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In this issue:

- 4. Are Students Willing to Pay More? An Exploration of Peer-to-Peer Payment App Use Among College Students**
Philip Kim, Walsh University
Austin Fantin, Walsh University
Richard L. Metzger, Robert Morris University

- 17. Clinical Text Summarization using NLP Pretrained Language Models: A Case Study of MIMIC-IV-Notes**
Oluwatomisin Arokodare, Georgia Southern University
Hayden Wimmer, Georgia Southern University
Jie Du, Grand Valley State University

- 32. Navigating the AI Landscape: An Analysis of AI Developer Tools Usage, Sentiment, and Trust Among IT Professionals**
Wendy Ceccucci, Quinnipiac University
Alan Pleslak, Penn State University
Kiku Jones, Quinnipiac University

- 42. Applying Design Science to RPA and AI-Based Systems**
Biswadip Ghosh, Metropolitan State University of Denver

- 51. Action Research to Enhance Enterprise-Specific Chatbot (ESCB) Security & Performance**
Zachary Wood, University of North Carolina Wilmington
Geoff Stoker, University of North Carolina Wilmington

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Are Students Willing to Pay More? An Exploration of Peer-to-Peer Payment App Use Among College Students

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Abstract

When purchasing a good or service, there are now more optional payment methods than ever. Recently, Peer-to-Peer (P2P) payment applications (apps) have become popular. Extant literature shows that credit cards and mobile payments have an effect on how people interact with purchases and are evaluated by pain of payment, convenience, and willingness to pay (WTP) but P2P apps haven't been evaluated using those criteria. This study seeks to fill in that gap. The study compares P2P apps with debit cards and uses cash as a constant. Surprisingly, study participants found debit cards more convenient than P2P apps for the purchase of more expensive items. However, participants were willing to pay more for a given relatively inexpensive item if allowed to use a P2P app instead of a debit card.

Keywords: Mobile payments, Peer-to-peer payments, payment transparency, willingness to pay, pain of payment

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Are Students Willing to Pay More? An Exploration of Peer-to-Peer Payment App Use Among College Students

Philip Kim, Austin Fantin and Richard Metzger.

1. INTRODUCTION

Background

Living in a competitive, continuously evolving market economy presents challenges to both providers and consumers of goods and services. Knowledge of the inner workings of the economic system can advantage individuals of either group that determine their success or failure. This study seeks to enhance the body of economic knowledge concerning how alternative payment methods affect the price consumers are willing to pay. Specifically, it extends previous work done in this area to include the use of P2P apps on mobile telephones (i.e., the Venmo app) as a method of payment. Table 1 in Appendix A provides a brief overview of the review of the literature for this study.

Payment Transparency

Soman (2003) introduced the concept of payment transparency and explored whether or not the payment method(s) offered affected the price consumers were willing to pay for goods and services. The results of the experiment showed a difference in consumer willingness to pay that could be attributed to payment transparency. Payment transparency is affected by the "salience of form, salience of amount, and relative timing of money outflow and purchase" (Soman, 2003, p.175). For example, cash had high payment transparency since physical items (salience of form) with the exact price printed on them (salience of amount) were handed over. Furthermore, since cash can run out, it presents a natural stop to spending (Boden et al., 2020). Credit cards had low transparency since consumers quickly swiped them and could have overlooked the amount they were paying. Although mobile payments or Peer-to-Peer (P2P) apps were not widely adopted during the Soman (2003) study and hence were not included, these payment tools have become increasingly popular in recent years (Lara-Rubio, et al. 2021). Since mobile P2P payment apps do not require swiping a card (salience of form), an even lower payment transparency is suggested when compared to credit or debit cards. This study seeks to explore whether or not payment transparency affects spending behavior.

