strategy tend to have a prolonged period of growth. They favor future reproduction over current reproduction by investing more energy in growth, maintenance, and development. These organisms will have larger body

size and late maturation. They begin to reproduce at a relatively late age. After they have offspring, they tend to focus greater effort on parenting to ensure the quality of their children. Organisms whose strategies fall on the fast end of the continuum behave just the opposite (Promislow and Harvey 1990). They devote fewer resources to their own growth and development. Thus, they sexually mature more quickly and start to reproduce at an early age. Instead of focusing on parenting, they spend most of their energy to produce more offspring.

This fast-slow continuum has been used to explain the variances across species. A fruit fly can develop from an egg to adult in eight to ten days at room temperature, with a lifespan from one month to more than four months (Pribadi 2016). A batch a fruit fly lays may contain as many as 1,000 eggs. Large great apes, such as chimpanzees, reach sexual maturity at the age of 13-15. They usually have a single child every three to eight years (Kappeler, Pereira, and Schaik 2003). Not only can the fast-slow continuum be used to explain differences across species, it also can be applied to account for intra-species differences. For example, with a prolonged period of growth before sexual maturity, usually one child per birth and long longevity, humans are considered on the slow end of the fast-slow continuum (Hawkes 2006). However, within the human species, there are huge variances in terms of pursuing fast or slow strategies. Some people are pursuing a relatively fast strategy compared to others by reaching puberty at an early age, starting to reproduce sooner, and tending to have more children (Giudice, Gangestad, and Kaplan 2015). When compared with people who pursue slow strategies, those fast strategists expend more effort finding a mate and less effort on parenting. Thus, they tend to focus

on pursuing current reproduction (see Table 1 for a summary of related behaviors to fast-slow strategies).

Environmental Contingency in Life History Strategies

While fast and slow strategies fall at the opposite ends of the Life History Strategy continuum, is one strategy superior to the other? In our modern human society, we always advocate and applaud delaying gratification for future benefit. Is a slow strategy always better than a fast one? In the evolutionary context, whether one strategy is more adaptive than the other depends upon the features of the local environment in which the organisms inhabit (Belsky, Steinberg, and Draper 1991; Chisholm 1993; Daly and Wilson 2005). If an organism lives in a very dangerous environment full of predators with considerable competition and a high mortality rate, it is not effective for the organism to pursue a slow strategy as it could run the risk of dying without producing offspring. A fast strategy, early maturation, and reproduction would be more adaptive in this type of environment. Conversely, if an organism grows up in a safe and benign environment, it is beneficial for it to pursue a slower strategy by delaying current reproduction and investing in future reproduction.

Environmental Harshness and Unpredictability

Previous research has identified two environmental dimensions that impact the optimum fitness of a life history strategy: harshness and unpredictability (Ellis et al. 2009). Environmental harshness refers to age-related mortality and morbidity rates caused by external factors that are beyond the control of the organism (Griskevicius et al. 2011a, b). An environment is considered as harsh if the external mortality and morbidity rate is high. Under this environmental condition, organisms benefit from adopting fast

strategies. Otherwise, it is quite likely that they will die or be severely injured without leaving any offspring. Unpredictability refers to the consistency or variability of harshness over time or space (Griskevicius et al. 2011a, b). An environment is unpredictable when organisms do not know what will happen next. They might have enough food for survival in one season, but severely lack food sources in another season. Thus, a temporally good condition cannot reliably forecast the condition organisms will grow up in. When tomorrow is uncertain, the energy stored for future reproduction might be totally wasted if organisms cannot live long enough to reap them. In human society, these two dimensions are highly correlated (Chen and Miller 2012; Duncan, Ziol-Guest, and Kalil 2010; Galobardes, Lynch, and Smith 2004).

The Impact of Early-Life Environments

An organism's early life experiences can bear weight upon its different life history trajectories (Belsky, Steinberg, and Draper 1991). Copious research of child development and attachment theory demonstrates the crucial role of early childhood experiences on forming and shaping people's psychological, behavioral, and reproductive development. Draper and Harpending (1982) conclude that adolescents whose father was absent during their childhood are more likely to develop behavioral problems. Building on Draper and Harpending's (1982) father-absence theory, Belsky et al. (1991) argues that a person's early upbringing environment will have a far reaching impact on their interpersonal relationships and reproductive strategy during adolescence and adulthood via the path of secure or insecure attachment. Some research has provided empirical evidence for Belsky et al.'s (1991) attachment and socialization theory. Ellis et al. (1999) find that positive early family relationships predict daughters' later onset of menstruation.

They confirm that girls who form secure and high quality relationships with their families had their first menstruation at a later age than those who did not have good relationships. Consistent with Ellis et al.'s (1999) results, Belsky, Houts, and Fearon (2010) find that women who formed an insecure attachment to their mother as infants have earlier onset of menstruation than those who had secure attachment as infants.

For humans, an individual's first five to seven years of life is a sensitive period where a person starts to form an understanding of the availability and predictability of resources in the environment (Nettle, Coall, and Dickins 2011; Szepsenwol et al. 2015). If the environment in which an individual grows up has high mortality and morbidity rates and is unpredictable, they will perceive the world as dangerous and resources as scarce. They may have witnessed gun play and violence in their neighborhood and people dying at prime ages due to violence. They may have witnessed frequent changes in the employment status of their parents and have experienced constant residential changes. They may have also gone through several parental transitions due to divorce and remarriage. Thus, they will act on fast life history strategies by speeding up growth, maturing rapidly, and starting to reproduce at an early age. Belsky, Schlomer, and Ellis (2012) empirically demonstrate that harshness and unpredictability in a childhood environment predict the fast life history strategy.

In Western society, socioeconomic status (SES) is a proxy indicator of harshness and unpredictability of the environment (Chen and Miller 2012; Duncan, Ziol-Guest, and Kalil 2010; Galobardes, Lynch, and Smith 2004). Parents of low SES may lack the resources to purchase goods and services that are essential for their children's health. People from low SES families might not have received enough nutrition when they were

young (Bradley and Corwyn 2002). Due to financial and emotional strains, their parents are vulnerable to negative emotional states, such as anxiety, depression, and stress (Gallo and Matthews 1999). When parents often experience negative emotions, they could demonstrate harsh and neglectful parental behavior leading to poor parent-child relationships (Taylor and Seeman 1999). Lacking proper nutrition and parental care, children from low SES families are prone to chronic and acute diseases. At the same time, they are also less likely to receive adequate medical treatment when they are sick. Thus, people of low childhood socioeconomic background have greater risk for cause-specific mortality, such as cardiovascular disease, coronary heart disease, and stroke (Frankel, Smith, and Gunnell 1999; Smith et al. 2001). They have shorter life expectancies than those of higher childhood socioeconomic status (Bravemen et al. 2010). With high mortality and morbidity rates, they are likely to pursue fast life history strategies. Considerable research has provided empirical support for this relationship. Wilson and Daly (1997) find that people from deprived neighborhoods, where life expectancy is shorter tend, to have their first child at an earlier age than those from wealthier neighborhoods. Nettle (2010) reached similar conclusions when studying neighborhoods in contemporary England.

The impact of early-life events can last into adolescence and even adulthood when individuals face environmental threats. Childhood is a special developmental period where people are very sensitive to change and interaction with the environment (Duncan, Ziol_Guest, and Kalil 2010). According to sensitization models, people's early-life experiences program them to react differently when facing adversity later in life, even though those who grow up in different childhood environments could behave similarly in

benign conditions (Griskevicius et al. 2011a, b). As children mature in harsh and unpredictable environments, their cognition changes in order to meet the challenges they face. These cognitive changes include temporal discounting and risk seeking.

As previously discussed, people who grow up in harsh and unpredictable environments tend to pursue faster strategies (Griskevicius et al. 2013). They favor fast growth and current reproduction over delayed sexual maturity and future reproduction. This preference for quick growth and current reproduction focuses people's attention on current rewards and discounts future benefits. When provided with options of receiving either a smaller amount right now or a larger amount later, people with low childhood socioeconomic background prefer immediate rewards if they perceive that the current environment is dangerous and threatening (Griskevicius et al. 2011b). They also approach immediate rewards (e.g., luxury brands) more quickly when the economy is undergoing a recession (Griskevicius et al. 2013). In contrast, people from wealthier families prefer delayed rewards and approach immediate rewards more slowly.

At first glance, those with low childhood socioeconomic status seem to behave irrationally by heavily discounting the future. However, if viewed through an evolutionary lens, their irrational behavior may actually be reasonable given the conditions. Because they grow up in harsh and unpredictable environments, there is a greater chance that the things they saved for the future could disappear without bearing any fruit. Thus, the benefits of valuing current rewards outweigh that of pursuing future rewards for those who experienced a harsh and unstable childhood.

Research has also identified the psychological mechanism that drives the effect of childhood socioeconomic status on temporal discounting and impulsive behavior. Sense

of control over the environment was found to account for the effect (Mittal and Griskevicius 2014). When facing environmental uncertainty, people from poor families feel a lower sense of control over their environment. Thus, they react to it by adopting fast strategies with the perception that they cannot protect themselves against the environment. People with wealthier childhood backgrounds believe that they can control the situation and protect themselves from danger by pursuing slow strategies when encountering environmental threats.

A direct behavioral consequence of temporal discounting is risk seeking. Most risky behaviors occur because people severely discount the future giving more weight to the immediate reward. People who are addicted to heroin and men who committed homicide have been found to live in the present and have higher discount rates for their future (Daly and Wilson 2005; Kirby, Petry, and Bickel 1999). Thus, fast strategists also tend to be more risk seeking as they heavily discount the future. Considerable research has empirically tested the connections between fast life history strategies and risk seeking. Adolescents who were raised in harsh, stressful, and unpredictable environments are more likely to develop delinquent and risky behavior, such as having sex, committing crimes, breaking rules, fighting, and risky driving (Belsky, Schlomer, and Ellis 2012; Ellis et al. 2012). The impact of one's early upbringing environment on risk seeking goes beyond adolescence into adulthood. Simpson et al. (2012) find that adults from unpredictable childhood environments have more sexual partners and are more likely to engage in risky and delinquent behavior. Griskevicius and his colleagues (2011b) tested the relationship between childhood environments and risk seeking in several lab experiments. Provided with financial choices between a small and certain gain and a

larger and riskier gain, people growing up in low socioeconomic status families prefer risky financial choices when they are primed with mortality cues (Griskevicius et al. 2011b). Mittal and Griskevicius (2016) built on and extended this finding by demonstrating that people of low childhood socioeconomic status are less interested in purchasing health insurance compared to those of high childhood socioeconomic status as the long-term benefits are discounted.

TABLE 1

Fast-Slow Strategies Related Behaviors

Domains	**Fast Strategies**	**Slow Strategies**
Timing of Reproduction	Early	Later
Number of Offspring	More	Few
Mating Effort	A lot	Less
Parenting Effort	Less	A lot
Risk Seeking	Risk seeking	Risk avoiding
Reward Processing	Focus on current reward	Delay reward
Desire for Food (only for women)	A great desire for food	A diminished desire for food
Conservation vs. Diversification	Diversification	Conservation

CHAPTER THREE
HYPOTHESIS DEVELOPMENT

The Impact of Life History Theory on Purchasing Surcharged Items

People from low socioeconomic families did not have many resources when they were growing up. As a child, they start to understand that resources are scarce and learn how to use them wisely. With limited resources, their parents might be very price conscious. Some research has determined that poor consumers are more price savvy compared with those who are wealthier. Low income shoppers are more accurate at recalling the price of the item they just purchased than affluent ones (Rosa-Diaz 2004). Although rich Boston commuters take taxis much more frequently than poor ones, they are less likely to provide correct taxi meter fare than poor individuals (Mullainathan and Shafir 2013). The poor are not only reading the price tag, they are also processing all of the price related information. The taxes on cigarettes come from two sources, excise taxes and sales taxes. Excise tax is usually included in the posted price, while sales tax is added at the register. Wealthier smokers only respond to the visible change in excise taxes, while poorer smokers react to changes of both types of taxes (Goldin and Homonoff 2013).

Growing up in an environment where resources are scarce and surrounded by families who are price conscious, people from low socioeconomic families are more likely to understand the value of every dollar. As previously discussed, childhood is a sensitive period for development. The habits individuals acquire at this stage will have a far reaching impact into their adulthood (Duncan, Ziol-Guest, and Kalil 2010). People growing up poor may be especially vigilant toward financial decisions. Thus, they are more likely to detect quantity changes and less likely to purchase a large surcharged

package when they are adults. As a result, they are less likely to choose a large size when quantity surcharges are present. Formally, we propose:

> H1: Childhood SES has a positive effect on the purchase of a large surcharged package such that people with high childhood SES are more likely to purchase a surcharged package than those of low childhood SES.

