

ANALYSIS

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The Impact of Electronic Payments on Economic Growth

Introduction

Greater worldwide card use raises a number of questions. Foremost, do electronic payments bring macroeconomic benefits?

Moody's Analytics attempted to answer this question by analyzing macroeconomic data for 70 countries/**regions** between 2011 and 2015. By calculating the impact of card usage on per capita consumption, Moody's Analytics was able to extrapolate the effect that the increase in spending on goods and services had on consumption and thereby GDP.

Specifically, Moody's Analytics estimated that higher card usage contributed an additional \$296 billion to consumption between 2011 and 2015, or a 0.1% cumulative increase in global GDP during the sample time period. That equals about a \$74 billion contribution to GDP each year. Real consumption grew at an average of 2.3% in the same period, of which 0.01 percentage point is attributable to increased card penetration. This implies that card usage accounted for about 0.4% of growth in consumption, as well as an average increase of 2.6 million jobs over 2011-2015.

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Executive Summary

Rising Card Payments Drive Economic Growth

Payment cards are not just convenient but also play a crucial role in stimulating economic growth in countries around the world.

Over the last 50 years, the rapid proliferation of electronic payments—in particular credit, debit and prepaid cards—has changed how consumers pay for goods and services, how merchants manage their businesses, and how governments make and collect all sorts of payments. Electronic payments provide consumers with convenient and secure access to their funds, reduce cash and check handling for merchants, and expand the pool of customers who are guaranteed to pay. Importantly, they also promote greater financial inclusion, giving those without access to the formal banking system an introduction to formal financial services. Electronic payments also give governments a greater ability to collect additional tax revenue by reducing the number of unreported transactions in the gray economy.

All of this reduces friction in the overall economy and leads to increased spending on goods and services. That, in turn, creates a virtuous economic cycle whereby increased consumption translates into increased production, more jobs, higher incomes and greater economic prosperity.

But just how much has the expansion of electronic payments contributed to global economic growth in recent years? What has been the impact on GDP and employment, and has this impact differed between developed countries and emerging markets?

Moody's Analytics set out to answer these questions by examining the impact that the migration toward electronic payments has had on 70 countries/regions around the globe over a five-year period between 2011 and 2015.

Together, these economies make up almost 95% of world gross domestic product. Overall, Moody's Analytics found that:

- » **Electronic payments added \$296 billion in real (U.S.) dollars to GDP in the 70 countries/regions studied between 2011 and 2015.** That is equivalent to the creation of about 2.6 million jobs on average per year over the five-year period, or about 0.4% of total employment in the 70 countries/regions.
- » **Countries/regions with the largest increases in card usage experienced the biggest contributions to growth.** For example big increases in GDP were recorded in Hungary (0.25%), the United Arab Emirates (0.23%), Chile (0.23%), Ireland (0.2%), Poland (0.19%) and Australia (0.19%). In most countries/regions, card usage increased regardless of economic performance. Only in the case of Finland, Greece and Tunisia did card usage decline when economic performance deteriorated or other macro events affected activity. As a result, consumption was weaker than it would have been had card penetration increased or remained unchanged.
- » **Increased electronic payments resulted in roughly the same percentage increase in GDP between 2011 and 2015 for emerging markets (0.11%) as for developed countries (0.08%).** However, when card usage increases by 1% across countries/regions, developed countries/regions experience a larger percentage increase in GDP (0.04%) than do emerging markets (0.02%). This suggests there is a compounding benefit for advanced countries/regions as electronic payments usage deepens.