Pain of Payment

Zellermayer defined pain of payment as the mental distress experienced when purchasing something (Zellermayer, 1996) and is a negative feeling that can be heightened or lowered by a variety of antecedents. Prelec and Loewenstein (1998) proposed that there is a connection between thinking about the costs and benefits of purchase and the pain of payment for the item or service. They found that thinking about the cost could reduce the pleasure of the purchase while thinking about the benefit could increase pleasure. Demand elasticity is the degree to which demand changed based on a change in price (Graham & Glaister, 2004). Demand for products with high demand elasticity change greatly in response to small movements in price. Discretionary items or seasonal consumer goods such as pumpkin spice, chai tea, and ice cream are examples of discretionary/seasonal items. Conversely, non-discretionary expenses such as fuel for transportation have less pronounced changes in demand in response to price changes. This study found that participants reported a lower pain of payment for less expensive items (i.e., chai tea and ice cream), even if the demand for the product or good was not as high. Shoes are semi-elastic. The study population needed shoes, but there were many alternatives to choose from. So, it appeared Nike Air Max shoes might be viewed as a discretionary good. Consumer behavior research (Ramya & Ali 2016) suggests that people should experience lowered pain of payment when they think of the benefits of wearing the shoes. Finally, gasoline is a highly inelastic good with respect to demand. Cars are important to society, and a majority of them are fueled by gasoline. Study participants did not shop around for gas alternatives. Instead, they saw it as a necessity. This led to thinking more about the cost, which should have raised pain of payment.

Credit Card Premium

Owning a credit card could be a rewarding endeavor. Credit cards have used multiple different structures for rewarding consumers for use, including points, sign-up and minimum spend bonuses, and travel miles (MacDonald & Evans, 2020). Furthermore, allowing consumers to purchase in the present and pay later led to a

payment float (Jalbert et al., 2010). According to the theory of the time value of money, this gave consumers more purchasing power in the present (Fernando et. al., 2021). In addition to all of these factors, credit cards are quick, easy to use, and have a smaller footprint than cash. This increases the propensity to spend more money with credit cards, aptly called the credit card premium. (Feinberg, 1986).

Debit Cards

The credit card effect has held true with debit cards as well, specifically, the fact that incentives cause consumers to spend more. Debit and credit cards share many of the same benefits, such as speed of payment, smaller physical footprint, low payment transparency, and eye-catching designs. Clerkin and Hanson (2021) investigated the credit card effect when applied to debit cards. Their study involved incentivized checking accounts, where consumers were rewarded in specific ways for high spending and punished for low spending. When compared to non-incentivized accounts, there was an 18.8% to 20.4% increase in debit card usage (Clerkin & Hanson, 2021). The increase in spending due to incentives suggests that the credit card effect applies to debit cards as well. Furthermore, this validated the use of debit cards instead of credit cards in the study.

Mobile Payments

Mobile payment usage has spiked in recent years, primarily due to increased smartphone usage (Liu & Dewitte, 2021). Smartphones are no longer used only for phone calls, texting, and email, as was the case when they first arrived on the market. Among the wide range of features they offer is mobile payments. Since many college students consistently carry their smartphones, paying via smartphone is convenient. This also partially eliminates the need to carry a wallet regularly further enhancing convenience. Mobile payments are quickly replacing payment cards as a preferred means of payment due to their convenience. Despite this, many people have yet to use their smartphones for mobile payments suggesting that mobile payments are not more convenient for everyone.

Since mobile payments have a similar payment transparency to credit cards, the credit card effect was thought to apply to them as well. This was examined in multiple ways, the main one being willingness to pay (WTP). This was the method used in this study. WTP measured how much a consumer was willing to spend for a particular good or service. In the study, WTP

was examined before telling the consumer/participant what the price actually was. Liu and Dewitte (2021), examined the credit card effect on mobile payments. They found that there was not a significant effect on WTP between credit cards and mobile payments. Despite this, those who used mobile payments reported a lower pain of payment than those who used cash or a credit card.