Role of Environmental Conditions

Although people of high childhood SES are more likely to purchase a surcharged size under normal environmental conditions, they will react differently toward quantity surcharges when the environmental condition is harsh and threatening. When the environment is normal and benign, people who grew up in a wealthy family do not pay much attention to the price. They always have enough financial resources to purchase large package sizes to make sure they have an adequate supply. They are very likely to purchase the large surcharged size. When the environment is harsh, people of high childhood SES know that they always have enough resources to cope with the current difficult situation. Instead, they pursue a slow strategy to focus on the future (Griskevicius et al. 2013). Thus, their focus may switch from obtaining enough resources to saving their financial resources to prepare for the future. The focus on saving financial resources for the future is a characteristic of slow strategies. These arguments are consistent with the results of previous research that priming those with high childhood SES with cues indicating a harsh and unpredictable environment trigger behaviors associated with slow strategies, such as delaying reproduction, pursuing more education,

and saving for the future (Griskevicius et al. 2011a, b; Mittal and Griskevicius 2014). Compared with people from wealthier backgrounds, those from poor backgrounds have s very low sense of control over the environment when faced with adversity (Mittal and Griskevicius 2014). They usually view environmental threats as extrinsic and beyond their ability to change. Thus, this low sense of control will arouse a strong sense of concern for people who have low childhood SES as to whether they are able to gather enough resources to sustain themselves through a difficult time. Those who grew up relatively wealthy do not need to worry about whether they will have enough resources to prepare for a harsh and threatening environment. They always had plenty of resources throughout their childhood to face any conditions. Even if they do face a shortage of resources, they will perceive the environmental threat as intrinsic and they can take action to shield themselves from the threat. In turn, they will not be concerned as to whether they are able to obtain enough resources to get through the harsh period. Instead, they will pursue a slow strategy by paying more attention to prices in order to spend their money wisely and save for the future (Griskevicius et al. 2013). As a result, consumers of high childhood SES are less likely to purchase the large and surcharged size. We predict that when environmental conditions are harsh, the positive impact of childhood SES on the purchase of surcharged items will be mitigated. In such conditions, the effect of childhood SES on purchasing a surcharged size should be mediated by the concern of acquiring sufficient resources. Thus, we predict (see Figure 1 for the conceptual model):

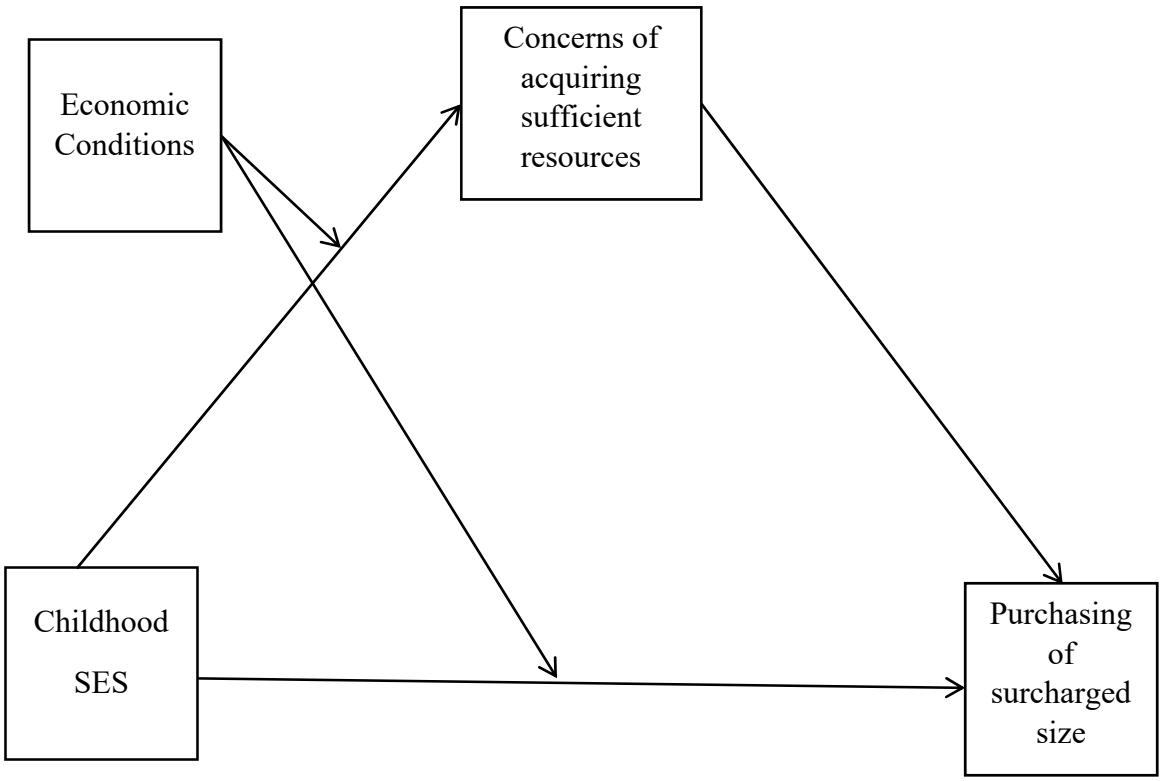
> H2: Childhood SES should interact with environmental conditions to impact the purchase of surcharged items. When environmental conditions

are normal, childhood SES has a positive impact on choosing the large surcharged size. When environmental conditions are harsh, childhood SES should have no effect on the purchase of surcharged items.

H3: When environmental conditions are harsh, the effect of childhood SES on the purchase of surcharged items is mediated by concern for acquiring sufficient resources.

Figure 1

Conceptual Model



CHAPTER FOUR
METHODOLOGY

Overview of Studies

We will test these predictions in four studies. In Study 1, we examine how childhood SES influences people's choice of a surcharged package (H1). In Study 2, we manipulate the economic conditions to investigate how they interact with childhood SES to impact a person's choice of a surcharged package size (H2). We also test our proposed mediating mechanism by coding participants' thoughts regarding the purchase decision (H3). In Study 3, we use a different manipulation for economic conditions to rule out a negative effect as an alternative explanation. In Study 4, we rule out a preference for a certain package size as an alternative explanation by introducing a quantity discount condition.

Study 1

Study 1 examines how childhood socioeconomic status affects a consumer's choice of a surcharged package. Drawing on previous research demonstrating that childhood is a very sensitive developmental period (Nettle, Coall, and Dickins 2011; Szepsenwol et al. 2015), we assess whether growing up in a resource-scarce family makes consumers more sensitive to quantity surcharges. We predict that participants with low childhood SES are less likely to purchase a surcharged size than those with high childhood SES.

Method

One hundred and seventy eight undergraduates participated in the study for partial course credit. In the study, participants were asked to make a product choice similar to a typical shopping trip. They were provided with two package sizes of Heinz tomato ketchup to choose from. One is a 40 oz. bottle of Heinz tomato ketchup at the price of $3.72 (unit price: $0.093) and the other one is a 32 oz. bottle of Heinz tomato ketchup at the price of $2.10 (unit price: $0.066, 41% surcharge; see Appendix A for the stimuli used in the study). After making the choice, participants were asked to indicate their perceived childhood SES and current SES. Both childhood SES and current SES were measured using established items (Griskevicius et al. 2011a, b; Mittal and Griskevicius 2016). For childhood SES, participants were asked to indicate their agreement with three items (α = .86; see Appendix B for the items measuring childhood SES and current SES): "My family usually had enough money for things when I was growing up," "I grew up in a relatively wealthy neighborhood," and "I felt relatively wealthy compared to the other kids in my school," anchored at 1= strongly disagree and 9 = strongly agree (see Appendix C for the frequency distribution of childhood SES). For the current SES, participants were asked to respond to four items (α = .85): "I have enough money to buy things I want," "I don't need to worry too much about paying my bills," "I feel relatively wealthy these days," and "I don't think I'll have to worry about money too much in the future," anchored at 1= strongly disagree and 9 = strongly agree (see Appendix D for the frequency distribution of current SES).

Results and Discussion

We ran a binary logistic regression to test our prediction, with the independent

variable as mean-centered childhood SES and the dependent variable as the choice of package size (0 = 32 oz., 1 = 40 oz.). Childhood SES was marginally significant for predicting the choice of a package ($\beta = .25$, Wald's $\chi^2 = 3.48$, $p = .06$). Participants of low childhood SES (1SD below the mean, 11.50%) were less likely than those with high childhood SES (1 SD above the mean, 32.40%) to purchase the large and surcharged size (see Figure 2 for the results) supporting H1. To determine the effect of current SES, we also ran a binary logistic regression model with mean-centered current SES as the predictor of choice. The results indicated that current SES did not significantly predict the choice of package size ($\beta = .11$, Wald's $\chi^2 = .87$, $p > .3$). The results of Study 1 provide preliminary support for H1 that consumers of low childhood SES are less likely to choose the large surcharged package compared to those consumers with high childhood SES.

In this study, we find that consumers' childhood SES impacts their purchasing decisions of quantity surcharged package sizes. Specifically, we find consumers with low childhood SES are less likely to purchase a surcharged large package than those with high childhood SES. Will this effect still hold during an economic recession? To determine the impact of childhood SES during an economic recession, we next manipulate the economic conditions in Study 2. In Study 2, we also examine how concern for acquiring sufficient resources changes based on economic conditions and childhood SES.

Study 2

The first objective of Study 2 is to examine how economic conditions interact with childhood SES to influence consumers' reactions toward quantity surcharges (H2).

We predict that consumers with a low childhood SES background are very sensitive to quantity surcharges only under normal economic conditions. When the economic conditions are threatening, consumers who grew up poor will react similarly to those who grew up rich.

In addition, we will test our process explanation of the focus on quantity vs. price as the mediating mechanism using moderated mediation (H3). We expect that the focus on quantity vs. price mediates the effect of childhood SES on purchasing a surcharged size when the economic conditions are threatening, but not when the economic conditions are normal.

Method

Two hundred undergraduates participated in the study for partial course credit. Study 2 used a two condition between-subject design: control condition and economic recession condition. Participants were randomly assigned to one of the two conditions. Economic conditions were manipulated by using a slideshow similar to prior research (Durante et al. 2015; Griskevicius et al. 2013; Hill et al. 2012; see Appendix E for the stimuli used). To minimize suspicion and encourage participants to pay attention, we told them that the study contained several parts and the first part was a memory task for a visual slideshow. Consistent with this cover story, participants were asked to view ten slideshows. In the economic recession condition, the slideshows depicted nine signs that the U.S. economy is getting worse. It highlighted the increasing rate of unemployment, high inflation rates, poor housing and job markets, the decline of the manufacturing industry, and negative sentiments about the future of the economy. In the control condition, the slideshows depicted a day at home organizing a desk. It provided some

pictures of stationary on a desk and described how to organize it. After viewing the slideshows, participants were asked to complete an unrelated survey to allow for memory decay. The unrelated survey was actually our focus task, the choice of a package size. Participants were asked to choose between the option of a 64 oz. bottle of Heinz tomato ketchup at the price of $5.88 (unit price: $0.09) and the option of a 32 oz. bottle of Heinz tomato ketchup at the price of $2.45 (unit price: $0.08, 12.5% surcharge; see Appendix F for the stimuli used in the study). In line with the cover story, participants answered memory questions about the slideshows. Then, they were asked to list all of the thoughts they had about making the purchasing decision for the ketchup (up to ten0 thoughts). At the end, they were asked to indicate their childhood and current SES (same items used in Study 1; see Appendix G for the frequency distribution of childhood SES and Appendix H for the frequency distribution of current SES).

Results and Discussion

Eight participants either did not recall the slideshow correctly or did not provide any thoughts they had about making the ketchup purchasing decision. Thus, their responses were removed from the analyses leaving 192 responses. We ran a binary logistic regression to test our prediction with the dummy-coded economic conditions (-.5 = control condition, .5 = economic recession), mean-centered childhood SES, and their interaction term as the independent variables to predict the choice of package size (0 = 32 oz., 1 = 64 oz.). The main effect of the economic condition ($\beta = -.35$, Wald's $\chi^2 = 1.39$, $p > .2$) was not significant, while the main effect of childhood SES was significant ($\beta = .27$, Wald's $\chi^2 = 4.70$, $p < .05$). Among those participants who came from wealthier families (1SD above the mean), 60.7% of them chose the surcharged size, while only

37.9% of participants from poor families (1SD below the mean) chose the surcharged package size. These results provide additional support for H1. More important for our H2 prediction, the interaction of the economic condition and childhood SES was significant (β = -.47, Wald's χ^2 = 3.73, p = .05; see Table 2 for the results of the regression paths). Consistent with our predictions and the results of Study 1, childhood SES had a significant positive effect on the purchase of a quantity surcharged size under the control condition (β = .50, Wald's χ^2 = 6.76, p <. 01). Participants with low childhood SES were less likely to choose the large surcharged size than those with high childhood SES. When the economic condition was threatening, the impact of childhood SES on purchasing the surcharged size was no longer significant (β = .03, Wald's χ^2 = .04, p >. 8; see Table 3 for the results of the regression paths and Figure 3 for the graph). For those with low childhood SES (based on a median split), there was no significant difference for the choice of a package size between these two economic conditions (β = .07, Wald's $\chi2$ = .02, p >. 8). For those with high childhood SES, there was a significant difference for the choice of a package size between these two economic conditions (β =- .92, Wald's $\chi2$ = 4.78, p < .05). They were less likely to purchase the large surcharged size when the economic condition was threatening compared to when the economic condition was normal. To further explore the nature of this interaction, we used the Johnson-Neyman technique to identify the range(s) of childhood SES for which the simple effect of the economic condition was significant. We identified 5.69 (β_{JN} = -.65, SE = .33, p = .05) as a Johnson-Neyman point. The economic conditions had a significant negative effect on the choice of package size for those participants whose childhood SES was higher than 5.69, but not for those whose childhood SES was lower than 5.69. We re-ran the analyses

including the current SES as a control variable in the model. The interaction of childhood SES and economic conditions was still marginally significant (β = -.47, Wald's χ^2 = 3.67, p = .06). Current SES was not significant as a control variable (β =- .01, Wald's χ^2 = .00, p > .9).

To determine the effect of current SES, we also run a binary logistic regression model with the mean-centered current SES, economic conditions, and their interaction term as the predictors of choice (see Table 4 for the results of regression paths). Both the main effects of the economic condition (β = -.40, Wald's χ^2 = 1.79, p > .1) and current SES (β = .15, Wald's χ^2 = 2.07, p > .1) were not significant. The interaction of them was significant (β = -.52, Wald's χ^2 = 6.33, p < .05). The significant results of the current SES could be attributed to the use of a student sample in the study. Those participants are still relatively young, so their current SES was highly correlated with their childhood SES (r = .53).