- » **The expansion of electronic payments could have a significant, positive effect on future economic growth.** Across the 70 countries/regions in the study, we found that each 1% increase in usage of electronic payments produces, on average, an annual increase of approximately \$104 billion in the consumption of goods and services, or a 0.04% increase in GDP, assuming all other factors remain the same.
- » **Electronic payments could also have a significant improvement on spending habits.** Given recent card penetration rates, growth rates and the additive effects, Moody's Analytics calculated that consumption was 0.4% higher between 2011 and 2015 than it would have been if electronic payments had not increased; total consumption increased on average by 2.3% over the sample period. Because consumption growth is on average faster in emerging economies, emerging economies have more to gain by increasing electronic payments usage to speed consumption growth even further. Consumption growth in both emerging economies and developed countries/regions benefits from additional card usage. This study marks the third time that Moody's Analytics has conducted this analysis and the results suggest again that both emerging economies and developed countries/regions benefit from increasing electronic payments. However, penetration in and of itself will not necessarily spur growth. Successful penetration goes hand in hand with a well-developed financial system and a healthy economy. This study found that developed countries/regions had a larger dollar increase in GDP

than did emerging markets. On a cautionary note, slippage in electronic payments usage, such as that seen in Finland and Greece, is estimated to have reduced the resilience of consumer spending in these countries/regions to the downturn in their economies.

While this study provides a comprehensive look at the impact of electronic payments on economic growth between 2011 and 2015, it does not consider as exogenous variables in our model a country's fiscal policies nor the strength of a country's financial system such as the stability of the banking sector or prevalence of financial infrastructure such as ATMs. The study also does not analyze the effects of mobile phone payments—such as payments through cell phone apps, which are not directly tied to a credit, debit or prepaid card—which through widespread usage in emerging markets could increase penetration rates. That is, if anything, for emerging markets, the positive impact of electronic payments is conservative and potentially an underestimate. Still, the findings definitively highlight the important contribu-

tion that migration to electronic payments has made on economic growth and suggest that policies that speed card adoption would benefit economic growth across the globe.

The report is structured as follows: Part I provides an introduction to the report and briefly highlights the findings. Part II will discuss the various channels in which electronic payments usage can help the macroeconomy. Part III will discuss the methodology and provide an econometric model capturing the effects of card usage. Part IV will calculate and analyze the additional consumption and GDP brought about by rising card usage. Part V will analyze labor productivity and calculate the increase in jobs due to increases in card use. Part VI poses a hypothetical question to calculate the elasticity of electronic payments usage on consumption. Part VII outlines the evolution of the methodology between this and previous versions of this study. Part VIII concludes that there are significant economic gains to increased electronic payments penetration and thus there are also policy implications for governments.

Study Methodology

This study focused on the impact of increased card penetration on real private consumption in 70 countries/regions over five years between 2011 and 2015. The results were then extrapolated to estimate the impact that increased consumption had on economic output, as measured by GDP, and on job creation.

Real private consumption was modeled as a function of real disposable income, real interest rates and card penetration, defined as spending using credit, debit and prepaid cards as a share of overall consumer expenditures. The data were pooled for all countries/regions to create a data set with over 325 observations; a statistical technique called "pooled cross-section time series estimation" was used to estimate the model parameters.

Once the model was specified, this study calculated various measures to isolate the impact of card use on consumption, labor and GDP. To isolate the impact of usage, the change in card penetration between 2011 and 2015 was used.

Part I: Introduction: The Macroeconomic Impact of Electronic Payment Usage

Sixty years ago, most consumers used cash or checks to buy goods and services, with cash predominately used for smaller purchases and checks for more costly transactions. While cash remains the predominate form of payment in some places in the world, it has become a less common method of transaction as the advent of general purpose payment cards has allowed consumers and businesses to buy and sell with greater convenience. Today, consumers can make electronic payments with credit, debit and prepaid cards—and more recently, using all kinds of devices, from watches to mobile phones.

Greater worldwide card use raises a number of questions. Foremost, do electronic payments bring macroeconomic benefits?

Moody's Analytics attempted to answer this question by analyzing macroeconomic data for 70 countries/regions between 2011 and 2015. By calculating the impact of card usage on per capita consumption, Moody's Analytics was able to extrapolate the ef-

fect that the increase in spending on goods and services had on consumption and thereby GDP.

