



From Mail to Mobile – A New Generation in Payments



Results from the 2012 Diary of Consumer Payment Choice

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Abstract

Payments trends are changing in lockstep with emerging technologies and may be influenced by the generation in which a consumer was born.¹ This paper examines data from the Federal Reserve 2012 Diary of Consumer Payment Choice that tracked 2,467 participants who made 12,647 actual consumer payments totaling \$453,655 over a rolling three-day period in October of 2012. The analysis focuses on the generations — aged 18 through 94 — and how they made payments, including the median dollar value of payments, the frequency of the payment instrument used, the device used to pay (including mobile, computer or mail order) and the top five merchant categories where the majority of transactions were made. Exploring payments data through the generational lens is important because the younger generations — which include Gen X and Gen Y or those born after 1965 — now compose about 50 percent of the U.S. adult population. A key finding was that payment methods among generations from the oldest (Greatest/Silent Generation) to the youngest (Gen Y) showed a significant and dramatic crossover in payment choices. In the small segment (6.4 percent) where devices were identified, the oldest generation used mail for 32.4 percent of payments compared to the youngest generation who used mail for 3.5 percent. In contrast, Gen Y is leading the shift in mobile payments at 21.3 percent compared to 2.8 percent for the Greatest/Silent Generation. Exploring these trends may help merchants make more informed payment infrastructure decisions for the future.

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Introduction

Merchants today are faced with a confusing and changing landscape of emerging payments options, often driven by consumer adoption of new devices and systems. In the 4th quarter of 2013, the amount spent in retail consumer sales was estimated at \$1.147 trillion. More than 90 percent of those retail sales were made at the physical Point of Sale (POS) and an additional \$69 billion was spent in e-commerce (at 6 percent of total retail sales).²

With trillions of dollars spent each quarter, the payments choices consumers make today can have a major impact on the merchants and payments system of the future. In 2012, a national study, the Diary of Consumer Payment Choice, was conducted. The research revealed that a demographic shift in consumer payments choices has taken root: the younger generations are increasing their use of mobile payments and their choices are setting the payments course of the future.

The Diary of Consumer Payment Choice³ was a national⁴ online survey that tracked all payments made by participants over a rolling three-day period in October 2012. The Diary method was chosen because household surveys are one of the best ways to find out about individual consumer spending behavior and may also provide a comprehensive snapshot of individual demographics, including age, family size, income and education.⁵

Over the three-day period, 2,467 individuals, ranging in age from 18 through 94, completed the Diary, making 12,647 transactions and spending a combined total of \$453,655. Participants entered

all payments online and were also provided a Diary to record payments and purchases and to increase recall for more accurate reporting.

The Diary participants began at different times during the month, which provided variance in payments based on the time of the month. For example, people who began the Diary at the beginning of October may have made larger payments for rent or a mortgage because those payments are typically made in the beginning of the month. Participants recorded the following: amounts spent, the merchant or vendor where payments were made, the payment instrument used, including cash, check, credit, debit, gift card, or other payment type, and the payment device they used (including computer, laptop or desktop, tablet, mobile or landline phone, mail or delivery services) at the time of the actual transaction.

The 2012 Diary of Consumer Payment Choice⁶ was designed to provide a point-in-time snapshot of actual consumer payments behavior. In the 4th quarter of 2012, the amount spent in estimated total retail consumer sales was \$1.156 trillion. More than 90 percent of those sales were made at the physical Point of Sale (POS). An additional \$72 billion was spent in e-commerce (at 6.2 percent).⁷ With trillions of retail dollars at stake each quarter, the implications from an emerging generational preference for payments speed and efficiency may jolt merchants into an awareness of how important payments trends will be to their future success.

The Changing Payments Landscape: Then and Now

There is a flow and rhythm in the world of payments that is often influenced by the generation in which a person was born and their current life stage, which may have an impact on spending and savings cycles. Payments choices could be influenced due to the availability of payment options at the time the consumer was born and came of age, and the familiarity of using these payment choices, leading to ingrained payment preferences.

Payments choices have evolved over time and today's younger generations have more payment options than previous generations. Indeed, Generation X and Generation Y combined (those born after 1965) composed 50 percent of the U.S. adult population in 2011.⁸ Exploring the data through the generational lens is important because the younger generations will be the future drivers of payments trends.

In 2008, an analysis of grocery store data tracked the factors that influenced how people paid at the point of sale.⁹ Three important factors have played a role in the changing landscape of payments: faster payment transaction times, the age cohort in which people belong and adoption rates by available technologies.

Faster Payment Transaction Times

Prior to the late 1970s, payment choices included cash, check (including traveler's checks), money orders and credit cards. Since then, four more payment options were created: debit cards, prepaid cards, direct debit from one's bank account and online banking bill pay.¹⁰ Since 2007, the emergence of mobile technology offered faster payment options that expanded payments choices to another level, and opened the door for a new generation in payments options and users. Klee noted that transactions costs (measured in units of time) could have an effect on the payment choices consumers made at the time of an actual exchange.¹¹ For example, Klee noted that cash is the fastest payment method overall, followed by debit and credit cards, with checks being the slowest payment method of all at that time.