Our theory predicts that the concern of acquiring sufficient resources mediates the effects of childhood SES on purchasing a quantity surcharged size when the economic condition is threatening, but not when it is normal. To measure the concern of acquiring sufficient resources, we assigned two coders blind to the hypotheses to code the thoughts generated by the participants on the dimensions regarding the concern about obtaining a sufficient quantity and whether the product will last long enough. Two coders tabulated how many times this concern appeared in a participant's thought listing task. The examples of thoughts that were coded as the concern of acquiring sufficient resources were "If I get the bigger one, it will last me longer," "sufficient," "More ketchup would definitely last long," "Which one lasts longer," and "I don't want to run out of ketchup."

Inter-rater agreement (Cohen's Kappa) was .56 and all disagreements were resolved by discussion.

Using Hayes's (2013) PROCESS macro (Model 8) and following the procedure recommended by Zhao, Lynch, and Chen (2010), we run 5,000 resample bootstraps to determine the conditional indirect effect of childhood SES on the choice of package size via the path of concern of acquiring sufficient resources when the economic condition is threatening and when economic condition is normal. The index of the entire model indicated the conditional mediation was significant with a 95% CI [-.33, -.01] that did not include zero. When the economic condition was threatening, concern of acquiring sufficient resources was a significant mediator between childhood SES and the choice of package size. The conditional indirect effect of childhood SES on the choice of package size was negative (β =-.06), and the corresponding 95% CI [-.19, -.01] did not include zero. As predicted, the mediation results did not hold when the economic condition is normal. The conditional indirect effect of childhood SES on the choice of package was positive (β = .05), and the corresponding 95 % CI [-.01, .19] included zero (see Figure 4 for a graph of the interaction of childhood SES and economic condition on concern for acquiring sufficient resources). Figure 5 graphically presents the mediated moderation model. When the economic condition is normal, there is no significant difference for the concern of acquiring sufficient resources between those of the high childhood SES and those of the low childhood SES (β = .07, $p > .1$, adjusted R^2 = .01). When the economic condition is threatening, there is a significant difference for the concern of acquiring sufficient resources between those with high childhood SES and those with low childhood SES (β = -.09, $p < .01$, adjusted R^2 = .06).

Study 2 provides support for H2 that people with low childhood SES are less likely to purchase a surcharged size than those with high childhood SES only in the control condition. This effect disappears when the economic conditions are threatening. The results of this study also indicate that the interaction effect of childhood SES and economic conditions is driven by the consumers of high childhood SES. When the economic conditions are threatening, consumers of high childhood SES are less likely to purchase the large surcharged size compared to when the economic conditions are normal.

In addition, Study 2 provides evidence for our proposed psychological mechanism to explain this effect. Consistent with H3, we find that when economic conditions are threatening, childhood SES no longer has any impact on the choice of a quantity surcharged package size. Consumers with high childhood SES are as likely as those with low childhood SES to purchase a large surcharged size. They are less likely to purchase a large surcharged size when the economic condition is threatening compared to when the economic condition is normal as they do not have the same concerns about obtaining sufficient resources when the economic condition is threatening. Although Study 2 demonstrates the moderating effect of economic conditions on the impact of childhood SES, there is a potential confounding factor introduced by the economic condition manipulation. The control condition and the economic condition could elicit different levels of negative affect. It is possible that these different levels of negative affect, rather than economic condition, account for the results. To rule out this alternative explanation, we conduct Study 3.

Study 3

Study 3 has two objectives. First, we seek to replicate the interaction results of childhood SES and economic condition in Study 2. The second objective of Study 3 is to rule out negative affect as a possible alternative explanation. To do so, we compare the effect of the economic threat condition to a control condition that elicits similar levels of negative affect.

Method

Two hundred and nine U.S. respondents (48% female, M_{age} = 35.8, SD = 12.2) recruited from Mturk participated in the study for a small monetary payment. Study 3 used two between-subject experimental conditions, control and economic recession. Participants were told that this study consists of multiple unrelated parts and that the first part is a memory task. In the control condition, participants read a scenario in which they are looking for lost keys. They have an important meeting to attend that , but they cannot find their keys. They have searched around the house for the lost keys. They will miss this important meeting. In the economic threat condition, participants read an article entitled "Tough Times Ahead: The New Economics of the 21st Century," that recently appeared in the *New York Times* with the newspaper's logo, font, and style (Griskevicius et al. 2013) (see Appendix I for the article and scenario used for the economic manipulations). To ensure that both manipulations arouse similar levels of negative affect, the manipulations were pretested with a different sample of one hundred and two participants from the same population. In the pretest, participants were randomly assigned to one of the two conditions. After reading the article or scenario, participants completed the PANAS to access affect (Watson, Clark, and Tellegen 1988). Results from

the pretest indicate that there was no difference for both negative affect ($M_{control}$ = 24.03 vs. $M_{recession}$ = 24.68; t (100) = -.30, p =. 77) and positive affect ($M_{control}$ = 27.22 vs. $M_{recession}$ = 26.91; t (100) =. 21, p =. 84) between the two economic conditions.

In Study 3, after participants read the article or scenario, they were asked to complete an unrelated survey to allow for memory decay. The unrelated task was the same shopping task used in Study 2. Specifically, they were asked to choose a package of ketchup from two options (see Appendix J for the stimuli used in Study 3). Then, they indicated their opinions for the three items that were included as the manipulation check for the economic manipulation: uncertainty, threatening, and concerning (α =. 83) of the U.S. economic condition on a nine-point scale. These three items were averaged into an index for the manipulation check of economic condition. Their childhood SES (α =. 85; see Appendix K for the frequency distribution of childhood SES) and current SES (α =. 93; see Appendix L for the frequency distribution of current SES) were assessed by using the same items used in the previous studies. To align with the cover story of the memory task, participants were asked to list three things they remembered from the article or the scenario at the end of the study as a memory check.

Results and Discussion

Seven participants listed unrelated things in the memory check. As such, their responses were removed from the analyses leaving 202 useful responses. The economic manipulations had the intended effect. Participants in the economic recession indicated significantly higher levels of economic threat (M = 6.33) than those in the control condition (M = 5.81; t (200) = -2.05, p < .05).

We ran a binary logistic regression with the dummy-coded economic conditions (-

.5 = control condition, .5 = economic recession), mean-centered childhood SES, and their interaction as the independent variables to predict the choice of package size (0 = 32 oz., 1 = 40 oz.). The main effect of the economic condition (β = -.31, Wald's χ^2 = .98, *p* =. 32) was not significant. The main effect of childhood SES (β =. 17, Wald's χ^2 = 3.10, *p* = .08) was marginally significant. Among participants growing up in wealthier families (1SD above the mean), 50% of them chose the surcharged size, while only 26.3% of those who grew up in poor families selected the surcharged size. More importantly, the interaction between economic condition and mean-centered childhood SES was marginally significant (β =-.35, Wald's χ^2 = 3.37, *p* =. 07; see Table 5 for the results of regression paths). In the control condition, participants with a low childhood SES background were less likely to choose the surcharged size than those with a high childhood SES background (β = .34, Wald's χ^2 = 6.88, *p* <. 01), providing further support for H1. However, in an economic recession, participants with a relatively poor childhood were as likely to choose the surcharged size as those with a relatively wealthy childhood (β =-.01, Wald's χ^2 = .00, *p* = .96; see Table 6 for the results of regression paths and Figure 6 for a graph of the results). For those with low childhood SES (based on a median split), there was no significant difference in the choice of a package size between these two economic conditions (β =. 22, Wald's χ2 = .20, *p* >.6). For those with high childhood SES, there was a marginally significant difference in the choice of a package size between these two economic conditions (β =- .78, Wald's χ2 = 3.48, *p* = .06). They were less likely to purchase the large surcharged size when the economic condition was threatening compared to when the economic condition was normal. To understand the nature of this interaction, we used the Johnson-Neyman technique to identify the range(s) of childhood

SES for which the simple effect of the economic condition was significant. The Johnson-Neyman point was identified as 1.21 (β_{JN} = -.74, SE = .38, p = .05). The economic condition had a significant negative effect on the choice of package size for those participants whose childhood SES was higher than 1.21, but not for those whose childhood SES was lower than 1.21. All of the results still held when the current SES was included as a control variable.

To determine the effect of current SES, we also ran a binary logistic regression model with the mean-centered current SES, economic condition, and their interaction as the predictors of choice (see Table 7 for the results of regression paths). The main effect of current SES (β = .25, Wald's χ^2 = 6.44, p < .05) was significant, while the main effect of economic condition (β = -.29, Wald's χ^2 = .83, p =. 36) was not significant. The interaction between them was also not significant (β = -.25, Wald's χ^2 = 1.72, p = .19).

In Study 3, we replicate the interaction effect of economic condition and childhood SES on the purchase of quantity surcharges. We also rule out negative affect as a potential alternative explanation by using an economic manipulation that stimulates similar levels of negative affect. While we have demonstrated that consumers of high childhood SES are more prone to be influenced by quantity surcharges when the economic conditions are normal, it is possible that consumers of low childhood SES are less likely to be influenced by them because they prefer to purchase a smaller size. Consumers of low childhood SES did not have enough resources to purchase a larger package size when they were young. They could carry this habit into adulthood. To rule out the preference for a smaller package as an alternative explanation, we conduct Study 4 in which we include a quantity discount condition. If consumers of low childhood SES

are as likely as consumers of high childhood SES to select a large size, we can rule out a preference for a smaller size as an alternative explanation for our results.

Study 4

Method

One hundred and sixty-one participants (median age range is 40-49) were recruited from Amazon's Mechanical Turk. The pricing tactic was manipulated (pricing condition: quantity surcharge vs. quantity discount) between-subjects (Manning, Sprott, and Miyazaki 1998) while childhood SES was measured. Participants were randomly assigned to one of the two pricing conditions. In the study, they were asked to imagine being on a normal shopping trip. Then, they were provided with the pictures of two package sizes of Heinz tomato ketchup, 40 oz. and 32 oz. In the quantity surcharge condition, the price of a 40 oz. package size is $3.72 (unit price: $0.09), while the price of a 32 oz. bottle is $2.59 (unit price: $0.08; 12.5% surcharge). In the quantity discount condition, the price of the 40 oz. package size is the same, $3.72 (unit price: $0.09), while the price of a 32 oz. bottle is $3.31 (unit price: $0.10, 10% discount; see Appendix J for the stimuli used). After viewing the ketchup stimuli, participants were asked to choose a package size they would like to buy. Next, they were asked to indicate their childhood SES ($\alpha = .82$; see Appendix N for the frequency distribution of childhood SES) and current SES ($\alpha = .93$; see Appendix O for the frequency distribution of current SES).

Results and Discussion

We ran a binary logistic regression to test our prediction with the dependent variable as the choice of package size (0 = 32 oz., 1 = 40 oz.; see Table 8 for the results

of the regression paths). The independent variables were the dummy-coded surcharge conditions (-.5 = quantity discount, .5 = quantity surcharge), mean-centered childhood SES, and their interaction term. The main effect of childhood SES was not significant ($\beta = .04$, Wald's $\chi 2 = .11$, $p > .7$). The main effect of the surcharge condition was significant such that participants in the quantity surcharge condition were less likely to choose the large size (40 oz.) than those in the quantity discount condition ($\beta = -1.87$, Wald's $\chi^2 = 26.74$, $p < .01$). In the quantity discount condition, 68.3% of the participants chose the larger package size, while only 26.9% of the participants chose the larger size in the quantity surcharge condition. More importantly, the interaction between the pricing condition and childhood SES was significant ($\beta = .56$, Wald's $\chi^2 = 5.06$, $p < .05$; see Table 9 for the results of the regression paths). There was a marginally significant effect of childhood SES in the quantity surcharge condition, but not in the quantity discount condition. As predicted, participants with low childhood SES were as likely as those with high childhood SES to choose the larger package size in the quantity discount condition ($\beta = -.24$, Wald's $\chi^2 = 1.93$, $p = .17$). In the quantity surcharge condition, participants with low childhood SES were less likely to choose the larger package size compared with those with high childhood SES ($\beta = .32$, Wald's $\chi^2 = 3.18$, $p = .07$; see Figure 7 for the graph of the interaction), providing additional support for H1. For those who have low childhood SES (based on a median split), there was a significant difference in the choice of a package size between the quantity surcharge and the quantity discount condition ($\beta = -2.67$, Wald's $\chi^2 = 23.38$, $p < .01$). They were less likely to purchase the large size under the quantity surcharge condition when compared with the quantity discount condition. For those who have high childhood SES, there was a significant difference in the choice

of a package size between the quantity surcharge and the quantity discount condition (β =-1.02, Wald's $\chi^2 = 4.85$, $p < .05$). They were less likely to purchase the large size under the quantity surcharge condition when compared with the quantity discount condition. We then used the Johnson-Neyman technique to identify the range(s) of childhood SES in which the simple effect of pricing tactics was significant (Spiller et al. 2013). This analysis revealed that there was a significant negative effect of quantity surcharge on the choice of the larger package size for those participants whose childhood SES was lower than 5.32 ($\beta_{JN} = -.96$, SE = .49, $p = .05$), but not for those whose childhood SES was higher than 5.32. Further, when we re-ran the above analyses with the current SES as a covariate in the regression, the significance of the results did not change. Current SES was not significant as a control variable ($\beta = -.06$, Wald's $\chi^2 = .27$, $p > .5$).