Specifically, Moody's Analytics estimated that higher card usage contributed an additional \$296 billion to consumption between 2011 and 2015, or a 0.1% cumulative increase in global GDP during the sample time period. That equals about a \$74 billion contribution to GDP each year. Real consumption grew at an average of 2.3% in the same period, of which 0.01 percentage point is attributable to increased card penetration. This implies that card usage accounted for about 0.4% of growth in consumption, as well as an average increase of 2.6 million jobs over 2011-2015.

The impact of card usage on consumption and economic growth varied considerably across the 70 countries/regions that were studied. This reflects differing economic growth rates, penetration, and financial systems. Financial systems conducive to the growth in electronic payments include control over

infrastructure as ATMs. Card usage increased consumption the most in Russia (0.64%), the United Arab Emirates (0.52%), Qatar (0.47%), Ireland (0.42%), and Hungary (0.4%). Card penetration rates increased by over 7 percentage points in each of these countries between 2011 and 2015.

Declining card usage decreased consumption by 0.003% in Greece and 0.04% in Finland. Severe recessions in both countries during the time period in addition to higher tax rates likely led to decreased card usage.

Additionally, the report includes a hypothetical study of the impact of a 1% increase per year in the card penetration rate in each country/region. Every 1% increase in card usage across the 70 countries/regions produces an annual increase of approximately \$104 billion in the consumption of goods and services, or a 0.04% increase in GDP, assuming all other factors remain the same.

The estimated GDP elasticity, or responsiveness of GDP to increases in card penetration, for developed countries/regions is higher than it is for emerging markets, because the card penetration rate is nearly three times the size for developed countries/regions, where it averages almost 42%, as it is for emerging economies, where penetration averages 16%. This is not surprising considering that developed countries/regions are places that have more established payment networks, consumers who are more comfortable using cards, and environments where cards are accepted by most merchants. By comparison, cash payments are still more prevalent in emerging economies.



Economy | Average contribution to GDP

0.10%

inflation and the money supply, a wide network of stable and readily accessible banks, insurance companies and pension funds, the existence of markets such as stock exchanges, and the availability of such financial

Part II: The Value of Electronic Payments: Less Friction, More Efficiency

Electronic Payments Benefit All Parties Involved in Many Ways

Within the electronic payments ecosystem there are two main end-parties: buyers (consumers) and sellers (merchants). The evolution to electronic payments from cash and checks has changed the behavior of, and in some cases the relationship between, consumers and merchants.

The availability of electronic payment systems leads to a virtuous economic cycle whereby increased consumption leads to increased production, more jobs, greater income, and, ultimately, stronger economic growth.

Although the study does not specifically explore the reasons for the incremental growth in GDP attributable to card usage, there are a number of plausible explanations: The advent of electronic payments has greatly aided consumers' ability to optimize consumption decisions by giving them secure and immediate access to all of their funds on deposit (debit cards) or a line of credit (credit cards). Merchants also benefit because there

is less cash and check handling in the system, and they have access to a large pool of customers with guaranteed payment. Electronic payments play a critical role in the rapidly expanding e-commerce environment where payment by cash or check is not usually an option.

Benefits to Consumers and Merchants

- » **Electronic payments provide access to financial resources.** Consumers using cash or checks may be limited in the amount of funds they have for particular transactions. With cash, consumers are limited to the funds they have on hand. Merchants may be reluctant to accept checks for bigger transactions because of the risk of nonpayment. Electronic payments address both of these issues: They provide consumers with access to all available funds or lines of credit for a given transaction and they give merchants peace of mind about payment

guarantees, provided they follow appropriate payment procedures.