Payments Choices by Age Groups

Younger generations are accustomed to speed and efficiency; they have grown up in the technological age with computers in the classroom and smartphones as a typical teenage accouterment. The younger generation is driving the shifts in payments trends, with increased usage of mobile phones and computers to make purchases. Klee's study noted that payments choices differ by age groups, although the links were indirect.¹² In contrast, the 2012 Diary of Consumer Payment Choice showed direct differences in payments choices made by the generation in which the consumer was born. These differences were shown

Table 1: Generations by Birth Year and Percent of U.S. Population¹⁵

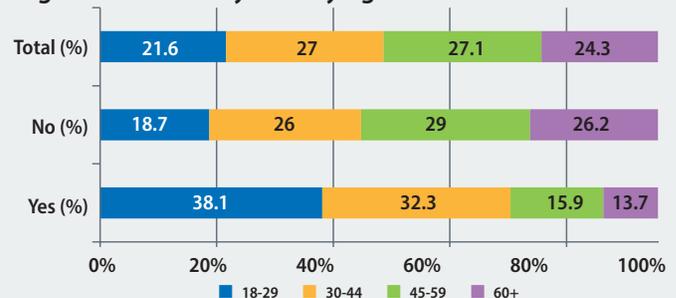
Generation	Birth Years	Percent of U.S. Population	Number of Records	Percent of Total Number of Records
Greatest Generation	< 1928	3%	11	0.45%
Silent Generation	1928 – 1945	14%	287	11.63%
Baby Boomer	1946 – 1964	33%	1,040	42.16%
Generation X	1965 – 1980	28%	642	26.02%
Generation Y	1981 +	22%	487	19.74%

by the variance in use of payment methods such as mail in the Silent Generation compared to emerging mobile payments made by the younger generations, including Gen X and Gen Y.

Adoption Rates By Available Technologies

While new technologies are available for all to use, adoption rates may vary according to factors such as the generation in which the consumer was born and the payment instruments they grew accustomed to using. For example, debit cards were introduced in the late 1970s but their use increased dramatically from 1995 to 2001: from 17.6 percent of families to 47 percent, according to data from the Survey of Consumer Finances (SCF).¹³ Likewise, payments initiated by the use of mobile phones emerged in 2007 and introduced a new level of speed and convenience in payments, with adoption rates increasing steadily among the younger generations. By 2012, the Federal Reserve System's Board of Governors triennial payments study revealed that the 18–44 age groups composed around 70 percent of mobile phone users.¹⁴ In contrast, more than 55 percent of people who said "no" to using mobile phones were aged 45–60+, compared to those in the age 18–29 age group at 18.7 percent, as shown in Figure 1. These findings suggest that the younger generations are more likely to be adopters of mobile phone payments because they are growing up with this technology as a norm for their peer group.

Figure 1: Mobile Payment by Age in 2012*



2012 Diary of Consumer Payments Choice: The Participants

The Diary participants were categorized into the following generational age groupings: Greatest Generation, Silent Generation, Baby Boomers, Generation X and Generation Y (also called “Millennials”). Because the Greatest Generation respondent category was so small, they are combined with the Silent Generation in most cases for purposes of the analysis. The respondents’ ages varied from 18 to 94. The birth year ranges for each generation, along with the Diary respondent’s record count and percent of respondents in each generation, are shown in Table 1.

In our study, the Baby Boomers were the largest proportion of respondents at 42.16 percent. Generation X (26.02 percent) and Generation Y (19.74 percent) together compose 45.76 percent. The Silent Generation combined with the Greatest Generation composed 12.08 percent of our study.

Other Factors Influencing Payment Methods and Devices: Income, Education and Age

In our study, we examined other factors for potential influences on payments choices, including age, income, education, payment method, and device type. Interestingly, income and education did not show to be strong influencers of payment choices among the generations. However, it appears that the combination of income and education is a stronger determining factor of payment method than age. The correlation of income and education is weak to moderate for the payment choices, but it is much stronger than either age and income or age and education. For device usage, the correlation was the strongest between education and income — rather than between age and income — when mobile phones were used as the payment device.

Payments Devices Shift Among the Generations: From Mail to Mobile

Diary participants could select the devices they used to make payments from the following categories: computers (laptop/desktop), tablet, mobile phone, landline phone and mail or delivery service. Mail was considered a device if participants used the mail or delivery services to order or receive items through the mail, or mailed in a payment for a bill.¹⁶

Perhaps the most dramatic finding is in the shift of payment devices among the generations. Mail or delivery services were used most by the Silent Generation at 32.4 percent, followed by the Baby Boomers (around 15 percent), with the least use by Gen X (7.4 percent) and Gen Y (3.5 percent). While this subset composed a small sample of 6.4 percent¹⁷ of the overall purchase data, the contrast between the oldest generation, which used mail order as a payment method, to the youngest generation, which increasingly used mobile devices, forms the payments bookends that mark the generational divide. The future of payments can be seen in the emerging payment choice of mobile phones, used mainly by those in Gen X (14.81 percent) and in Gen Y (21.26 percent). Figure 2 shows the generational shift between the Silent Generation and Gen Y, who are making the most purchases on mobile phones.

All of the generations used a computer to purchase items. The largest concentration of users was in Gen Y at 67.2 percent, followed by Baby Boomers at 64.6 percent, Gen X at nearly 63 percent and the Silent Generation at 57.4 percent.