We also ran a binary regression model with mean-centered current SES, pricing condition, and their interaction term as the predictors of choice. The main effect of the pricing condition was significant ($\beta = -1.81$, Wald's $\chi^2 = 26.25$, $p < .05$), while the main effect of current SES was not ($\beta = -.03$, Wald's $\chi^2 = .06$, $p > .7$). More importantly, the interaction of current SES and pricing condition was not significant ($\beta = .28$, Wald's $\chi^2 = 1.68$, $p > .1$; see Table 10 for the results of the regression paths).

TABLE 2

Regression Table for the Impact of Childhood SES and Economic Conditions on the Choice of Package Size in Study 2

Regression Path	β	Wald's χ2	*p*
Childhood SES → Choice	.27	4.70	$p < .05$
Economic Condition → Choice	-.35	1.39	$p > .2$
Childhood SES * Economic Condition → Choice	-.47	3.73	$p = .05$

TABLE 3

Regression Table for the Planned Contrast of the Interaction Between Childhood SES and Economic Conditions on the Choice of Package Size in Study 2

Economic Conditions	Regression Path	β	Wald's χ2	*p*
Control Condition	Childhood SES → Choice of Package Size	.50	6.76	$p < .01$
Economic Recession	Childhood SES → Choice of Package Size	.03	.04	$p > .8$

TABLE 4

Regression Table for the Impact of Current SES and Economic Conditions on the Choice of Package Size in Study 2

Regression Path	β	Wald's χ2	*p*
Current SES → Choice	.15	2.07	$p > .1$
Economic Conditions → Choice	-.40	1.79	$p > .1$
Current SES * Economic Conditions → Choice	-.52	6.33	$p < .05$

TABLE 5

Regression Table for the Impact of Childhood SES and Economic Conditions on the Choice of Package Size in Study 3

Regression Path	β	Wald's χ2	*p*
Childhood SES → Choice	.17	3.10	*p* = .08
Economic Conditions → Choice	-.31	.98	*p* = .32
Childhood SES * Economic Conditions → Choice	-.35	3.37	*p* = .07

TABLE 6

Regression Table for the Planned Contrast of the Interaction Between Childhood SES and Economic Conditions on the Choice of Package Size in Study 3

Economic Conditions	Regression Path	β	Wald's χ2	*p*
Control Condition	Childhood SES → Choice of Package Size	.34	6.88	$p < .05$
Economic Recession	Childhood SES → Choice of Package Size	-.01	.00	$p = .96$

TABLE 7

Regression Table for the Impact of Current SES and Economic Conditions on the Choice of Package Size in Study 3

Regression Path	β	Wald's χ2	*p*
Current SES → Choice	.25	6.44	$p < .05$
Economic Conditions → Choice	-.29	.83	$p = .36$
Current SES * Economic Conditions → Choice	-.25	1.72	$p = .19$

TABLE 8

Regression Table for the Impact of Childhood SES and Pricing Conditions on the Choice of Package Size in Study 4

Regression Path	β	Wald's χ2	*p*
Childhood SES → Choice	.04	.11	$p > .7$
Pricing Conditions → Choice	-1.87	26.74	$p < .01$
Childhood SES * Pricing Conditions → Choice	.55	5.06	$p < .05$

TABLE 9

Regression Table for the Planned Contrast of the Interaction Between Childhood SES and Pricing Conditions on the Choice of Package Size in Study 4

Pricing Conditions	Regression Path	β	Wald's χ2	*p*
Quantity Surcharge	Childhood SES → Choice of Package Size	.32	3.18	.07
Quantity Discount	Childhood SES → Choice of Package Size	-.24	1.93	.17

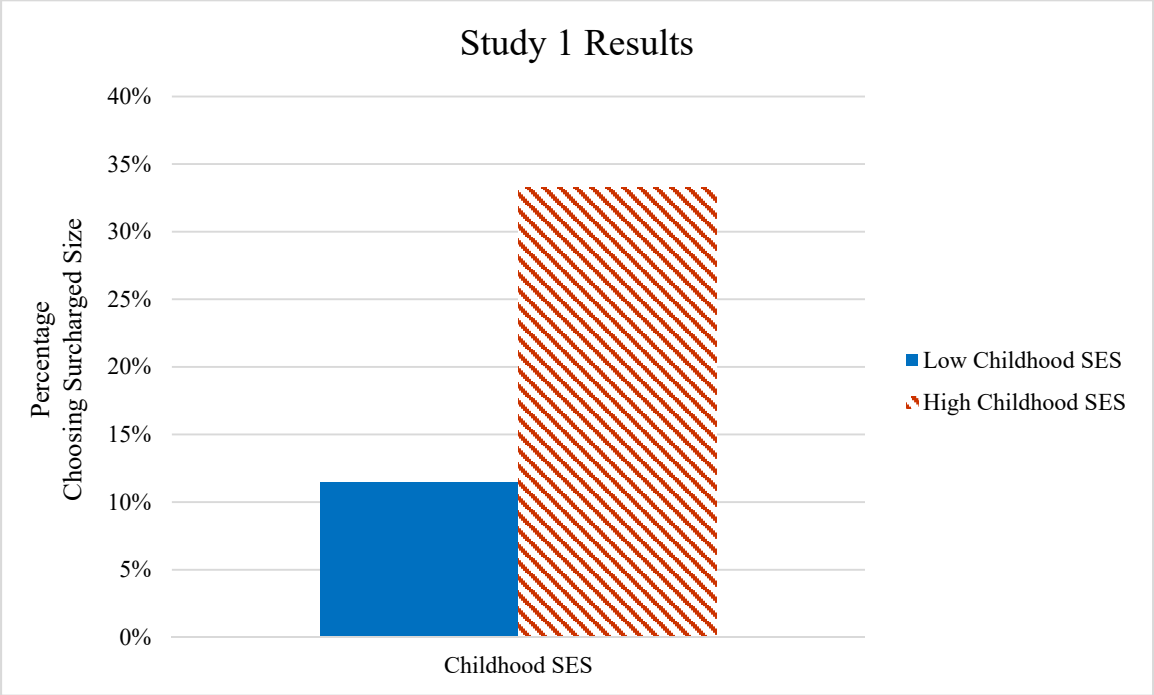
TABLE 10

Regression Table for the Impact of Current SES and Pricing Conditions on the Choice of Package Study Size in Study 4

Regression Path	β	Wald's χ2	*p*
Current SES → Choice	-.03	.11	$p > .7$
Pricing Conditions → Choice	-1.81	26.25	$p < .05$
Current SES * Pricing Conditions → Choice	.28	1.68	$p > .1$

FIGURE 2

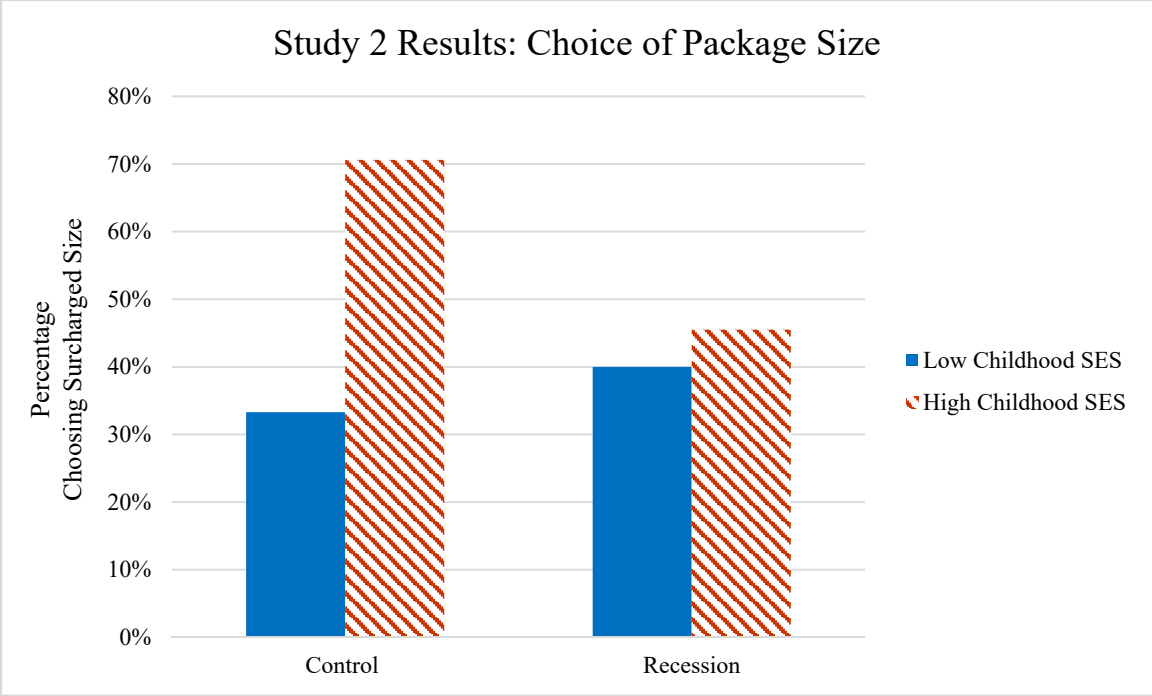
Effect of Childhood SES on Choice of Package Size in Study 1*



*Graphed means represent 1 SD above and below the mean of childhood SES.

FIGURE 3

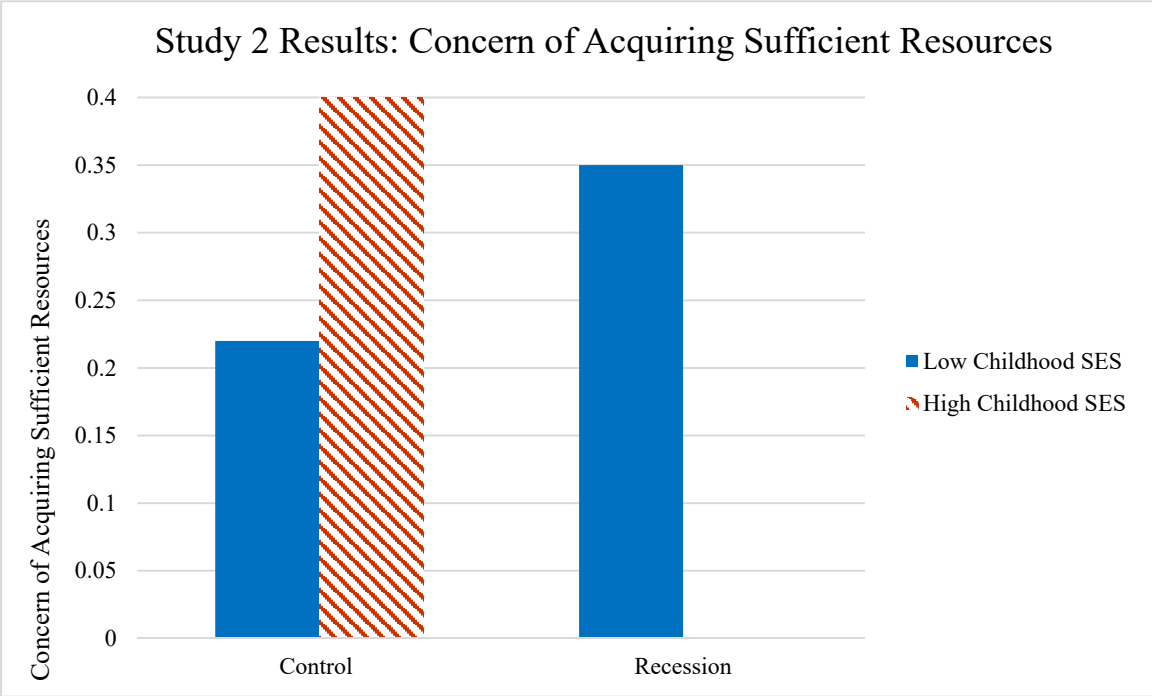
Effect of Economic Conditions and Childhood SES on Choice of Package Size*



*Graphed means represent 1 SD above and below the mean of childhood SES.

FIGURE 4

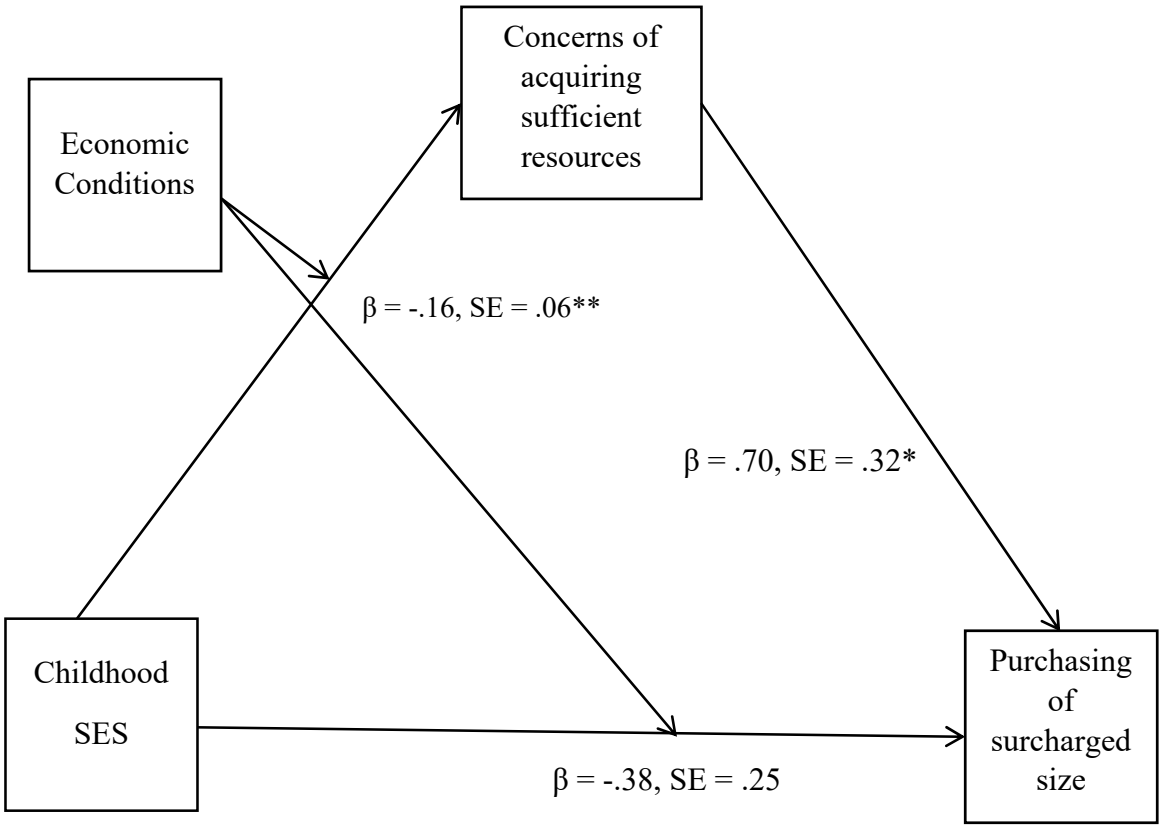
Effect of Economic Conditions and Childhood SES on the Concern of Acquiring Sufficient Resources*



*Graphed means represent 1 SD above and below the mean of childhood SES.