- » **Access to credit helps calibrate periodic income with continuous consumption.** Wages and salaries are typically paid weekly, biweekly or monthly. Consumer spending, however, has no time profile. Putting food on the table or fixing a broken-down vehicle should not have to wait for the next paycheck. Credit smooths out the consumption of durable and nondurable goods by lessening the need to wait for paydays. In obtaining credit, consumers generally have three options: bank loans, store credit or credit cards. Credit cards are more convenient and offer lower consumer transaction costs, as the former two involve paperwork, hassle and a potential transaction-by-transaction waiting period.
- » **Cards provide consumers the means to participate in the digital economy.** In most cases, online shoppers are



required to use cards for purchases. Cardholders thereby have a larger variety of goods and vendors to choose from and a broader international marketplace is made available to consumers. Opportunities are limited for consumers using cash. Since online shopping is also completed with "the click of a button," the economy immediately receives a jolt to consumption and GDP.

Security

- » **Trust in electronic transactions further drives consumption.** With electronic payments, consumers have recourse for fraudulent transactions. The peace of mind that merchants have with guaranteed payment also extends to consumers, who feel more comfortable making purchases when

they can pay with a card. This trust in the payment system eases friction, bolstering consumption and thereby GDP growth.

Convenience

- » **Cards provide convenience and lower business costs.** Consumers cite the convenience of electronic payments, whether it means not having to visit the ATM to obtain cash or not having to count out the cash at the point of transaction. This convenience benefits merchants as well. For instance, when consumers use their own cards at the self-service gasoline pump or supermarket, it lowers labor costs for merchants. Each small portion of friction that electronic payments eliminate from the system contributes to higher consumption and GDP.

Transparency

- » **Electronic payments reduce central bank costs in providing currency.** By reducing paper transactions, electronic payments can reduce the cost to central banks of providing notes and coins or to Treasury or Finance departments of processing paper money, thereby improving overall efficiency in commerce and the economy.
- » **Electronic transactions eliminate a substantial portion of the gray economy.** Retailers who do not report some or all of their transactions to avoid paying certain taxes usually prefer cash transactions. Electronic transactions, on the other hand, are "above board" and create an audit trail that greatly reduces unreported transactions, thereby raising tax revenues.

Part III: Model Estimation

Electronic Payments, Private Consumption and GDP

The level of consumption and card usage is highly correlated. Consumers in developed countries/regions with more robust card infrastructure have the opportunity to use cards more often than in emerging markets. A natural question is: How much does greater card usage or card penetration contribute to consumption and GDP?

Essentially, the impact of card usage on GDP is a function of three factors:

- » Card penetration as a percent of total personal consumption expenditures (PCE);
- » The growth of card usage year-over-year relative to PCE; and
- » The actual percentage of GDP that is represented by personal consumption.

Methodology

This study estimated the impact of increased card penetration on consumption in 70 countries/regions over a five-year period. Those

results were used to estimate the impact that the changes in consumption had on job creation and economic growth, as measured by GDP.

In order to find the effect of card use, card penetration (spending using cards as a percentage of overall consumer expenditures) was included as an explanatory variable in an equation for consumption. Real private consumption (consumption adjusted for inflation) was modeled as a function of three factors: real disposable income, real interest rates, and card penetration. See the Appendix for the exact specification used and the results of the estimation.

The effect of card usage varies depending on the wealth of an economy. To capture this effect in the current study (as well as in previous reports), countries/regions were divided into two groups—developed and emerging—based on International Monetary Fund status. We create interaction terms between the country group and card usage, disposable income and interest rates,

to isolate the effect of each variable on a specific group.

By developing a model that estimates how consumption is directly affected by credit card usage, we can then construct a method to estimate the effect into the labor market and GDP.

In summary, the methodology is as follows:

- » The model uses real disposable income and interest rates from 2011 to 2014, using an estimate for the 2015 value.
- » Card penetration was reported for 2011 through 2015.
- » To measure the impact of card usage on GDP, the consumption figure was multiplied by the portion of GDP that is represented by consumer spending in each country/region. The model can therefore estimate the impact of card usage on the overall economy.