Figure 2: The Generational Divide: Mail and Mobile Usage by Silent Generation and Gen Y

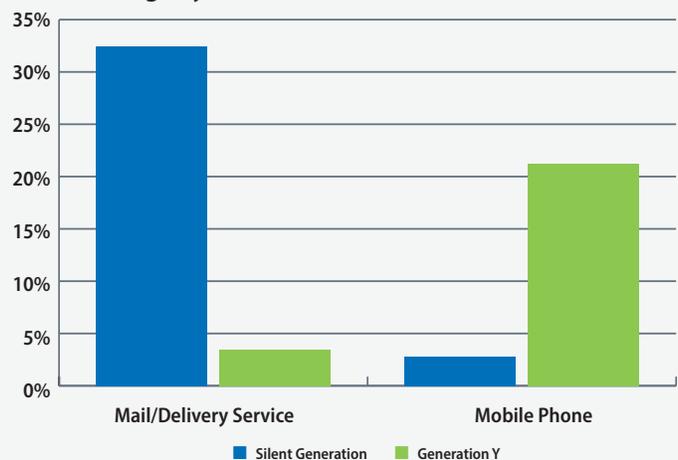
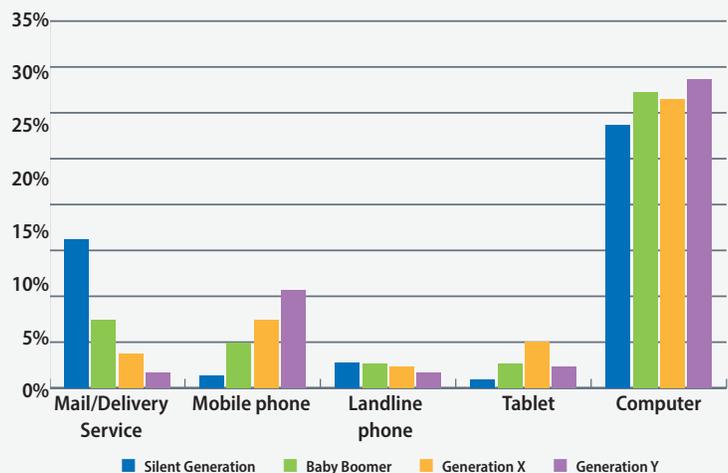


Figure 3: Payment Origination by Device for each Generation



How The Diary Respondents Paid

Median Purchase Amount by Payment Type

Money orders had higher dollar median payments (\$170) when compared to online banking bill payment (\$74), bank account number (\$52.17) and checks (\$45), respectively, followed by cards (credit (\$28), debit (\$20.06), prepaid/gift/EBT (\$8.85), cash (\$7.39), other payment (\$5.99), and then text message payments (\$3), as shown in Figure 4.

Payments Choices Among Generations: Cash Levels the Generational Divide

The payments categories that Diary participants could select included cash, debit and credit cards, checks, electronic payments¹⁸, and other payment types.¹⁹ It was striking to note that cash is the payment type used in more than 40 percent of the payment transactions for all of the generations. Baby Boomers used cash the most, at around 48 percent. Debit cards are the second type of payment method for all generations except for the Silent Generation, who used credit cards and checks more than the other generations.

Figure 4: Median Purchase Amount by Payment Type

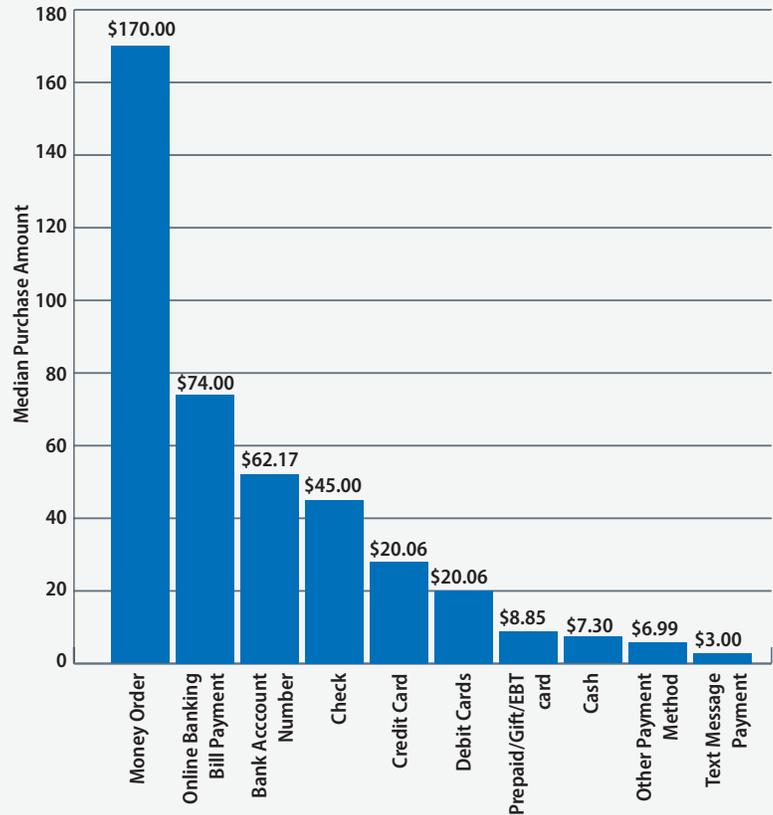
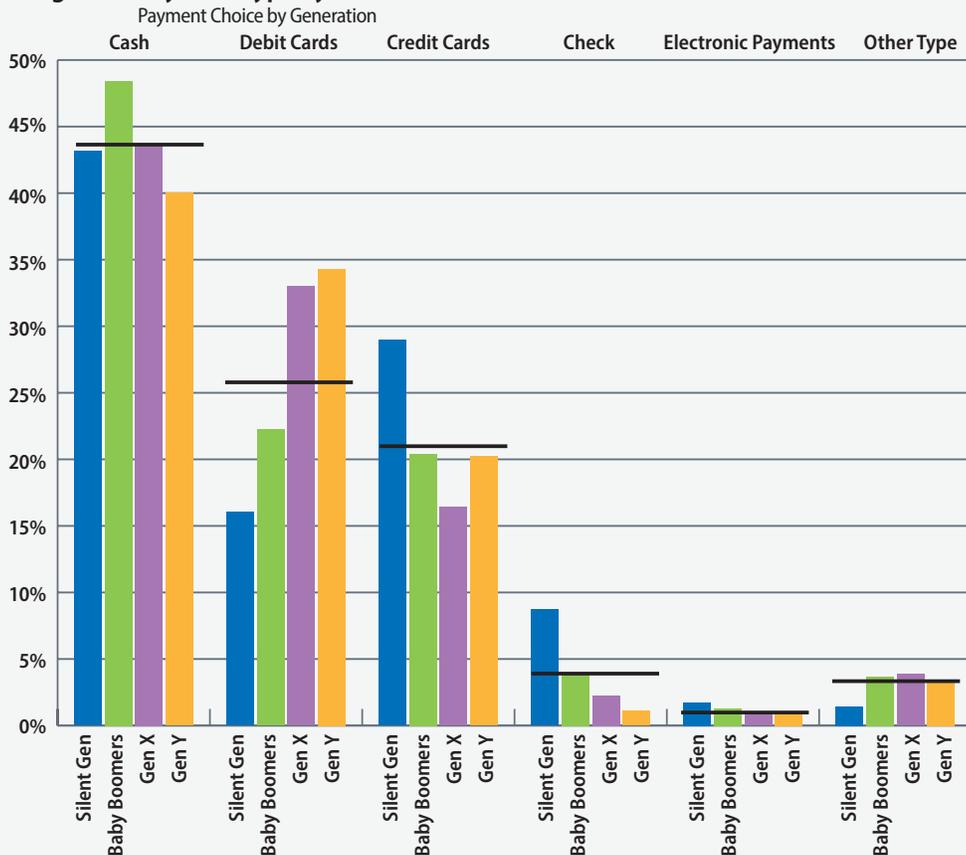