FIGURE 5

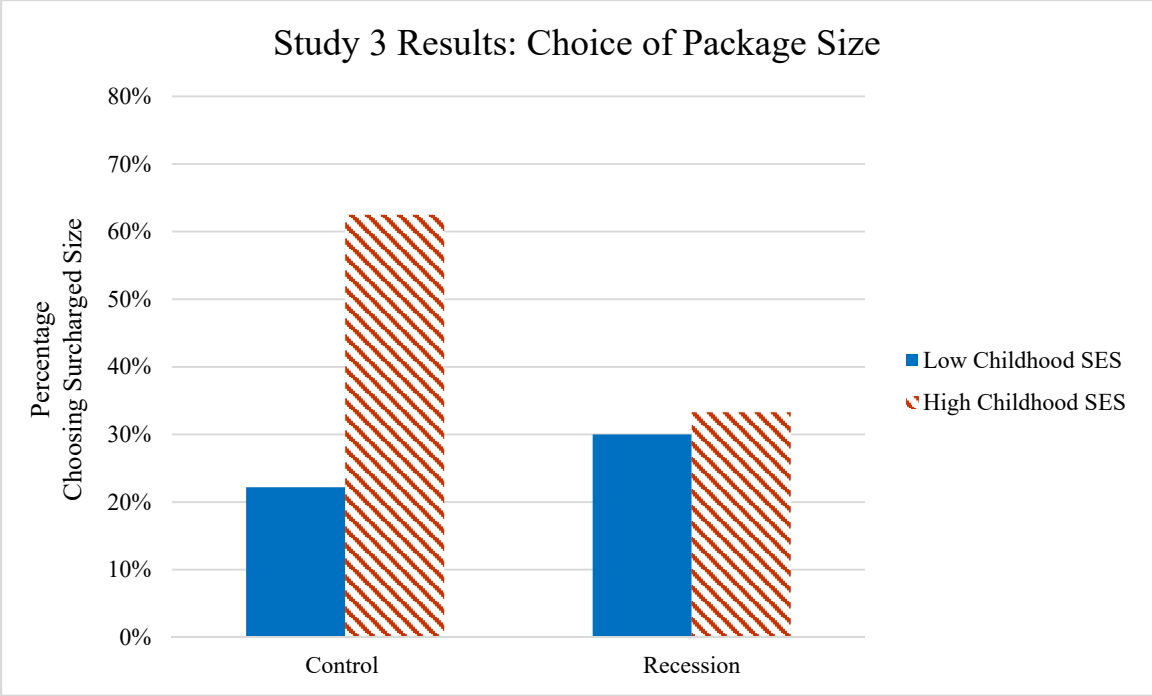
Mediation Model in Study 2



** $p < .01$, * $p < .05$

FIGURE 6

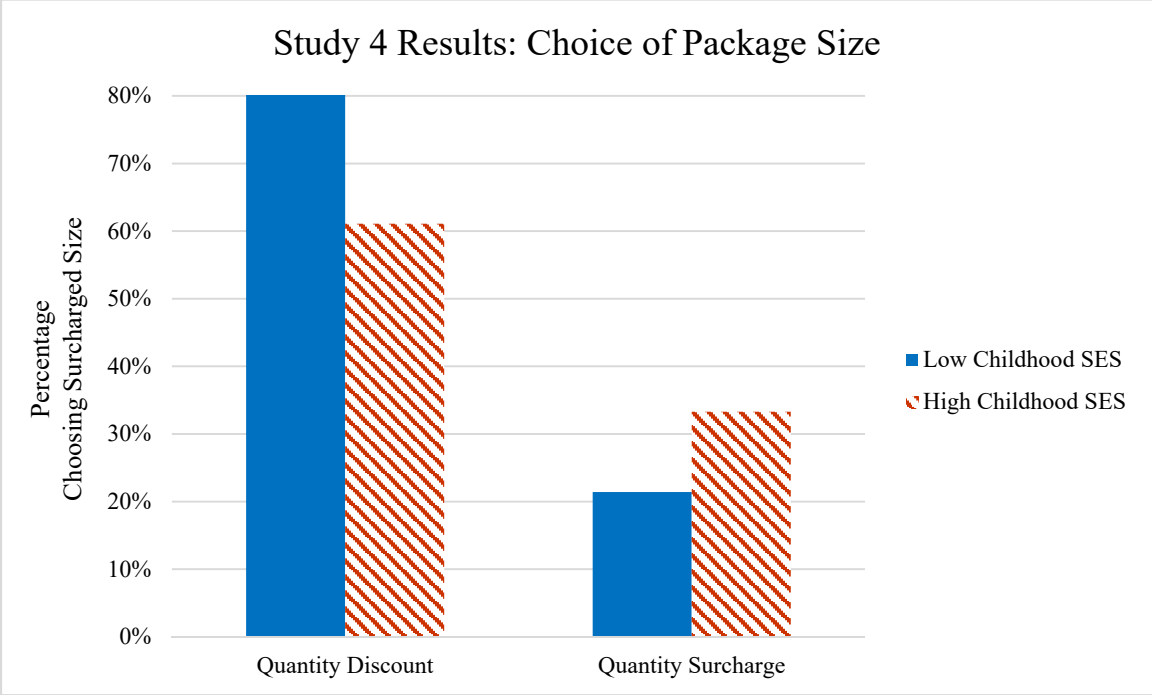
Effect of Economic Conditions and Childhood SES on Choice of Package Size*



*Graphed means represent 1 SD above and below the mean of childhood SES.

FIGURE 7

Effect of Pricing Conditions and Childhood SES on Choice of Package Size *



*Graphed means represent 1 SD above and below the mean of childhood SES.

CHAPTER FIVE

GENERAL DISCUSSION

Quantity surcharges are very prevalent in the marketplace (Sprott, Manning, and Miyazaki 2003). Consumers spent about $94 billion on surcharges in 2013 (Elitzak 2014). With the amount of money spent on surcharges, understanding who is vulnerable to this pricing tactic is of vital importance for consumer researchers and public policy makers. The current research examines how consumers' childhood socioeconomic status impacts their choice of quantity surcharged package sizes during adulthood.

Childhood experiences play an important role in human development. A person's childhood experiences can have a far reaching impact into their adulthood (Griskevicius et al. 2011a, b). Conventional wisdom in modern society suggests that people who grew up in a poor family are less educated and usually make poor decisions. The current research indicates that consumers who grew up in a poor family actually make better choices regarding products with quantity surcharges. Consumers who have low childhood socioeconomic status are less likely to choose the surcharged large package size than those who have a higher childhood socioeconomic status. The lack of financial resources during their childhood makes them more cautious when spending their limited financial resources (Rosa-Diaz 2004). This habit of spending lasts into their adulthood. As a result, they are more likely to avoid purchasing the surcharged size. The impact of childhood socioeconomic status on the choice of package size is contingent on the current economic condition. When the current economic condition is normal, childhood socioeconomic status has a positive impact on the choice of package size such that consumers with high childhood SES are more likely to choose the large surcharged size. When the current economic condition is threatening, childhood socioeconomic status no longer has an

effect. The impact of childhood SES on the choice of a quantity surcharged package size operates beyond the impact of current SES. Conventionally, it is assumed that the decision as to which package size to choose should be impacted by a person's current SES. Surprisingly, the present research confirms that consumers' current SES does not have as much impact as childhood SES does on the decision as to which package size to purchase in quantity surcharges. The results from four studies provide support for these predictions.

Study 1 demonstrates that childhood SES has a positive impact on the choice of a quantity surcharged package size. Consumers with high childhood SES are more likely to choose the quantity surcharge. They are also more likely to choose the large and surcharged package size than those of low childhood SES. This finding supports our prediction and challenges the conventional wisdom that people with low childhood SES usually make poor decisions. Instead, consumers with low childhood SES are better at avoiding the purchase of the surcharged size.

Study 2 finds that the impact of childhood SES on the choice of a quantity surcharged package size depends upon the economic condition. The positive impact of childhood SES is only found when the economic condition is normal. When the economic condition is threatening, the positive impact of childhood SES is attenuated. The concern of acquiring sufficient resources mediates the effect of childhood SES depending upon the economic condition. When the economic condition is normal, the concern of acquiring sufficient resources does not mediate the effect of childhood SES on the package choice. Consumers with low childhood SES are as concerned as those with high childhood SES about acquiring sufficient resources. When the economic condition is

threatening, the concern of acquiring sufficient resources mediates the effect of childhood SES on the package choice. Consumers with low childhood SES are more concerned about getting enough resources when the economic condition is threatening. These results demonstrate the important impact of economic conditions in changing consumers' focus on obtaining enough quantity based on their childhood SES.

In Study 3, a different manipulation is adopted for the economic condition to rule out negative affect as a confounding factor. In the economic condition manipulation used in Study 2, the economic recession condition elicits some negative affect, while the control condition is neutral. These different levels of negative affect produced in the two different economic conditions could possibly account for the results. Study 3 addresses this alternative explanation by using an economic condition manipulation that produces similar levels of negative affect. The results from Study 3 offer corroborating support for the predictions.

Study 4 rules out the preference for a certain package size as an alternative explanation, providing further support for our new theoretical perspective. Consumers with low childhood SES did not have as many financial resources as those with higher childhood SES. They may have not been able to afford to purchase large package sizes and, as such, developed a habit of choosing smaller package sizes. This preference for smaller package sizes, rather than focus on the price and quantity, could potentially prevent them from choosing a large surcharged size. To address this alternative explanation, Study 4 introduces a quantity discount condition. The results from Study 4 indicate that consumers with low childhood SES are as likely to purchase the large size as

those with high childhood SES when there is a quantity discount. Thus, consumers with low childhood SES do not have a general preference for smaller sizes.

Theoretical Implications

The current research examines a unique factor, childhood SES, for its impact on the choice of a quantity surcharged package size. Based on life history theory, the current research indicates that consumers' childhood environment impacts their consumption decisions during adulthood. The findings from the current research are counterintuitive in that consumers with low childhood SES generally make better decisions regarding the quantity surcharged package sizes. Conventional wisdom holds that consumers growing up in a poor family usually make less sound decisions when compared to their counterparts who grew up in a wealthy family. By investigating this distinctive factor, the present research contributes to consumer research in several ways.

First, most consumer decision-making research explores how situational factors or personality traits impact consumer purchase decisions and consumption. For example, previous consumer research has examined various situational factors, such as package shape (Romero and Craig 2017), type font (Mead and Hardesty 2017), and relationship threat (Wang and Griskevicius 2014), as well as personality traits, such as political ideology (Kidwell, Farmer, and Hardesty 2013) and construal level (Baskin et al. 2014). Very little research has examined the factor of childhood environment on consumers' decision-making and consumption patterns. By studying the impact of childhood SES on package size choice, the present research hopes to stimulate more intellectual

understanding of the impact of one's childhood environment on purchase decisions and consumption.

The current research also contributes to the existing research on childhood environment by expanding the scope of the impact of one's childhood environment to the quantity decision domain. Previous literature has studied the impact of childhood environments on reproduction (Draper and Harpending 1982; Griskevicius et al. 2011a), sexual behavior (Simpson et al. 2012), temporal discounts (Griskevicius et al. 2011b; Griskevicius et al. 2013), risk seeking (Griskevicius et al. 2011b; Mittal and Griskevicius 2016), and food consumption (Laran and Salerno 2013). None has examined the impact of childhood environments on quantity decisions.

Additionally, the current research identifies the contingency role of the economic condition. The impact of childhood SES depends upon the current economic condition. The positive impact of childhood SES is only observed when the economic condition is normal. When the economic condition is normal, consumers with low childhood SES are not as concerned about getting enough resources, relative to those with high childhood SES. When the economic condition is threatening, consumers with low childhood SES are as likely as those with high childhood SES to select the large surcharged size. They become more concerned about getting enough resources when compared to consumers with high childhood SES during a recession.

Further, the present research provides a theoretical explanation for the contingency effect of childhood SES on the choice of quantity surcharged package size. When the economic condition is threatening, consumers growing up in a poor family are

more concerned about getting enough resources than those growing up in a relatively wealthy family.