More details regarding the model can be found in the Appendix.

Part IV: Contribution of Card Usage on Consumption and GDP

Card usage plays an outsize role in driving consumption and economic growth in large part because card usage begets more card usage. As more cards are issued and more merchants accept cards, transaction volume grows. That is because consumers feel more comfortable using their cards for a larger percentage of their overall transactions once a critical mass of merchant locations is reached. At the same time, merchants want access to the growing pool of cardholders with guaranteed payment. In other words, a more robust payment ecosystem produces a multiplier effect that can result in significant increases in consumption.

Global

Electronic payments added \$296 billion in real (U.S.) dollars to GDP in the 70 countries/regions studied between 2011 and 2015. That is equivalent to the creation of about 2.6 million jobs on average per year over the five-year period, or about 0.4% of total employment in the 70 countries/regions. This corresponds to an average 0.18% increase in consumption per annum and a 0.1% increase in GDP per

annum between 2011 and 2015. Card usage increased around 4 percentage points on average across the 70 sampled countries/regions between 2011 and 2015, and led to the positive contribution to GDP.

Emerging Markets and Developed Countries/Regions

Both emerging markets and developed countries/regions experienced gains in consumption due to higher card usage. Increased card usage added 0.2% to consumption in emerging markets, compared with 0.14% in developed countries/regions between 2011 and 2015. The corresponding figures for GDP were 0.11% for emerging economies and 0.08% for the developed countries/regions. All figures are averages weighted by GDP over the countries/regions and the sample period.

The increase in consumption levels and GDP growth attributed to higher card usage was far closer between emerging markets and developed countries/regions than when Moody's Analytics previously conducted this analysis; however, as in the 2012 report, the

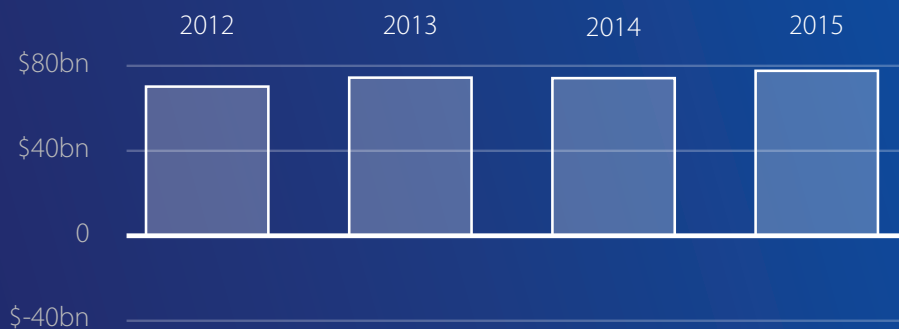
slightly greater for emerging markets countries/regions than for developed countries/regions.

The likely reason for the differing effects between the two groups of countries is the time period of the study. Specifically, the previous Moody's Analytics study included the Great Recession and the recovery. Recessions result in a contraction in domestic consumer spending. The Great Recession was particularly severe because it enveloped much of the global economy and especially affected higher-income economics. As such, the decline in consumption was exacerbated by weakened international flows of funds and goods. The recovery period saw generally lower consumption and disposable income growth than in non-recessionary periods because of the persistent debt crisis. During the period of the current study the majority of countries/regions were in recovery or expansion. Consequently, the increase in consumption due to increased card usage for developed countries has a similar impact as for emerging markets.

However, the results from both studies suggest that it is not just the mature markets

\$ Economy | Contribution to GDP growth

\$295.99bn



that benefit from increases in consumption due to increases in card usage. In recent years, emerging economies have reported sharp increases in card use. In developed economies, where card usage has matured, card use is increasing more slowly. The impact of the Great Recession slowed growth more among developed countries/regions than it did for emerging economies. That being the case, emerging markets can have a larger impact on GDP by further increasing their card penetration rates. This could be achieved by developing the retail payments infrastructure of emerging economies to match that of developed countries/regions, such as making electronic payments mechanisms more prevalent and available by giving merchants ways to accept electronic payments.