Figure 5: Payment Type by Generation



Median Payment Amount Among Generations

In general, cash was used by every generation for purchases that were less than the median amount of approximately \$7.50. The amounts spent on debit and credit cards were fairly consistent among the older generations (ranging from \$20 to nearly \$24 for debit and approximately \$25 to \$32 for credit), except for Gen Y, who spent less when using debit (around \$15) and credit cards (around \$19) than the other generations.

While check use in general has declined significantly for all of the generations, it was notable that the median amount for all of the generations fell into a relatively narrow cluster ranging between

\$44 to \$51. All of the generations used electronic payments for payments that exceeded \$50. The Silent Generation used electronic payments for the largest median amount of \$90, while the youngest generation, Gen Y, used them for the smallest median amount of around \$50.

Other types of payments, which include prepaid and gift cards, seem to be gaining traction among all of the generations, with Baby Boomers, Gen X, and Gen Y using them at about the same volume (3.67%, 3.87% and 3.32%, respectively) and the Silent Generation using them the least (1.43%). The Silent Generation

Table 2: Median Payment Amount by Generation²⁰

Generation	Payment type	Median Purchase amount	Percent of Total Number of Purchases by Payment Type	Number of Purchases
Silent Gen	Cash	\$7.00	43.14%	575
	Debit cards	\$23.78	16.05%	214
	Credit Card	\$29.09	28.96%	386
	Check	\$50.00	8.70%	116
	Electronic payments	\$90.00	1.73%	23
	Other type	\$21.46	1.43%	19
	Total for generation	\$17.85	100.00%	1,333
Baby Boomers	Cash	\$7.49	48.42%	2,716
	Debit cards	\$22.94	22.25%	1,248
	Credit Card	\$32.00	20.41%	1,145
	Check	\$44.00	3.98%	223
	Electronic payments	\$55.78	1.27%	71
	Other type	\$8.24	3.67%	206
	Total for generation	\$14.98	100.00%	5,609
Gen X	Cash	\$7.58	43.55%	1,532
	Debit cards	\$20.00	33.00%	1,161
	Credit Card	\$25.29	16.43%	578
	Check	\$51.00	2.27%	80
	Electronic payments	\$62.00	0.88%	31
	Other type	\$9.55	3.87%	136
	Total for generation	\$13.31	100.00%	3,518
Gen Y	Cash	\$7.00	40.03%	855
	Debit cards	\$15.13	34.32%	733
	Credit Card	\$19.18	20.22%	432
	Check	\$46.63	1.12%	24
	Electronic payments	\$50.62	0.98%	21
	Other type	\$5.15	3.32%	71
	Total for generation	\$11.49	100.00%	2,136

spent more money on these cards at a median amount of \$21.46 compared to the other generations, which ranged from a median amount of \$5 for Gen Y, nearly \$10 for Gen X and about \$8 for Baby Boomers.