Boden et al. (2020) furthered the research on mobile payments and suggested that since mobile payments are also charged to debit or credit cards, they should have had a similar pain of payment to cards. Phones also had the functionality to track banking instantaneously, yet they could distract from the pain due to their other apps. They hypothesized that mobile payments would only increase spending and convenience in areas where they were highly adopted. Boden et al. (2020) designed multiple purchasing scenarios to analyze WTP. A customer was primed with a specific purchasing method (cash, credit card, or mobile payment). After the priming, participants were asked their WTP for a variety of goods which changed in each study. The first study evaluated three different goods: coffee, ice cream, and a smartphone charger. It was found that higher adoption led to higher convenience, and therefore higher WTP (Boden et al., 2020). Due to this, WTP was only increased for those participants who adopted mobile payments. His second study replicated his first but applied it to a different geographical area. The same results were found here. Boden et al.'s (2020) third and final study examined WTP over four items and two price tiers, these items being ice cream, Americano, gas in a truck, and a dishwasher repair.

Since the advent of mobile payments, Peer-to-Peer (P2P) transaction apps have become popular. Venmo, CashApp, PayPal, and Zelle are among the most popular apps. These apps have become popular with millennials due to their easy availability on smartphones that millennials have widely adopted. It was found that 65% of millennials used at least one of these apps (Brown, 2017). Venmo in particular has increased its popularity by being a pseudo social media app. With users' permission, transactions and descriptions are posted on a public ledger, but monetary values are not. Caraway et al. (2017) found that the social media aspect of Venmo does not have much of an effect on how users use the app.

2. HYPOTHESES

H1: College students will find P2P payment apps more convenient than cash or debit cards, convenience being generally defined as the ease and accessibility of use.

H2: College students will be willing to pay more for low priced items with P2P payment apps than with cash or debit cards.

The hypotheses were based on the Boden et al (2020) study, where higher convenience led to a higher willingness to pay. The convenience factor was based on Soman's (2003) findings. Debit cards had a higher convenience than cash since a card took less time and effort to swipe than it did to count out bills. This study is seeking to examine if P2P apps would be even more convenient.

3. METHODOLOGY

The participants for this study were students ages 18 to 24 at a small private liberal arts university in the Midwest region of the United States. The study sought to examine undergraduate university students and therefore excluded graduate students, faculty, and staff at the university. Upon agreeing to participate, participants were randomly assigned to a cash, debit, or Venmo condition. A second part of the survey opened to those who said they had adopted a P2P app. Appendix B contains the survey, of which the conditional questions were based off the example questions from Boden et al. (2020) and adopted to my specific purchasing scenarios. The qualitative questions were developed to provide context and were not tested prior to survey release.

An online survey was created using Survey Monkey. A link to the survey was sent to the undergraduate student population at the university. Of the over 2,000 students enrolled for the fall 2023 semester, 230 survey responses were received. Of these, one student did not agree to the survey terms and did not participate. 54 participants said that they were not in the specified age and year range, and 4 left this question blank. This left 172 participants overall. There were 56 participants in the cash condition, 55 in the debit card condition, and 39 in the Venmo condition. Since Survey Monkey randomly assigned participants to these conditions, it must have been a random chance that more people assigned to the Venmo condition dropped out before the survey began.

Participants were assigned to one of three payment conditions (i.e., cash, debit card or mobile payment) before asking them about hypothetical purchasing scenarios. Since the survey focused on P2P apps, a decision to use cash, debit cards, and Venmo payment methods was taken. The use of debit cards instead of credit cards was decided upon because doing so eliminated the payment float of credit cards that could potentially skew the data. Since cash, debit cards, and Venmo were all paid immediately, these were the most comparable. Table 2 in Appendix A shows the effect that payment methods have on Willingness to Pay.