Regional Impacts

Results were not uniform across regions of the world. The Summary Table below gives the breakdown on average increases in consumption and GDP by region of the world.

South America and Oceania (Australia and New Zealand) experienced the largest gains in GDP due to increased card usage. Specifically, South America's GDP grew by an average of 0.2% per annum because of increased card usage, while Oceania experienced an average GDP growth of 0.12% per annum over the five-year period. Increased card usage contributed 0.12% per annum in North America and 0.1% per annum in Europe. Because of the somewhat lower penetration, card usage added 0.09% to GDP in the Middle East and 0.06% to GDP per annum in Asia.

As outlined, South American countries, with an average GDP increase of 0.2%

resulting from increased card usage, outperformed all other regional averages. The results for the region are supported by particularly high results from a few countries. For example, there was a 0.23% weighted average increase in GDP in Chile as card usage increased by around 7 percentage points. Improving Chilean banking services provide one likely explanation for the increased card usage. In Venezuela, which experienced a 0.3% weighted average increase in GDP, high inflation spurred more electronic payment utilization ahead of the expectation of even higher prices. Electronic payments also eliminated the need to carry large amounts of cash.

Oceania had the second largest average increase in GDP due to increased card usage of 0.12%. This was entirely due to the influence of Australia's 0.19% increase. New Zealand experienced a more modest 0.06% increase in GDP due to an increase in card usage. This region stands out because it is predominantly made up of developed countries and because of its extremely high card usage rate, which, at around 60% for countries included in the sample, is higher than the card usage rate in any other region.

African countries experienced on average a 0.05% increase in GDP due to increased card penetration. Many African countries are at early stages of developing their financial systems with appropriate infrastructure to support electronic payments. In coming years the increase in the use of mobile phone technologies to make payments is expected to increase electronic payments penetration. We note that South Africa, the most developed economy on the African continent, recorded an average 0.18% increase in GDP

from additional card usage, three times the regional average. This illustrates the strong benefits of electronic payments that accompany a developed financial services system.

Market-Level Results

Looking at national results for the 70 countries/regions included in the study, there are notable success stories and some markets where there is clearly room for improvement. A subset of the results can be found in Table 1B below, and more details regarding the amount of GDP added per year by country/region due to increased card penetration in relation to consumption and GDP can be found in Tables 1, 1A and 1B in the Appendix.

Russia recorded the biggest percentage rise in GDP of 0.33% as a result of increased card penetration. Card penetration rates in Russia increased by over 10 percentage points between 2011 and 2015, and led to an additional \$26 billion in consumption for the country during that period. Hungary also performed well during this time period, as it experienced a 0.25% increase in GDP due to increased card penetration. The country's card usage rate rose by over 7 percentage points during the five years in the sample, and helped the country increase consumption by \$1.4 billion over this time period. Other top performers include Australia, the United Arab Emirates, Chile, Ireland, Mexico, Peru, South Africa, Argentina, Poland and Uruguay. Of this group, it is worth noting that the UAE, Chile and Argentina each recorded a 0.23% increase in GDP due to increased card usage during the time period. Like the other notable markets, these three countries experienced over a 6 percentage point increase in card usage. As these results display, countries in all regions benefited from increased card usage, but it was the emerging economies primarily that had the largest increases.

Meanwhile, at the other end of the scale, declining card penetration rates reduced consumption by 0.04% in Finland, by 0.003% in Greece, and by 0.0005% in Tunisia. These declines were also due to the very low or negative relative growth rates in these countries during the period with all three economies enduring deep downturns.