2012 Diary of Consumer Payments Choice: The Merchants

Merchants today are faced with a changing landscape of payment options, often driven by consumer adoption of new devices and systems. Diary respondents reported their spending in 44 merchant categories that match the North American Industry Classification System (NAICS). These classifications are not always an exact match; however, Diary participants were asked to code the merchant that most closely matched where they paid. If they couldn't find a suitable match, they had the option to write in the merchant's or vendor's name. The following tables illustrate the top 20 highest median payments amounts made to merchants/vendors, (Table 3) followed by the top 15 merchants/vendors most frequently visited (Table 4) and then the top 5 merchants (Table 5) stratified by generations and payments most used (Figures 6–10).

The Top 20 Types of Purchases by Median Payment Amount

For actual dollars spent, the largest median payments amounts went to more expensive, but less frequent, areas that include mortgage, rent, auto rental/leasing and hospitals/residential care. An emerging trend for online payments is shown in two categories: "Phone/internet, online and print news, online games" (median purchase amount of \$48.50); and in "Online shopping" with a median purchase amount of \$33, as shown in Table 3.

The Top 15 Expenditures by Number of Purchases: Online Payments on the Rise

Of the 44 categories where Diarists coded their payments (and possibly more due to writing in merchants that didn't fit into the NAICS categories), the trend of online shopping emerged among the top 15 of expenditures by number of purchases made. This is an important finding in the future of payments, indicating an emerging trend that more payments may be made online, as shown in Table 4.

Table 3: Top 20 Types of Purchases by Median Payment Amount

Merchant Name	Median Purchase Amount	Number of Purchases	Percent of Total Number of Purchases
Mortgage	\$751.22	10	0.08%
Rent, real estate agents and brokers	\$438.33	20	0.16%
Auto rental and leasing	\$257.81	24	0.19%
Hospitals, residential care	\$96.25	7	0.06%
Building contractors (electrical/plumbing/HVAC, tile, painting, etc)	\$84.37	46	0.37%
Electric, natural gas, water and sewage	\$80.25	60	0.48%
Legal, accounting, architectural, and other professional services	\$76.60	11	0.09%
Hotels, motels, RV parks, camps	\$74.15	31	0.25%
Trash collection	\$65.00	6	0.05%
Veterinarians	\$58.50	25	0.20%
Phone/internet, online and print news, online games	\$48.50	72	0.57%
Repair / maintenance of electronics and personal and household goods	\$42.13	28	0.22%
Building services	\$35.00	18	0.14%
Auto maintenance and repair	\$34.74	180	1.43%
Financial services, insurance	\$33.46	45	0.36%
Online shopping	\$33.00	136	1.08%
Furniture & home goods stores, appliance & electronics stores, hardware & garden stores	\$32.89	128	1.02%
Clothing and accessories stores	\$31.83	367	2.91%
Taxes, fees, fines and other payments to governments	\$30.50	37	0.29%
Gas Stations	\$28.88	1,203	9.55%

The Top Five Merchants

Fulfilling the basic needs for food, clothing and transportation were the predominant categories for consumer payments over a rolling three-day period. The top five merchant categories in terms of total payments were Grocery (23.2 percent), Fast Food (22.2 percent), Restaurants and Bars (9.6 percent), Gas Stations (9.5 percent) and Department Stores (5.2 percent). While food-related categories were visited more frequently over the three-day period, the median purchase amount was significantly higher for Gas Stations (\$28.88) and Department Stores (\$25.75), as seen in Table 4.

Grocery and Convenience Store Payments

Cash and debit cards were the most frequently used payment choices among all generations. However, the Silent Generation used credit cards more than any of the other generations (33.92 percent), and at more than twice the rate of Gen X (14.14 percent) and Gen Y (16.9 percent). Checks were used the most by the Silent Generation, and the least by Gen X and Gen Y. For categories including other types of payments, such as Electronic and Mobile payments, Gen X emerged as the leader in adopting these payment choices, as shown in Figure 6.

Fast Food Payments

Among all four generations, cash was the main payment type used in over 50 percent of fast food payments, with a median amount of \$5 or less. The Silent Generation used mostly cash and debit cards for their purchases, contrasting with Gen Y who used credit cards at twice the rate of the Silent Generation or Baby Boomers. Baby Boomers led the way of using "Other" payment types, which includes electronic and mobile payment options, as shown in Figure 7.

Restaurants and Bar Payments

The Silent Generation paid higher amounts in cash (\$14.52) than the other three generations. An interesting trend emerged in credit card use with the Silent Generation and Gen Y using credit cards more frequently than Baby Boomers or Gen X, who used them the least, as shown in Figure 8.

Gas Station Payments

The most dramatic differences in gas payment choices were shown in Gen X, who used more debit cards (46.7 percent) to pay for gas than any other generation,