4. ANALYSIS

To analyze the data, two separate multiple regression analyses along with independent t-tests were performed. Unpaired t-tests were also utilized to evaluate the differences between WTP, convenience, and pain of payment between the debit card and P2P payment methods. Finally, Microsoft Excel's descriptive statistics tool was used to evaluate the descriptive statistics for cash, debit cards, and P2P.

Regression Analysis

The first regression evaluated convenience using price, method, and adoption. WTP responses were standardized and those scores were used in the regression analysis. For method, those who were assigned the debit card condition were coded as a "0", while those assigned P2P apps were coded as a "1". Cash was simply used as a constant. For adoption, those who signified that they used P2P apps were coded as "1", while those who did not were coded as "0." The adoption response has no relation to the method response. A respondent could theoretically have been assigned to the debit card condition yet still signified that he/she used a P2P app, thus being coded as a "0" for method yet "1" for adoption.

Higher Priced Items

Table 3 shows the results for the higher priced items. The regression examination of convenience for high priced items found a significance f of 0.0027. This was much below the expected set alpha of .05, which showed that the overall regression model was highly significant. Although multiple regression with three variables cannot be plotted on a graph due to visual constraints, multiple regression still attempts to establish a trendline.

Table 3: Results for higher priced items

	Coefficient s	t Stat	p-value
Intercept	13.705729 55	9.9879596 74	5.43445E- 16
Method	- 3.5777028 57	- 3.0195905 02	0.0033415 65
Adoption	2.2604447 48	1.6099941 46	0.1111068 87
Z-WTP	0.4538897 87	0.7387688 02	0.4620825 05

The significance of the regression showed that a theoretical line does exist, therefore showing that changes in convenience were influenced by changes in method, adoption, or WTP. This set the foundation for the rest of the analyses. Furthermore, as mentioned above, the method was coded as "1" for Venmo and adoption was coded as "1" for users. Even though these are dummy variables, they are still greater in value than the other option, which is "0". When this regression was examined, it was important that these were given higher values than the null hypothesis, which stated that there was no effect on convenience for participants assigned to Venmo or non-users. Since the significance of the overall model was established, the rest of the values could be analyzed.

The multiple R, or correlation coefficient, resulted in a value of 0.3899. This showed that there was a low to medium strength linear relationship in the regression model. This meant that not much of the change in convenience could be explained by changes in the other variables. This presented an interesting situation, where the model itself was highly significant but the correlation coefficient was weak. To add to the correlation discussion, the adjusted R Square was .1221. This was much lower than expected since only about 12% of the changes in convenience could be explained by changes in method, adoption, or WTP. The difference between the significance and adjusted r-square can be explained by the theoretical trendline from the regression equation. Since dummy variables were used, there was not ever going to be a great fit of the trendline (Frost, 2018). A higher r-square in this case would have meant that the values were more clustered together with a smaller standard deviation.

The method had a p-value of .0033, which made it the only statistically significant X variable in the model. Through establishing this, it could be said that the method of payment had a

statistically significant effect on convenience. This link was one of the main goals of this research, which makes this regression valuable. Therefore, the different payment conditions that students were assigned had an effect on their convenience responses. Interestingly, the t stat was -3.0195. This showed that participants reported higher convenience ratings for debit cards as opposed to Venmo. This was also the highest t stat on this model, showing that there was a strong negative effect of the method of payment. See Table 2.

Adoption had a P-value of 0.1111, which meant that it was insignificant in the regression analysis. This was unexpected, as it contradicted Boden et al.'s (2020) research that found adoption to be a highly relevant factor in convenience when related to mobile payments. WTP was also an insignificant variable with a P-value of 0.4620.