Managerial Implications

The results of the present research also have important implications for marketers and public policy makers. For marketers who want to implement quantity surcharges to increase their profits, the current research suggests an important segmentation variable they can use, childhood SES. They can implement quantity surcharges in stores located in economically prosperous and relatively stable geographic areas. Consumers living and growing up in these areas tend to have relatively high childhood SES. They are more likely to purchase the large surcharged size. In contrast, firms would not be wise to implement quantity surcharges in stores located in economically impoverished areas where most of the people there have faced harsher conditions since their childhood. They are more sensitive to the surcharge and, as a result, less likely to purchase the large surcharged size.

For public policy makers, the results from the current research identify an nontraditional group of consumers that also need assistance and education regarding consumption and making better choices. When designing a program to help the general public, policy makers tend to focus on groups with low childhood SES or low current SES. The current research demonstrates that consumers who grew up in a wealthy family can also be a vulnerable group for this marketing tactic. By understanding which groups are less immune to this marketing tactic, policy makers can be more efficient in designing and implementing some educational and prevention programs.

Limitation and Future Research

While the current research provides a unique perspective for understanding the impact of childhood SES on the choice of quantity surcharged package size, this research is not without limitations. First, all of the effects including the main effect of childhood SES, the interaction effect of childhood SES and economic conditions, and the mediating effect of the concern about acquiring sufficient resources are observed in well-controlled lab experiments. The advantage of lab experiments is that they can demonstrate the causal effect and rule out alternative explanations. Alternatively, experiments also have limited generalizability in the real world where more noise exists. Thus, future research should test the robustness of the results in a real-world setting. For example, future research can examine the effect of childhood SES on package choice in a grocery store.

The current research suggests that the concern of acquiring enough resources mediates the effect of childhood SES on the choice of package size when economic conditions are threatening. This mediating mechanism is tested by using statistical analysis. To provide further support for this mediating mechanism, future research can experimentally manipulate this factor. For example, if consumers with low childhood SES are more concerned about getting enough resources when the economic condition is threatening, providing them with enough resources during the economic recession can override their concerns about obtaining enough resources. This can be achieved by implementing government programs, such as affordable housing, government benefits, and food assistance. If concerns about obtaining enough resources are indeed the underlying mechanism, introducing government or aide programs providing supplemental resources should mitigate the moderating effect of the economic conditions.

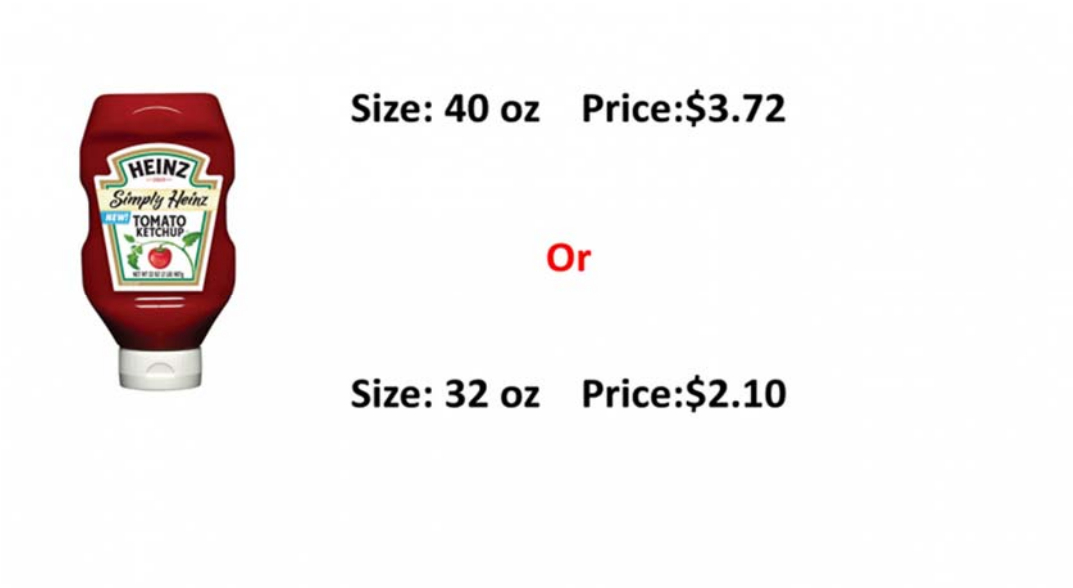
In the current research, the moderating effect of the economic condition is driven by consumers with high childhood SES. When the economic condition is threatening, consumers with high childhood SES are less likely to purchase the large surcharged size than when the economic condition is normal. Future research can further explore why consumers with low childhood SES are not impacted by the economic condition as much as those with high childhood SES.

The current research only studies a single product, ketchup, for the effect of childhood SES and the economic conditions. Future research can investigate whether the impact of childhood SES and economic conditions can also be found using other products. Will product type be a boundary condition for the effect of childhood SES and economic conditions? The proposed underlying mechanism is concern for acquiring sufficient resources. Will the effect still hold for non-food product categories?

The current research was designed to provide an understanding of the impact of childhood SES on the choice of quantity surcharged package sizes. By identifying how, when, and why childhood SES impacts the choice of quantity surcharged package sizes, this research has theoretical and managerial implications for consumers, marketing practitioners, and public policy makers.

APPENDIX A

Ketchup Stimuli Used in Study 1



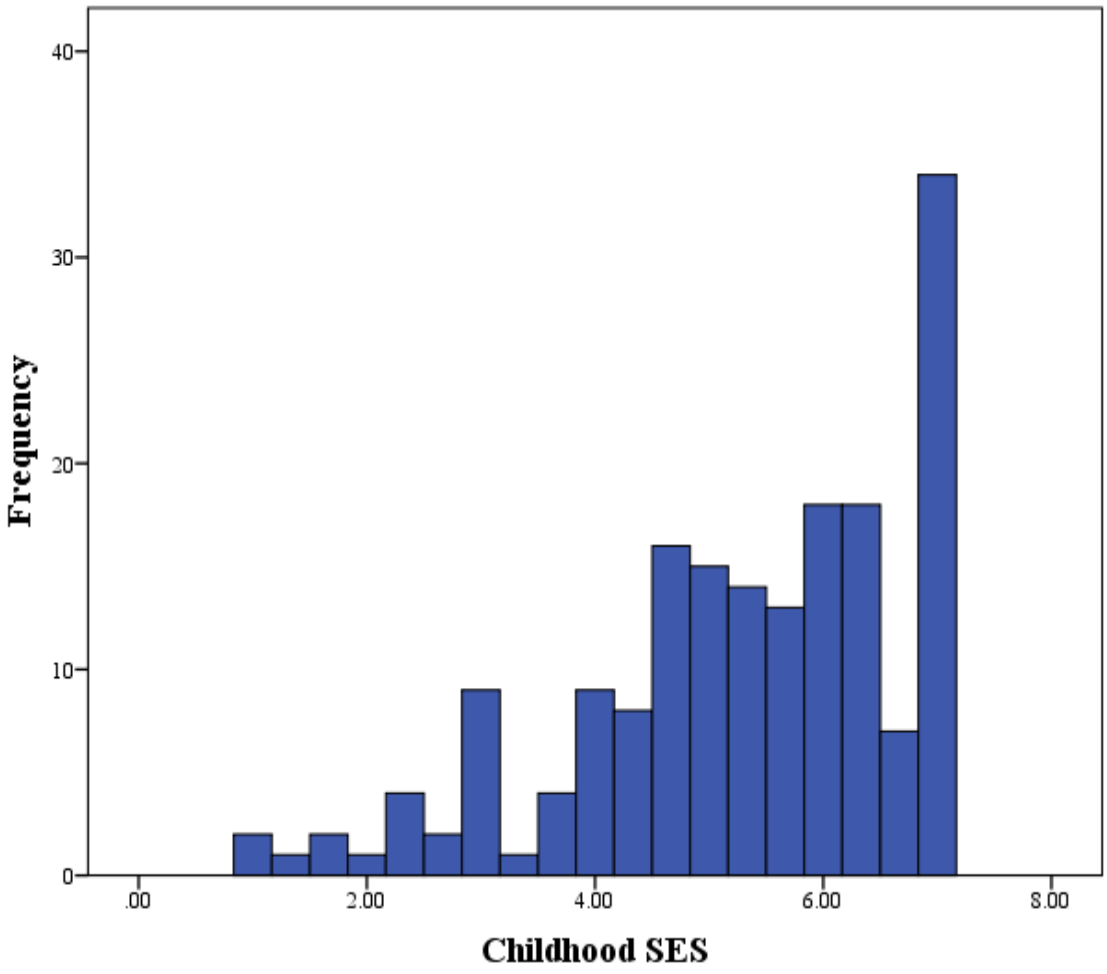
APPENDIX B

Items Used for Measuring Childhood SES and Current SES

Constructs	Measurements	Sources
Childhood SES	My family usually had enough money for things when I was growing up.	Griskevicius et al. 2011a, 2011b; Mittal and Griskevicius 2016
	I grew up in a relatively wealthy neighborhood.	
	I felt relatively wealthy compared to the other kids in my school.	
Current SES	I have enough money to buy things I want.	Griskevicius et al. 2011a, 2011b; Mittal and Griskevicius 2016
	I don't need to worry too much about paying my bills.	
	I feel relatively wealthy these days.	
	I don't think I will have to worry about money too much in the future.	

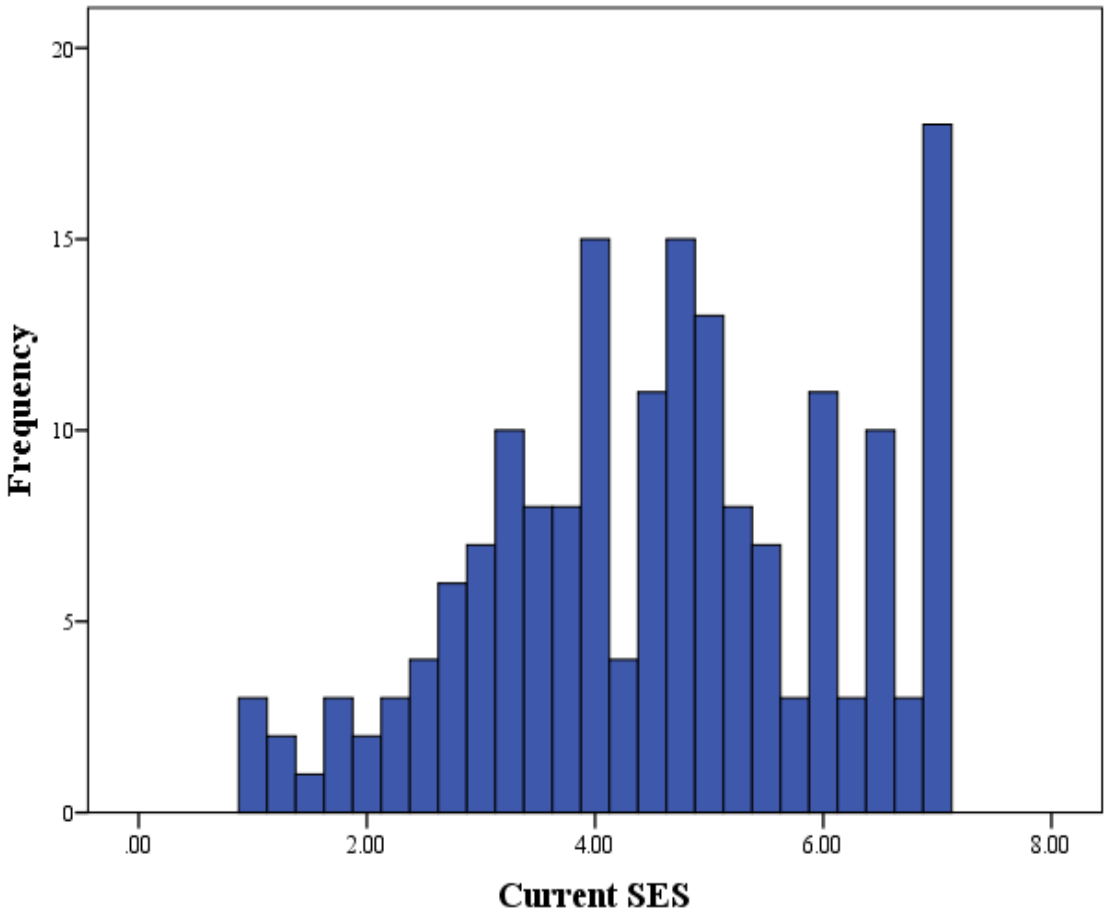
APPENDIX C

Frequency Distribution of Childhood SES in Study 1



APPENDIX D

Frequency Distribution of Current SES in Study 1



APPENDIX E

Sample Images of Economic Conditions: Control Condition

Next, you line up your binders by size. The smallest go on the left and the biggest go on the right.

Your stapler is out of staples. You open your desk drawer to see if you have any left. You don't see any and make a note to get some at the store the next time you go.

The chord on your computer mouse is tangled up with some other cords and wires. You spend several minutes untangling all of them. Now your mouse can move more freely!

A jar of paper clips spilled out in one of the drawers of your desk. You take everything out to gather up all the paper clips. You put them all in a new container with a lid. Hopefully this one won't spill.