Table 4: Top 15 Expenditures by Number of Purchases

Merchant Name	Number of Purchases	Percent of Total Number of Purchases	Median Purchase Amount
Grocery, Pharmacy, Liquor Stores, Convenience Store (without gas stations)	2,925	23.21%	\$15.25
Fast Food, Food Service, Food Trucks, Snack Bars	2,797	22.20%	\$5.70
Restaurants and Bars	1,212	9.62%	\$17.00
Gas Stations	1,203	9.55%	\$28.88
Department/Discount Stores & Websites; Wholesale Clubs & Websites	651	5.17%	\$25.75
Other stores (book, florist, hobby, music, office supply, pet, sporting goods)	524	4.16%	\$18.00
Clothing and accessories stores	367	2.91%	\$31.83
Entertainment, recreation, arts, museums	263	2.09%	\$19.00
Friends and family	222	1.76%	\$20.00
Transportation (includes public transportation)	199	1.58%	\$6.50
Personal care, dry cleaning, pet grooming/sitting, photo processing, death care	197	1.56%	\$20.00
Auto maintenance and repair	180	1.43%	\$34.74
Charitable, religious, professional, civic (not government) organizations	177	1.40%	\$17.00
Doctors, dentists, other health professionals	162	1.29%	\$25.00
Online shopping	136	1.08%	\$33.00

while the Silent Generation used them the least (22.3 percent). Gen X and Gen Y used credit cards the least, while the Silent Generation used them the most at 41.1 percent, followed by Baby Boomers at 32.5 percent. Gen X and Gen Y may use more cash and debit cards to pay for their gas station purchases and less credit, as shown in Figure 9.

Department, Discount and Wholesale Clubs

There are dramatic differences in the payment choices by generation for these types of purchases. The Silent Generation used less cash and debit cards and more credit cards, checks and other payment types, which can include gift cards, as their preferred payment methods. This is a sharp contrast to the Gen X and Gen Y, both of which used cash and debit cards in more than 70 percent of their purchases at department stores. Credit cards had higher median purchase amounts, and Gen Y had the smallest median amount at \$32.78, followed by the Silent Generation at \$40.82 and Gen X at \$58.73 and Baby Boomers at \$57.64, nearly tied, as shown in Figure 10. The Silent Generation used checks more than any other generation, with no checks used at all for Gen Y. Check usage has declined and checks are not used at all in the youngest generation, which is an important trend for merchants to note.