Lower Priced Items

Table 4: Results for lower priced items

	Coefficient s	t Stat	p-value
Intercept	13.895039 85	10.092145 62	3.35239E- 16
Method	- 3.9824273 03	- 3.3947620 77	0.0010458 48
Adoption	2.2906370 83	1.6391750 29	0.1048730 92
Z-WTP	0.8217868 44	1.1059793 48	0.2718559 18

Table 4 in shows the results for the lower priced items. The lower priced items (i.e., ice cream and latte) had similar regression values to the higher priced items. This showed that price did not seem to play much of a factor in the convenience ratings. For the lower priced item regression, the significance f was 0.0020, which showed that the overall regression model was significant. This also showed that the lower priced item regression was more significant than the higher priced item model. This meant that overall; the X variables had more of an effect on convenience for the lower priced items. The multiple r was 0.3984, which showed a nearly identical but slightly lower linear relationship in the data. The r square was also nearly identical at 0.1587. This was slightly higher than the higher priced items, showing that more of the variance in convenience was explained by the inputs. Due to these factors, the lower priced

items model would be considered a better model.

The method for low priced items had a P-value of 0.0010. Furthermore, the t stat was -3.3947, which was stronger directionally than the higher priced items. This was the same direction as it was for the higher priced items showing again that participants found debit cards to be more convenient than Venmo. Due to these factors, payment methods had more of an effect on convenience for the lower priced items. See Table 3.

Adoption had a P-value of 0.1048, and WTP had a P-value of .2718. This made neither of them significant as was the case for the higher priced items model. The t-stat for WTP for the lower priced items was 1.1059, while it was 0.7387 for the higher priced items. While still insignificant, this shows that participants put more weight on WTP when evaluating convenience for the lower priced items than the higher priced ones. This further shows that the X variables in the lower priced item model had more of an effect on convenience than for the higher priced items.

Descriptive Statistics

The descriptive statistics for the cash, debit card, and P2P conditions were analyzed. Since cash was a constant, this was the only analysis that could be performed on this condition. Utilizing cash as a benchmark for descriptive statistics, the difference between debit cards and P2P apps could now be analyzed. For each condition, the descriptive statistics for total convenience, total pain of payment, and total WTP were analyzed.

Cash

First, convenience for the cash condition was analyzed based on the five-point Likert scale convenience questions for the four scenarios. The mean for convenience was 10.4074, which resulted in a mean of 2.6018 per purchasing condition. This is above the halfway point on a five-point Likert scale, showing that participants found cash more convenient than not convenient. There was a minimum of 4, showing that at least one participant found all four purchases very inconvenient. Conversely, there was a max of 17. This showed that no participants found all purchases to be convenient.

Pain of payment had a slightly lower mean at 10.0925, which led to an average of 2.5231 for each purchasing condition. This was again above the halfway point, which meant that participants

found that paying with cash was more pleasurable than painful. Since the average was almost exactly in the middle of the possible values, participants were overall neutral on the painfulness of paying with cash. For pain of payment, the highest value was 20. This highest value is from a five-point Likert scale for four different scenarios. This meant that at least one participant found debit cards fully pleasurable for all the purchasing scenarios.

This was double the lowest rating for the cash condition. The maximum rating was 20, which again meant that a participant found every purchasing scenario fully convenient. This high total rating was not achieved in the cash condition.

Pain of payment for debit cards also had differences when compared to cash, but not as extreme as was found for convenience. The mean was 11.1636, which is only approximately 1.5 higher than the cash condition. While the mean itself was not a meaningful difference, the standard deviations were. Cash had a standard deviation of 3.1891, while debit had a standard deviation of 5.0580. Although cash and debit cards had similar means, this showed that participants were more varied in their feelings about pain of payment for debit cards. This could have potentially been due to the adoption of debit cards, which was not a question that was asked. Everyone had used cash to pay at some point, but not everyone had necessarily used a debit card. This variance in use could lead to a variance in feelings associated with the cards.

5. RESULTS

H1: College students will find P2P payment apps more convenient than cash or debit cards.
The study did not support rejection of H1o.