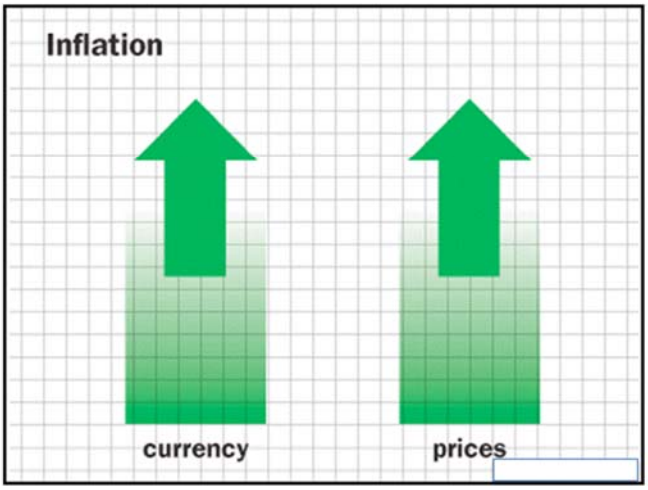
Sample Images of Economic Conditions: Economic Recession

In a recent poll, 66% of Americans said that their economic situation had actually gotten worse over the past year.

58% said they expected things to be even worse in the upcoming year.

Manufacturing jobs have declined to just 9 million American workers
out of a nation of 311.8 million. No society has ever survived with
less than 3% of all persons producing some sort of goods.
The tiny number of workers who produce goods is a sure sign of a dying economy.

Rapid inflation of prices is of growing concern in the US economy. It is possible that many grocery prices could double in the next year. Even worse, gas prices may triple or even quadruple in the coming years—they've already doubled since the start of the recession.



Growing inflation also means that the American dollar is losing value to other currencies—the once mighty dollar is becoming increasingly worthless.

APPENDIX F

Ketchup Stimuli Used in Study 2

Heinz Tomato Ketchup

32 oz

$2.45

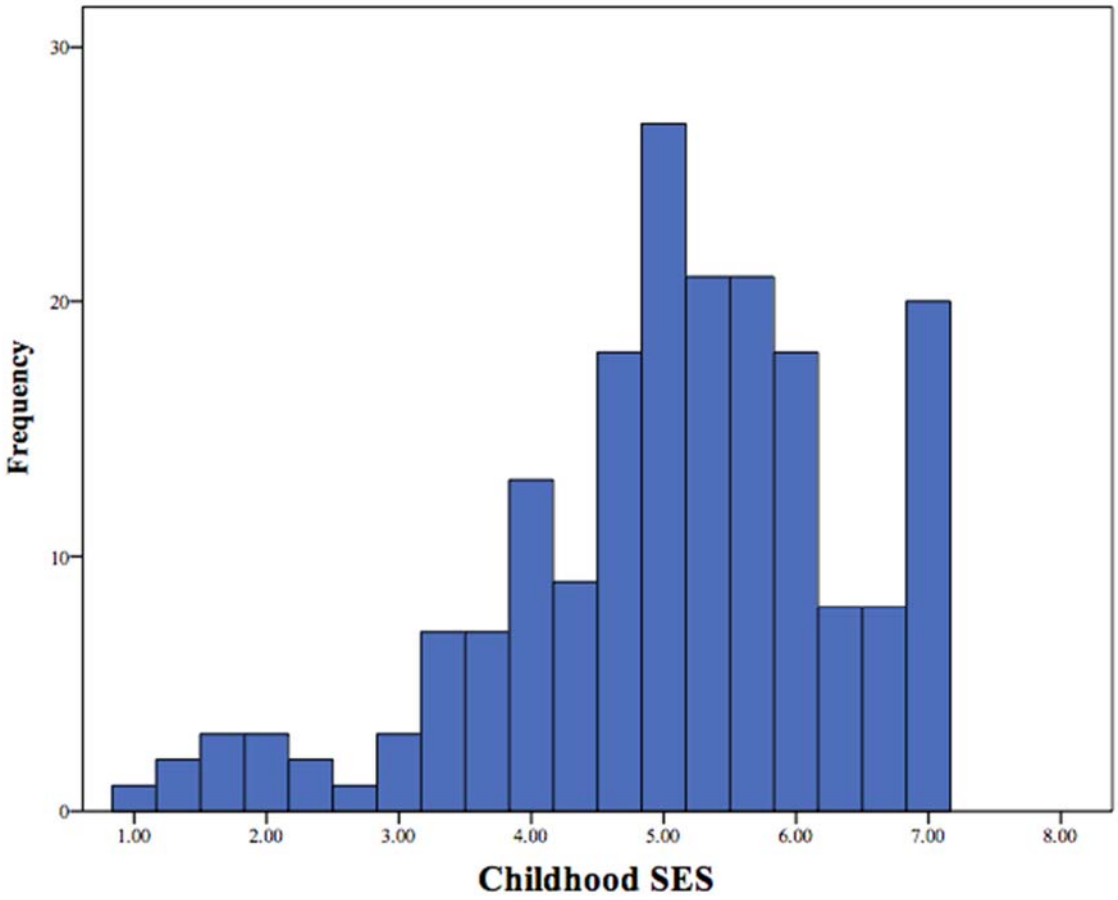
Heinz Tomato Ketchup

64 oz

$5.88

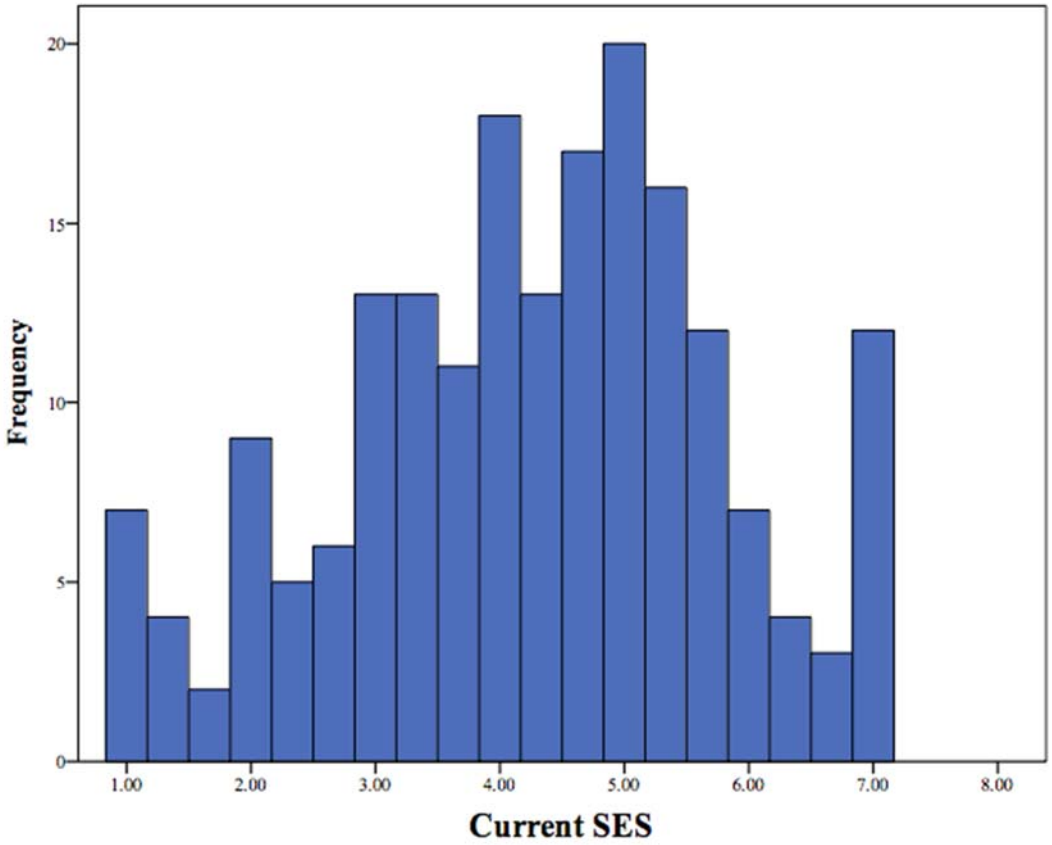
APPENDIX G

Frequency Distribution of Childhood SES in Study 2



APPENDIX H

Frequency Distribution of Current SES in Study 2



APPENDIX I

Article and Scenario Used for Economic Manipulation in Study 3

Economic Recession:

Tough Times Ahead: The New Economics of the 21st Century

By MORGAN JAMESTON, Senior Times Writer, DEC. 05, 2017

Less than a year ago Jonathan Pierce had a stable, well-paying job. Having earned a college degree, Jon was doing well at age 25. He even believed he was about to be promoted. Today, however, Jon is yet again standing in the dreary unemployment line downtown. “I didn’t think this could happen to me,” he mutters while shaking his head. “I have a college degree and I can’t even get a job interview, let alone a job. I’m facing foreclosure on my house, and I just don’t know where the money is going to come from.”

This depressing scene is not unique. Unemployment lines are full across the country. “The numbers are staggering,” notes Oliver Windsor, the head of the U.S. Economic Commission. And it’s not just blue-collar jobs like construction and food service that are being cut. It’s the white-collar jobs like management and office work that are being hit the hardest. According to Windsor, “the worst is not over yet by a long shot.” Unfortunately, there is little that the government can do to remedy the situation. As every economist knows, while government bailouts can slow the bleeding, it can’t fix the underlying problems.

The economic crisis is only the beginning of the new reality faced by Americans. After decades of economic growth, experts agree that the U.S. is on the verge of an economic shift. “The economy of the 21st century is fundamentally different from that in the past,” explains Dr. Patricia Wharton, chair of the panel for U.S. Economic Stability. “The sad truth is that this generation is certain to be the first generation to do worse than their parents. The housing bubbles, bank crises,

skyrocketing food and energy prices, and the credit crisis only begin to scratch the surface of our economic problems. Instead of college graduates wondering whether they will be able to afford a flat screen TV, they'll soon be wondering where there next meal is going to come from, how they'll clothe themselves, and how they can possibly afford a place to live."

The fact that younger Americans should expect to have little economic advancement is only part of the imminent economic disaster. Skyrocketing worldwide population growth and scarcity of natural resources are both working together to transform the U.S. economy. To understand how these factors are changing life for Americans, Oliver Windsor, one of 80 leading scientists who contributed to the government report, reminds us of the basics: "There are literally billions of people out there competing with each other. And these people are not just competing for jobs. The truth is that they're competing for food, water, and air."

While it may be difficult for some to imagine that the U.S. might one day be in poverty, the world in the 21st century is highly inter-connected. Things that happen in China, India, and Africa have tremendous consequences for what happens in the rest of the world. As the people across the globe gain skills and opportunities, competition for scarce jobs and resources will only increase. As necessities such as safe food, drinkable water, and breathable air become scarcer and more expensive, the world as we know it will become a very different place. Instead of walking into a supermarket and buying a gallon of water for under a dollar, consumers may soon be spending as much as $10 for only a small bottle of clean water.

,

Watching Jonathan Pierce wait in the unemployment line downtown, one can't help but be reminded of the Great Depression—a time in American history that most people only remember from their history classes. The images of the Depression are difficult to erase: Malnourished children begging for food, people standing in line all day to get a slice of bread and a cup of soup, everyone struggling to feed themselves and their families. The sad truth for people like Jonathan Pierce and countless others is that losing a job is only the beginning. Tough times are ahead.

Control Condition:

Imagine that it's Tuesday afternoon. Your work is pretty difficult this month, and you've been getting pretty stressed out about everything that you need to do. You have a very important meeting this afternoon. So, you are getting ready to go to a meeting.

As you go to get your keys and wallet from the counter, you only find your wallet. The keys are nowhere in sight. Thinking that it's a little awkward, you feel your pockets. No keys in there either. You try to think back to where you last saw the keys, but you can't exactly remember. You know you had them yesterday, and you're usually pretty good about leaving your keys right next to your wallet.

You sometimes put your keys in your bag, so that seems the logical place to look. You search through your bag. Books, folders, pens, but no keys. You turn the bag upside down and shake it. Nothing but junk. Now you start getting a little annoyed, and a little worried. Where the heck are your keys?

You decide to search around the house. You look all around your desk. You open the drawers. You search deep in the drawers. But it's not anywhere. You look through your bedroom floor, but all you find is junk.

Getting more desperate, you look through the laundry. Maybe they're in another pocket somewhere? You find some pieces of paper, but no keys. Feeling more upset, you go into your closet and start throwing things to the floor—no keys. You run to the kitchen and start looking on the counters. You open all the cupboards and drawers. You have no idea why the keys would be there, but you need to look somewhere. In 15 minutes, your kitchen looks like a disaster area. But still no keys!

You're feeling really frustrated at this point. You think back to when you last remember having the keys and try to retrace your steps. You clearly remember having them yesterday, but you just don't know where you put them. You hope you didn't leave them

somewhere. You really don’t need another thing to worry about right now.

Remembering that you had gone outside to take out the garbage earlier, you run out into the driveway. Maybe the keys fell out there? You look in the grass, the bushes, underneath cars. You see nothing. You think to yourself: did I really lose my keys? As you walk back inside the house in frustration, you feel as though you’re ready to pull out your hair. Your keys have disappeared. You knew this was coming sometime, but why now? It’s so annoying.

The meeting will start in 10 minutes, but you still have not found your keys. It is a 15-minute drive to your workplace. So, you know you will be late for this important meeting. You call your friends to drive you to work. However, no one answers the phone. You feel stressed that you will miss the meeting. But really, there is nothing you can do. It may be impossible to keep your job if you miss this meeting.