Summary Table: Average Increase in GDP from Increased Card Usage, %

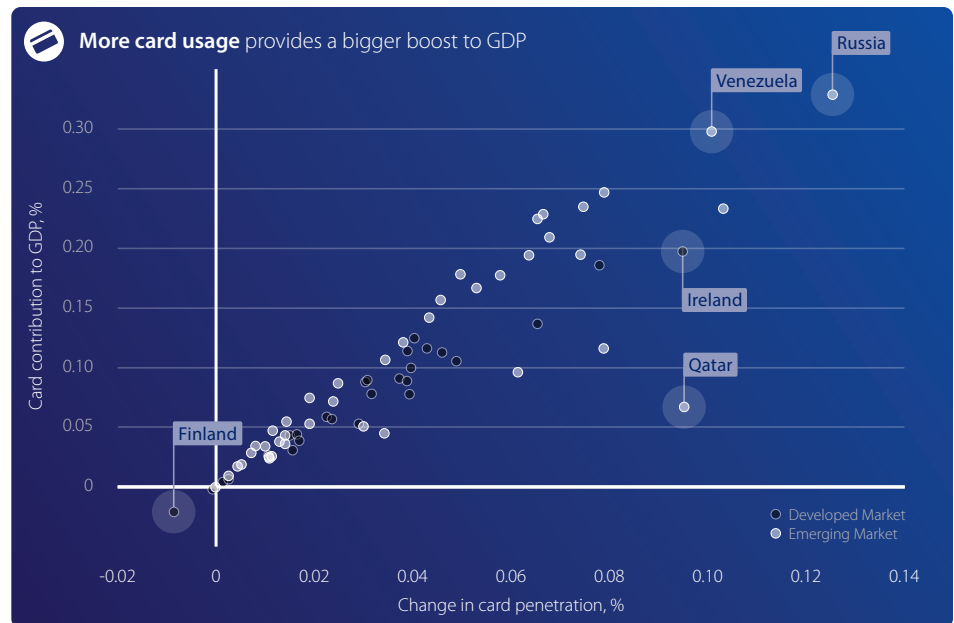
| Region | Average Weighted by GDP | Average Weighted by Consumption |
|---------------|-------------------------|---------------------------------|
| South America | 0.20 | 0.33 |
| Oceania | 0.12 | 0.22 |
| North America | 0.12 | 0.18 |
| Europe | 0.10 | 0.18 |
| Middle East | 0.09 | 0.23 |
| Asia | 0.06 | 0.12 |
| Africa | 0.05 | 0.08 |

Table 1B: Card Usage's Contribution to GDP*% average between 2011-2015 weighted by GDP*

| | | | | | | | |
|----------------|-------|------------|-------|--------------|------|---------------------|-------|
| Argentina | 0.23 | Greece | -0.00 | Netherlands | 0.08 | South Korea | 0.04 |
| Australia | 0.19 | Hong Kong | 0.09 | New Zealand | 0.06 | Spain | 0.01 |
| Austria | 0.09 | Hungary | 0.25 | Nigeria | 0.03 | Sri Lanka | 0.04 |
| Azerbaijan | 0.03 | India | 0.07 | Norway | 0.05 | Sweden | 0.03 |
| Belgium | 0.04 | Indonesia | 0.05 | Oman | 0.10 | Switzerland | 0.06 |
| Brazil | 0.17 | Ireland | 0.20 | Peru | 0.21 | Taiwan | 0.09 |
| Cambodia | 0.05 | Israel | 0.00 | Philippines | 0.01 | Thailand | 0.19 |
| Canada | 0.10 | Italy | 0.12 | Poland | 0.19 | Tunisia | -0.00 |
| Chile | 0.23 | Japan | 0.04 | Portugal | 0.09 | Turkey | 0.22 |
| China Mainland | 0.05 | Jordan | 0.03 | Puerto Rico | 0.09 | UAE | 0.23 |
| Colombia | 0.11 | Kazakhstan | 0.02 | Qatar | 0.07 | UK | 0.11 |
| Czech Republic | 0.11 | Kenya | 0.03 | Russia | 0.33 | Ukraine | 0.07 |
| Denmark | 0.14 | Kuwait | 0.04 | Rwanda | 0.02 | Uruguay | 0.18 |
| Egypt | 0.01 | Lebanon | 0.05 | Saudi Arabia | 0.12 | USA | 0.12 |
| Finland | -0.02 | Malaysia | 0.04 | Serbia | 0.12 | Venezuela | 0.30 |
| France | 0.03 | Mexico | 0.16 | Singapore | 0.10 | Vietnam | 0.14 |
| Germany | 0.08 | Morocco | 0.04 | Slovakia | 0.11 | Emerging Markets | 0.11 |
| Ghana | 0.03 | Myanmar | 0.02 | South Africa | 0.18 | Developed Countries | 0.08 |