The difference between debit cards and P2P was tested in convenience regression analyses and t-tests, while cash was only tested in the descriptive statistics. The convenience regressions for both high and low priced items showed that the method was the only significant variable in the model, which showed that it did have an effect on convenience. There was a negative effect, which meant that participants responded that convenience went up with debit cards. This was validated in the descriptive statistics, which showed that the mean total convenience rating for debit cards was higher than that for P2P apps. The one-tail t-test also

showed a significant difference between the means, with debit having the higher values.

H2: College students will be willing to pay more for low priced items with P2P payment apps than with cash or debit cards.

The study supported rejection of the null hypothesis.

Much like convenience, WTP was tested primarily through the regression model and t-test. For the lower priced items, multiple step-wise regression models had to be created to arrive at a significant model. Adoption and convenience were eliminated to arrive at this significant model. In this final model, the method was the only significant variable with a t-stat of 2.0142. Since this showed that the method had a positive influence on WTP, this regression resulted in rejection of the null hypothesis. When the descriptive statistics were performed, cash had the highest WTP, followed by debit cards and finally P2P apps. The t-test examining whether P2P had a higher mean WTP than debit cards was significant, but it showed that debit cards had higher means. The same happened when the test between P2P and cash was performed.

6. DISCUSSION

The main discrepancy that was found in the data was the difference in WTP between high and low priced items, as shown by the regression analyses. This was not expected, since both hypotheses predicted that WTP for P2P would be higher in both scenarios. Furthermore, the regression analyses for convenience were nearly identical, so it was assumed that the same would hold true for the WTP analysis. There were multiple potential causes for this difference between high and low priced items.

The first possible cause for this difference could have been in the app design itself. When viewing Venmo's website, splitting costs for items seemed to be its major differentiator from other payment methods. On the main page, two of the three major uses listed involved splitting costs for something. In the study, ice cream and chai lattes could easily be put on one bill, which would warrant someone paying someone else back. In contrast, sneakers were a highly individual item. One person could have bought them, and only one person could have worn them at a time. The same could be said for gas since only one car could be filled up at a time. Unless people were travelling together, gas bills were not usually split. Due to these factors,

Venmo was more conducive to lower priced items. This could have led to a higher WTP for those items due to the added convenience of Venmo. Conversely, since Venmo would rarely be used for sneakers or gas, participants were not willing to pay as much with that payment method.

The other cause for the difference in WTP could be traced to the commitments needed to purchase each specific item. The lower priced items can be in-the-moment purchases without much premeditation needed, due to their low cost, time to consume, and pain of payment.

Mobile payments and Venmo behaved similarly, in which both participants need to have adopted the payment method to use it. The difference in the populations studied seemed to be the main cause for this difference. Boden et al. (2020) studied populations in the United States and India. In India, the study reported a 29% adoption rate of mobile payments as high. The United States was much lower, with Apple Pay being the most popular with only 10% adoption. The study found an 80% P2P app adoption rate.

Due to the lower adoption rates found in the Boden et al (2020) study, it would naturally be more difficult to find someone else who uses the same form of payment in order to complete a transaction. Since adoption is necessary for use, finding another user in a low adoption environment would have a large effect on convenience. As mentioned above, the study population had an 80% adoption rate. Due to this, a user would be able to assume with relative certainty that another person in the population would be a user as well. This makes adoption more of an assumption than a primary consideration, which means that it would not factor into how convenient P2P apps are. If another person in the population were not a user, then another method of payment would be found. This lack of adoption on another person's part would have cause a lowered convenience. Convenience still being a consideration was why adoption still had a relatively low P-value, albeit not a statistically significant one.

This contradicted what Boden et al. (2020) found in their study. They found that mobile payments were more convenient, but for only lower priced items (Boden et al., 2020). This showed that price did have an effect on convenience. They suggested security concerns as the reason, which if true, would have helped to explain why their findings could not be replicated. They used Amazon MTURK, which

consisted of primarily adult survey takers. College students and adults had differing views on online privacy due to the generational gap of the introduction of the Internet. This would have helped to explain much of the difference that was found.