APPENDIX J

Ketchup Stimuli Used in Study 3

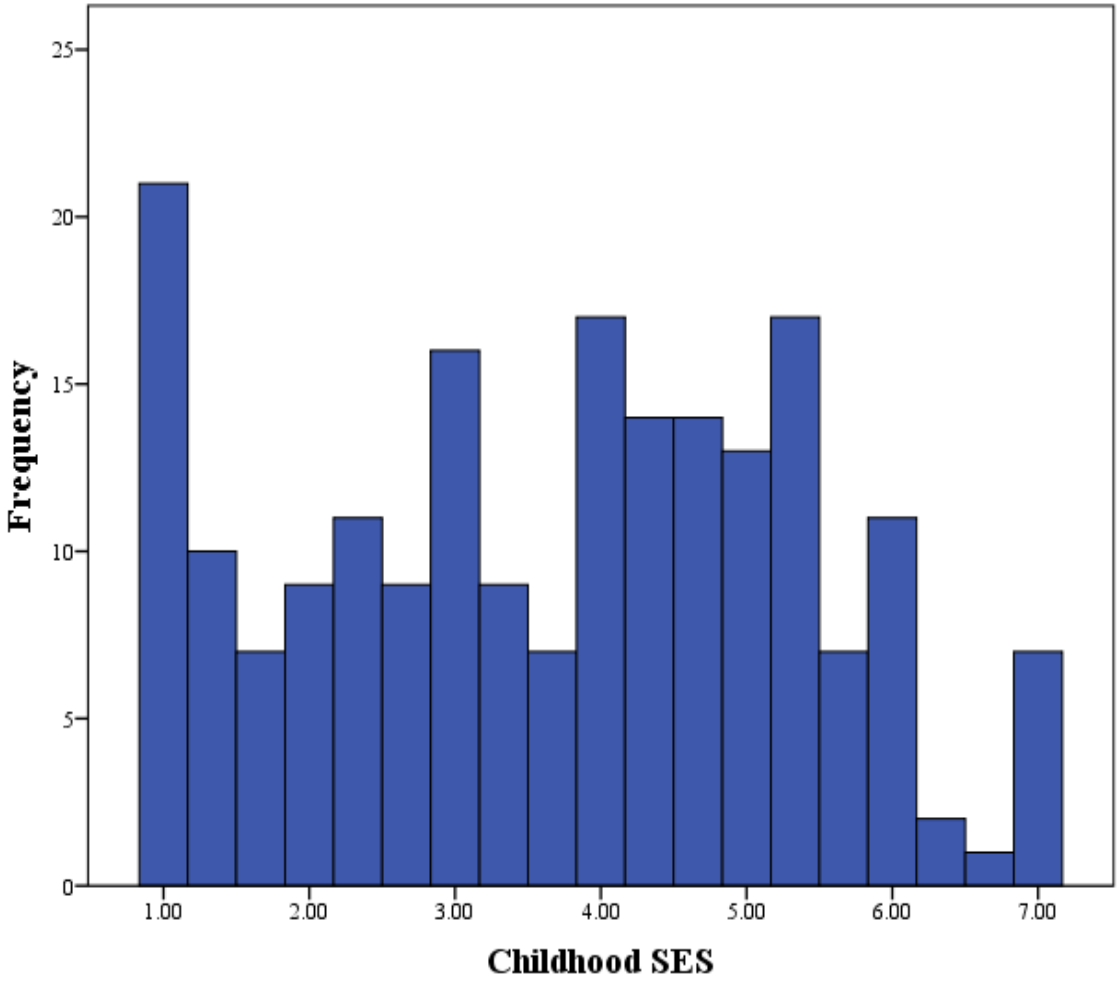
Size: 40 oz Price:$3.72

Or

Size: 32 oz Price:$2.38

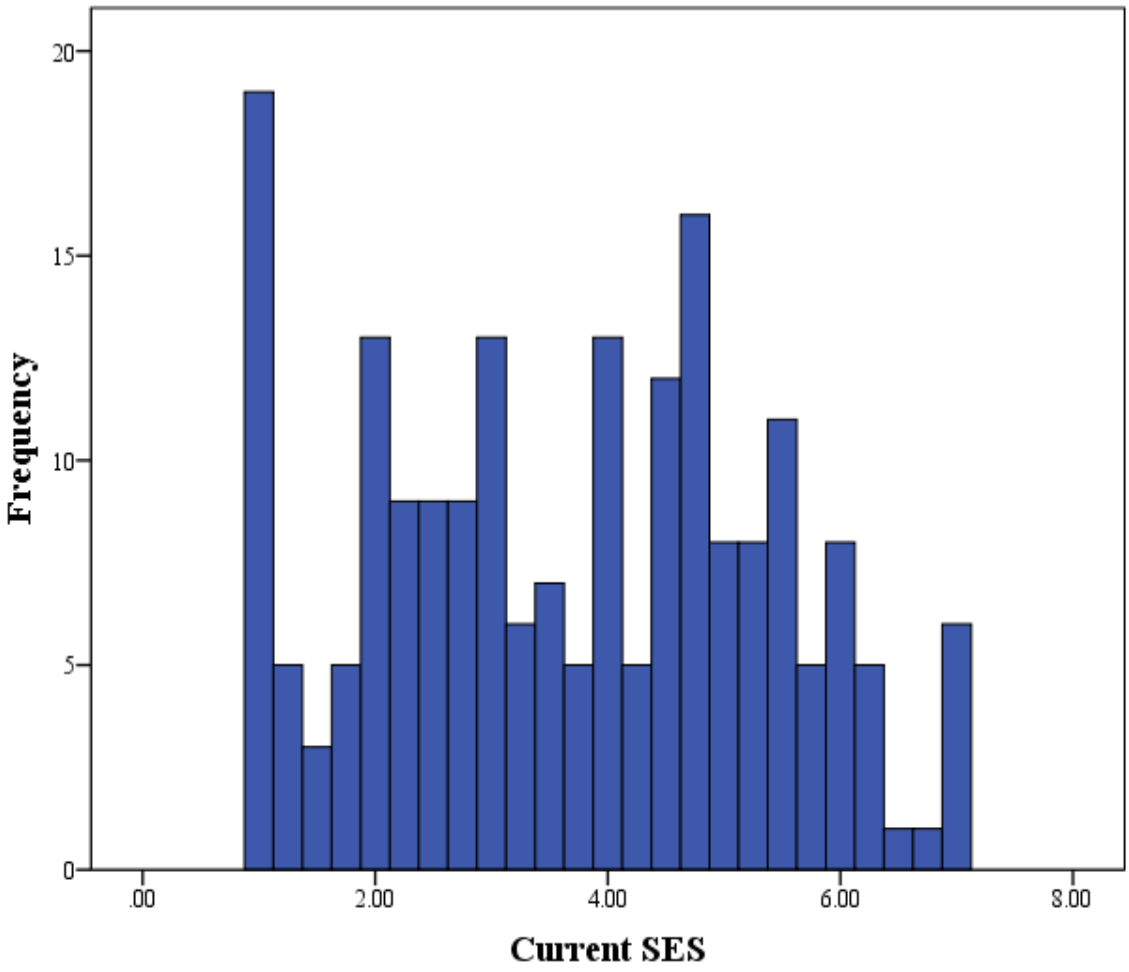
APPENDIX K

Frequency Distribution of Childhood SES in Study 3



APPENDIX L

Frequency Distribution of Current SES in Study 3



APPENDIX M

Ketchup Stimuli Used in Study 4

Heinz Tomato Ketchup

32 oz

$ 2.59

Heinz Tomato Ketchup

32 oz

$ 3.31

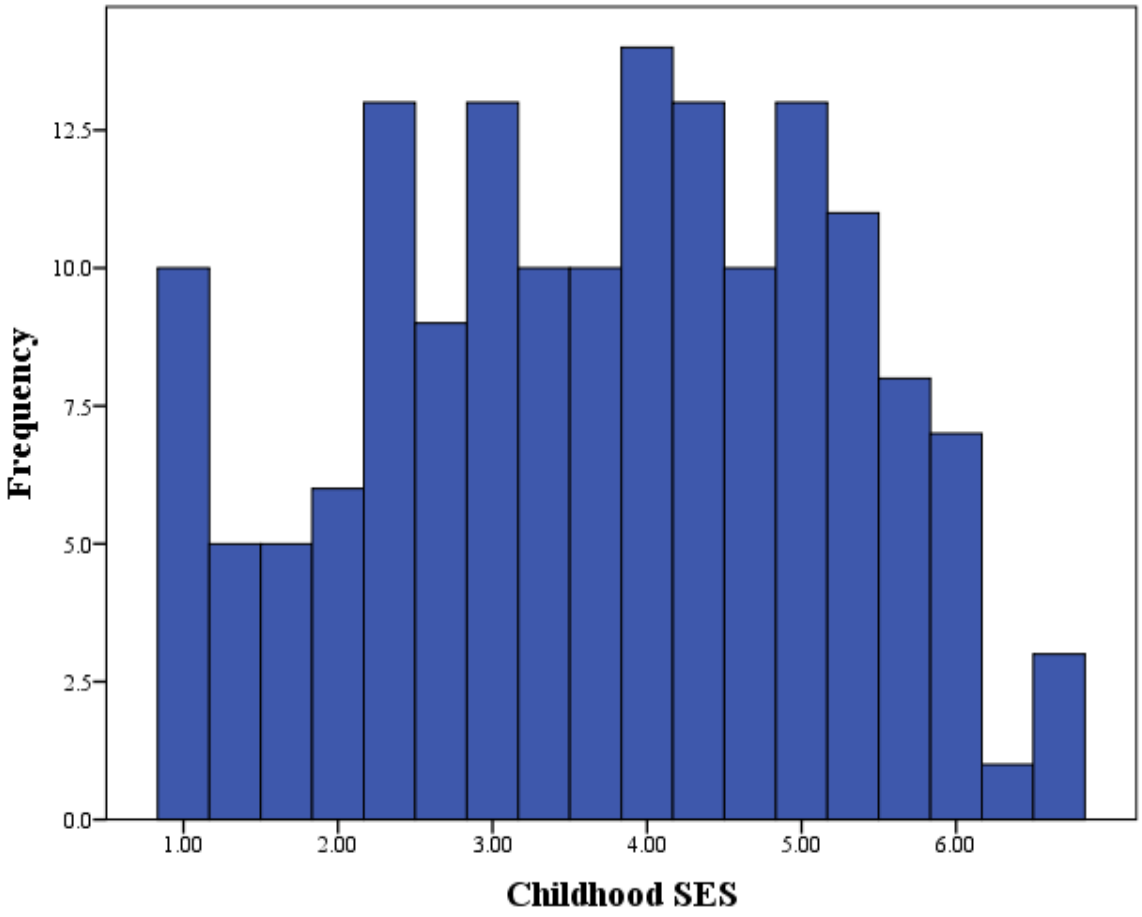
Heinz Tomato Ketchup

40 oz

$ 3.72

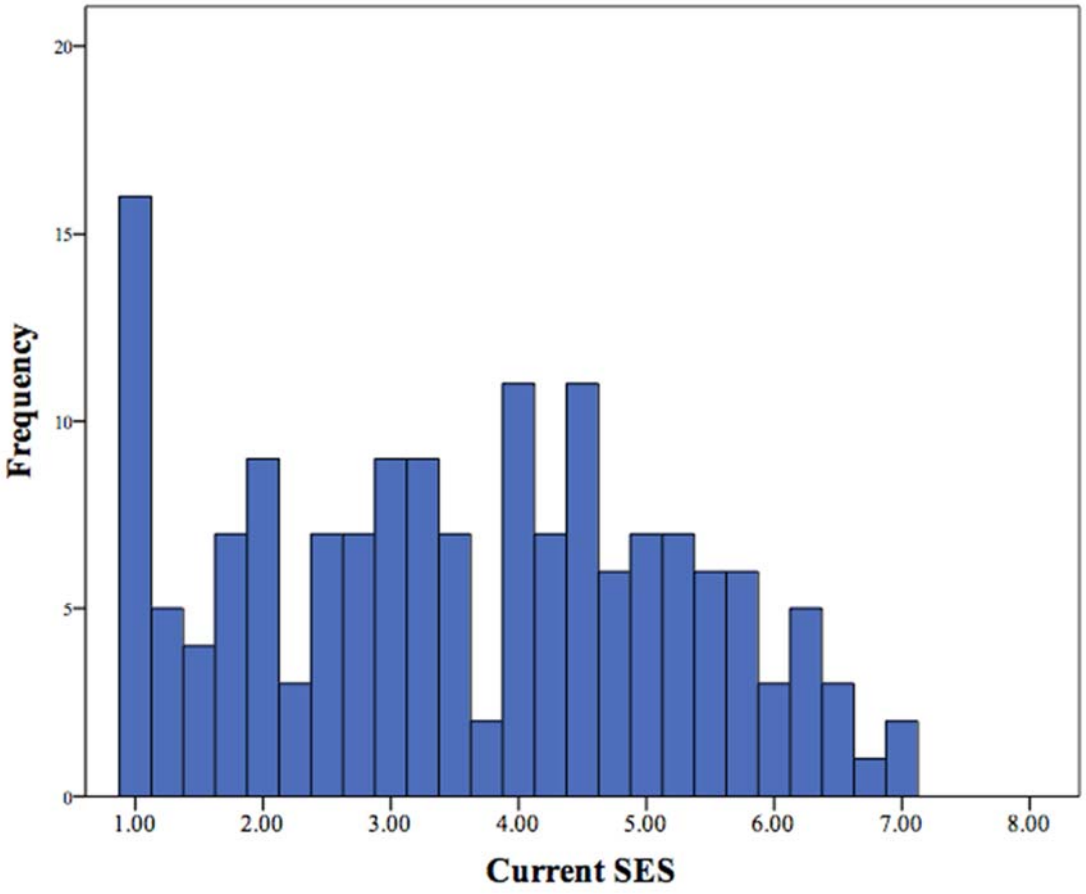
APPENDIX N

Frequency Distribution of Childhood SES in Study 4



APPENDIX O

Frequency Distribution of Current SES in Study 4



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