Figure 6: Grocery and Convenience Store Payments

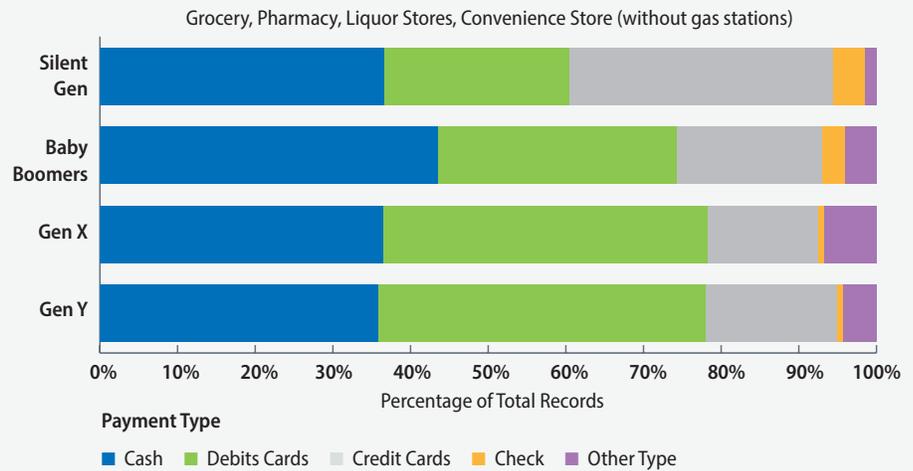


Figure 7: Fast Food Payments

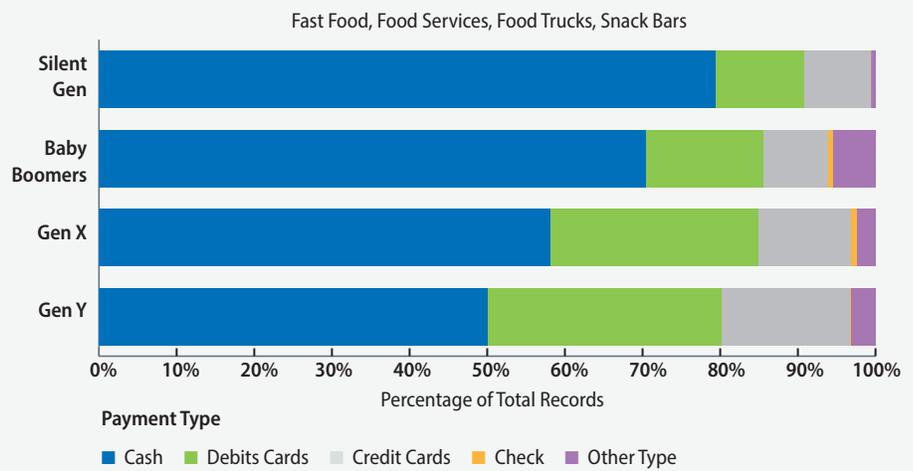


Figure 8: Restaurants and Bar Payments

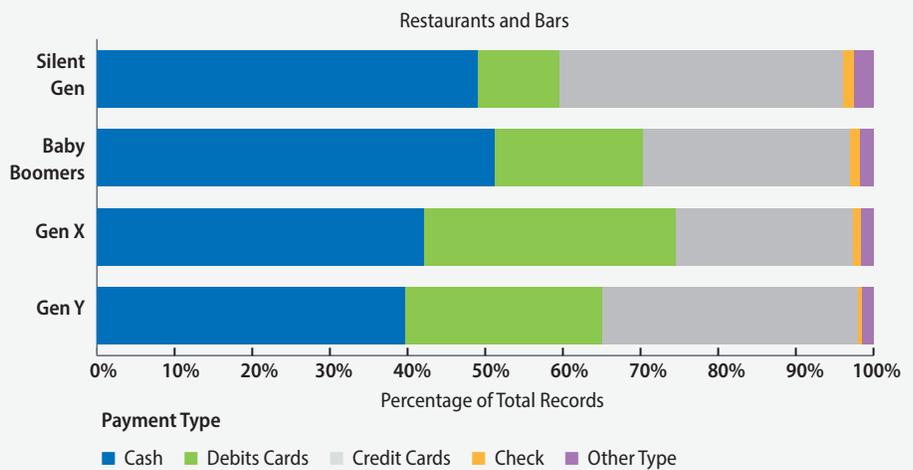
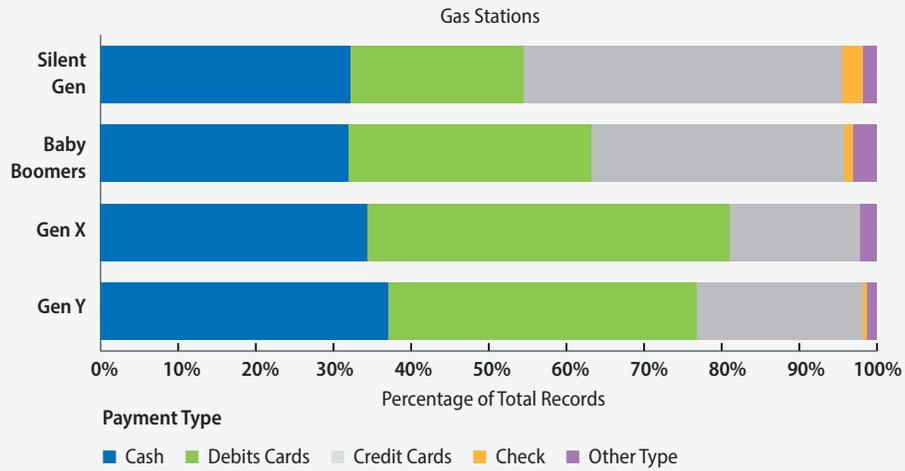
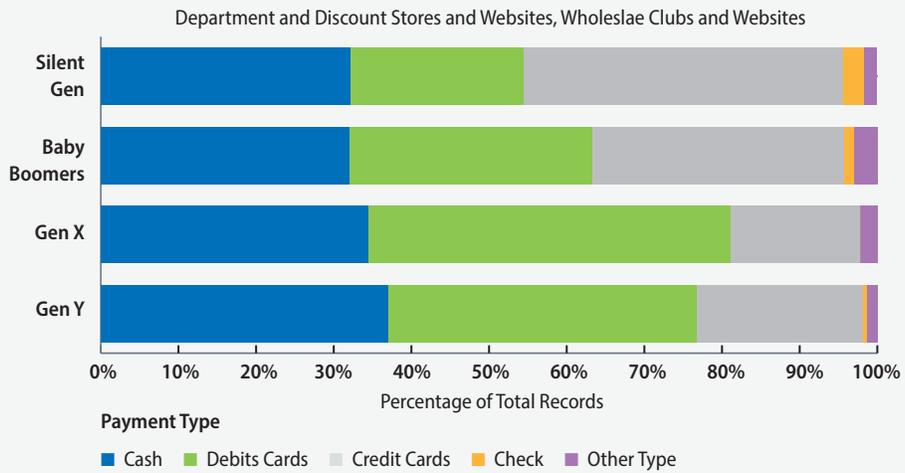


Figure 9: Gas Station Payments



**Figure 10: Department and Discount Stores and Websites
Wholesale Clubs and Websites**



Summary and Conclusion

The generation in which a person was born has a direct influence on consumer payments choice. These influences could be due to the availability of payment options at the time the consumer was born and came of age, and the familiarity of using these payment choices, leading to ingrained payment preferences. Payment choices have evolved over time and younger generations (which compose 50 percent of the U.S. population) have more payment options than previous generations. Speed and efficiency in payments remain important in payment adoptions.

The older generations still use mail (includes mailing an order form with a check, money order or a credit card number or paying a bill by mail) as a purchasing and payment method, which the younger generations rarely use. This is a stark generational contrast that shows the ends of the spectrum in consumer payments choices. Over time, legacy methods—such as mail—may find little demand. Although innovative and emerging technologies are gaining traction, payment choices are often driven by the amount of the payment, with lower payments made in cash, and higher payments made by credit card or checks. It seems there will remain a place for cash as a convenient payment method used by all the generations for lower ticket amounts.

Interestingly, income and education did not show to be strong influencers of payment methods among the generations. However, when payment devices were examined, the strongest correlation was found between education and income for Mobile Phone usage.

All generations are showing an increased usage of computers and mobile phones for purchases and payments due to ease of use, ubiquity of computers, improved confidence in security and

convenience. The older generations also have increased their use of online/computer purchasing, but they use it the least of all of the generations.

The top five merchant categories where payments were mostly made include groceries, fast food, restaurants and bars, gas stations and department stores. These merchants fulfill the basic items that people need now and will need in the future, so these merchants will be at the forefront of payments changes.

The younger generation's payment choices today have a direct impact on merchants in big ways: at Point of Sale (where about 90 percent of purchases are made), online and in the mobile payments arena. These payments compose trillions in retail dollars each quarter. As a result, all merchants, vendors and financial institutions will need to keep pace with emerging technology in order to compete in the changing payments landscape.