This effect was even stronger for the lower priced items, and this could have been for multiple reasons. It was originally thought that Venmo would be more convenient, principally for the cost splitting reason in the discussion of the higher priced items. It was relatively common socially to combine a group outing into one bill.

Boden et al. (2020) found a positive relationship between convenience and WTP in their regressions. Although this same relationship was not found explicitly in the study models, debit cards were found to be more convenient than Venmo and had a higher WTP. Therefore, this implied that higher convenience relates to a higher WTP, which agreed as well with the extant literature. This disagreed with the hypothesis that Venmo would have higher convenience and WTP ratings.

Among all of the regressions evaluating WTP, adoption was the least significant X variable. This also contradicted Boden's et al.'s (2020) research, where it was found that adoption was a strong interaction with mobile payments. This could have been partially explained by the cultural changes that have happened in the few years since Boden et al.'s (2020) original study was performed. Overall adoption rates of P2P apps have only increased.

7. CONCLUSIONS

After evaluating all the regression models, it could be concluded that the lower priced items resulted in better regression models. In nearly every scenario, the f and P-values for the lower priced items were more significant than for the higher priced ones. Furthermore, this showed that a difference did exist between price levels in how college students were influenced by payment methods. This was most likely due to the differing levels of discernment required for purchasing at each price level, as previously discussed. More attention and care generally went into the decision to purchase sneakers or gas, since they had a greater effect on someone's financial well being than ice cream or latte did. This greater degree of thought could have lead to greater commitment to the purchase of a higher priced item. Once someone

was committed to a purchase, the price and convenience of paying became less of a factor.

For future studies, a less homogeneous sample was recommended. The study population was drawn from a small, private liberal arts university in the Midwest region of the United States. Although the study had many more responses than expected, this homogeneous sample lowered the generalizability of the results. This study filled gaps in the existing literature, specifically surrounding college students' interactions with payment methods while introducing literature on P2P apps. Overall, it was found that college students have unique interactions with payment methods and the results seem to vary within the extant literature. In future research, it would have been interesting to expand the research regarding P2P apps to the general population, instead of solely college students.

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APPENDIX A:

Table 1: Literature Review of Methods of Payment

Author(s)	Cash	Credit	Debit/Value	Mobile	Pain of Paying
Hirshman (1979)	✓	✓			
Falk et al. (2016)	✓	✓		✓	✓
Feinberg (1986)	✓	✓			
Zellermayer (1996)	✓	✓			✓
Prelec & Loewenstein (1998)	✓	✓			✓
Prelec & Simester (2001)	✓	✓			
Soman (2003)	✓	✓	✓		
Inman et al. (2009)	✓	✓			
Raghubir & Srivastava (2008)	✓	✓			
Moore & Taylor (2011)	✓	✓	✓		
Runnemark et al. (2015)	✓		✓		
Gafeeva et al. (2018)	✓		✓	✓	

Table 2: Effect of Payment Methods on Willingness to Pay

Author(s)	Mediators	Moderators	Dependent Variable	Location
Hirshman (1979)	Convenience		Basket size	US
Falk et. Al. (2016)			Store Price Image, WTP	EUR
Feinberg (1986)			WTP	US
Zellermayer (1996)			WTP	US
Prelec & Loewenstein (1998)		(Credit debt, credit line)	WTP	US
Prelec & Simester (2001)			WTP	US
Soman (2003)			Basket size	US
Inman et. al. (2009)			Basket size	US
Raghubir & Srivastava (2008)			WTP	US
Moore & Taylor (2011)			WTP	US
Runnemark et. al. (2015)			WTP	DK
Gafeeva et. al. (2018)			Recall error on spending	GER

APPENDIX B

Survey Questions

Cash Condition

- Imagine you are looking for a gas station to fill up your half-full RAM truck with 10 gal. You can only pay with cash. How much are you willing to pay for this?
- Imagine you are at a cafe and want to buy a chai latte. You can only pay with cash. How much are you willing to pay for this?
- Imagine you are at a park and are looking for ice cream. You can only pay with cash. How much are you willing to pay for this?
- Imagine you are looking for Nike AirMax sneakers. You can only pay with cash. How much are you willing to pay for this?
- How convenient would it be to pay with cash to fill up half of a tank in a RAM truck with gas?
- How convenient would it be to pay with cash for a chai latte?
- How convenient would it be to pay with cash for ice cream?
- How convenient would it be to pay with cash for Nike AirMax sneakers?
- How painful would it be to pay with cash to fill up half of a tank in a RAM truck with gas?
- How painful would it be to pay with cash for Americano?
- How painful would it be to pay with cash for ice cream?
- How painful would it be to pay with cash for Nike AirMax sneakers?
- Do you use peer to peer payment apps, such as Venmo, CashApp, PayPal, Zelle, etc.?

Debit Card Condition

- Imagine you are looking for a gas station to fill up your half-full RAM truck with 10 gal. You can only pay with a debit card. How much are you willing to pay for this?
- Imagine you are at a cafe and want to buy a chai latte. You can only pay with a debit card. How much are you willing to pay for this?
- Imagine you are at a park and looking for ice cream. You can only pay with a debit card. How much are you willing to pay for this?
- Imagine you are looking for Nike AirMax sneakers. You can only pay with a debit card. How much are you willing to pay for this?
- How convenient would it be to pay with a debit card to fill up half of a tank in a RAM truck with gas?
- How convenient would it be to pay with a debit card for a chai latte?
- How convenient would it be to pay with a debit card for ice cream?
- How convenient would it be to pay with a debit card for Nike AirMax sneakers?
- How painful would it be to pay with a debit card to fill up half of a tank in a RAM truck with gas?
- How painful would it be to pay with a debit card for a chai latte?
- How painful would it be to pay with a debit card for ice cream?
- How painful would it be to pay with a debit card for Nike AirMax sneakers?
- Do you use peer to peer payment apps, such as Venmo, CashApp, PayPal, Zelle, etc.?

Venmo Condition

- Imagine you are looking for a gas station to fill up your half-full RAM truck with 10 gal. You can only purchase this by paying a friend back with Venmo. How much are you willing to pay for this?
- Imagine you are at a cafe and want a chai latte. You can only purchase this by paying a friend back with Venmo. How much are you willing to pay for this?
- Imagine you are at a park and looking for ice cream. You can only purchase this by paying a friend back with Venmo. How much are you willing to pay for this?
- Imagine you are looking for Nike AirMax sneakers. You can only purchase this by paying a friend back with Venmo. How much are you willing to pay for this?
- How convenient would it be to pay a friend back with Venmo to fill up half of a tank in a RAM truck with gas?
- How convenient would it be to pay a friend back with Venmo for a chai latte?
- How convenient would it be to pay a friend back with Venmo for ice cream?
- How convenient would it be to pay a friend back with Venmo for Nike AirMax sneakers?

- How painful would it be to pay a friend back with Venmo to fill up half of a tank in a RAM truck with gas?
- How painful would it be to pay a friend back with Venmo for a chai latte?
- How painful would it be to pay a friend back with Venmo for ice cream?
- How painful would it be to pay a friend back with Venmo for Nike AirMax sneakers?

Qualitative Questions

- Do you use peer to peer payment apps, such as Venmo, CashApp, PayPal, Zelle, etc.? Which one(s) do you use and why?
- How many days of the week do you use one or more of these apps?
- Using a peer to peer payment app, would you be more willing to pay back a stranger or a friend?
- Imagine you owe a friend money. Would you be more willing to pay them back with cash or a peer to peer app?