In summary, the 2012 Diary of Consumer Payment Choice has shown that the payments choices and devices used vary by the generation in which the person was born. The future of payments is in the hands of the younger generations today — and those who will come after Gen Y. By understanding the variations in the generations' current payment choices, merchants can have a better idea of what payment types they may want to offer in the future. This information could be an important predictor of future payment trends that could impact merchants, vendors and the entire payments ecosystem.

Footnotes

¹American Generations through the years," CNN Living, accessed February 5, 2014, <http://www.cnn.com/interactive/2011/05/living/infographic.boomer/index.html>. The study uses generational breakouts and population percentages as identified by Pew Research.

²U.S. Census Bureau News, The U.S. Department of Commerce, "Quarterly Retail E-Commerce Sales, 4th Quarter 2012," Estimated Quarterly Total Retail Sales: Total and E-commerce Table 1, https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf (accessed January 30, 2014). Total retail sales for the 4th Quarter of 2012 were estimated at \$1,156 trillion.

³In 2003, the Survey of Consumer Payment Choice was developed to track consumer payment information. The Survey depended on consumers' memories, which could often be faulty, leading to errors in the responses. In 2010, a paper instrument, in the form of an actual Diary that the consumer could write in that would provide a daily record of actual payments made at the time of the exchange, was developed. The Diary of Consumer Payment Choice is modeled on payments diaries used internationally by the central banks of Canada, France, Germany and the Netherlands (Arango, Carlos, et. al, "Cash Management and Payment Choices: A Simulation Model with International Comparisons," Bank of Canada Working Paper 2013-53, (2013): <http://www.bankofcanada.ca/wp-content/uploads/2013/12/wp2013-53.pdf>). As a survey type, diaries are valued because they ask respondents to write down what they do as they do it and to report it daily.

⁴The survey was conducted nationally. The largest percentages of respondents are in California (14.5 percent), followed by Texas 13.3 percent) and then New York (7.5 percent). The rest of the respondents are spread throughout the country. However, Wyoming and Hawaii did not have any respondents.

⁵Klee, Elizabeth, "How People Pay: Evidence from Grocery Store Data," *Journal of Monetary Economics*, vol. 55, no. 3 (2008): pp. 526–541.

⁶The Diary of Consumer Payments Choice was a collaborative project between three Federal Reserve Banks: Boston (Consumer Payments Research Center), San Francisco (Cash Product Office) and Richmond (Payments Studies Group). Since 2010, the Diary of Consumer Payment Choice has been conducted annually.

⁷"Quarterly Retail E-Commerce Sales, 4th Quarter 2012," Table 1.

⁸"American generations through the years."

⁹Klee, Elizabeth, "How People Pay: Evidence from Grocery Store Data," *Journal of Monetary Economics*, vol. 55, no. 3 (2008): pp. 526–541. These three factors were inferred based on discussion points that Klee's papers had raised regarding the impact of age, speed at check out and how quickly people adopt new technologies once they become available.

¹⁰Here are the ways in which these payment methods work:

Debit card: deducts directly from one's bank account at the time of purchase.

Prepaid card: has money stored or loaded onto the card before the time of purchase and one can put money on a prepaid card with another payment instrument.

Bank account number: providing one's bank account number to a third party via a website or paper sign-up.

Online banking bill pay: made from an individual's bank's bill pay website or mobile app.

¹¹Klee, "How People Pay," pp. 526–541.

¹²Ibid. The excerpt used is from the following paragraph on p. 538:

"The age statistics overall indicate that the probabilities of using different payment types are correlated with age. The older age groups are significantly more likely to use cash or check relative to the baseline head of household age, under 35. In contrast, the age statistics show that the age profile with respect to credit card use is nonlinear. Relative to the lowest age group, a higher proportion of families with a household head between 35 and 44 is correlated with a lower probability of using a credit card, while a higher proportion of families with a household head between 55 and 64 is correlated with a higher probability. In general, age is negatively correlated and education is positively correlated with debit card use. These results roughly agree with those found in survey data, and thus offer some evidence of preferences for payments that differ according to age."

¹³The Survey of Consumer Finances surveys a cross-section of U.S. households and is conducted every three years by the Federal Reserve in conjunction with the National Opinion Research Center at the University of Chicago. For details, see Aizcorbe et. al (2003). Cited by Klee, p. 528.

¹⁴Board of Governors of the Federal Reserve System, "Consumer and Mobile Financial Services 2013," <http://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201303.pdf> (accessed March 5, 2014).

¹⁵"American generations through the years." Note: The chart adds up to 97 percent because the Greatest Generation (people born prior to 1928) composes 3 percent of the population.

¹⁶Page 14 of the Diary Instructions: "You used USPS, FedEx, UPS or other delivery" for the device code for mail or delivery services.

¹⁷The analysis of the small segment of 6.4 percent of respondents was statistically significant: $p=0.01$.

¹⁸Electronic payments include Bank Account number payments, Online Banking Bill payment and Text Message payments.

¹⁹The "Other type" payments include Prepaid/Gift/EBT cards, Money orders, Traveler's checks (none) and those categorized as "Other payment methods" and not specified.

²⁰Merchant categories that had less than five respondents or did not select a merchant category were excluded from these results. The two exclusions that had less than 5 respondents were Heating Oil Dealers/Propane Dealers (1 respondent for \$139) and Rental Centers (3 respondents with a median amount of \$47). The 16 (13 percent) respondents who didn't answer had \$30 as their median payment amount.