In some cases other macro events such as acute political upheaval and changes in taxation policies played a role. The decline in penetration rates exacerbated the weakness in consumption due to the economic struggles in these countries.

As the graph above shows, there is a strong correlation between larger increases in card usage and card contribution to GDP. This correlation held for both emerging markets (orange) and developed countries (green). Russia, an emerging economy, appears in the top-right part of the graph, while Finland, a developed country, appears at the bottom-left part of the graph. Of note is the one emerging economy outlier, Qatar, which despite increasing card penetration by almost 10 percentage points, experienced only a 0.07% contribution to GDP from increased card usage. This compares to Ireland, a developed country that had almost a 10 percentage point increase in card usage but an estimated 0.2% increase in GDP due to increased card penetration. While both coun-



tries experienced between a 0.4% to 0.5% increase in consumption due to increased card usage, consumption makes up a much larger share of GDP in Ireland (45%) than it

does in Qatar (15%) because of Qatar's huge share of oil exports. Consequently, the boost to consumption had a larger relative impact on GDP in Ireland than it did in Qatar.

Part V: Contribution of Card Usage on Employment

As consumers spend more, firms increase hiring to accommodate the additional demand for goods and services. Consequently, we can calculate the number of jobs created as a result of the additional GDP from electronic payment usage.

Increased card usage added almost 2.6 million jobs per year across the countries/regions sampled between 2011 and 2015. That corresponds to a 0.001% average boost to jobs per year between 2011 and 2015.

Countries/regions with the largest number of job gains per year were also the largest countries/regions. Notably, the two with the greatest average job increases were Mainland China (427,000 jobs added) and India (337,000 jobs added), which both had large gains in employment because of the combination of fast growing labor productivity and in-creasing card usage. Led by these emerging markets, the emerging markets group averaged a greater number of jobs added per year (43,600) than did developed countries (14,800).

As was the case with GDP gains, job gains were not uniform across regions in the world. Here, North America had the highest average job gains per year (69,000), followed closely by Asia (62,000). Africa had the fewest average number of jobs added per year from in-creased card usage (8,000), which is not surprising given the region's low usage rates and developing financial infrastructure to allow for electronic payments to be more widely accepted. The Middle East had the second lowest average jobs added per year (9,000), but this was likely a result of the relatively smaller population than in the other regions.

Table 2 below provides a subset of our results. More details regarding job addi-

tions can be found in Table 2A and Table 2 in the Appendix.

For the majority of countries/regions, card usage drove higher consumption and in turn GDP regardless of the size of the economy, card penetration or growth rate. So while country/region size matters, countries/regions with higher card usage rates tended to outperform countries/regions with lower card usage rates.

The additional GDP accompanied increases in employment depending on the labor productivity of the country/region. Developed countries/regions tend to have higher labor productivity than emerging markets, primarily because developed countries/regions tend to be more industrialized. This includes better infrastructure, a faster rise in technological change, and a sturdier financial system made up of

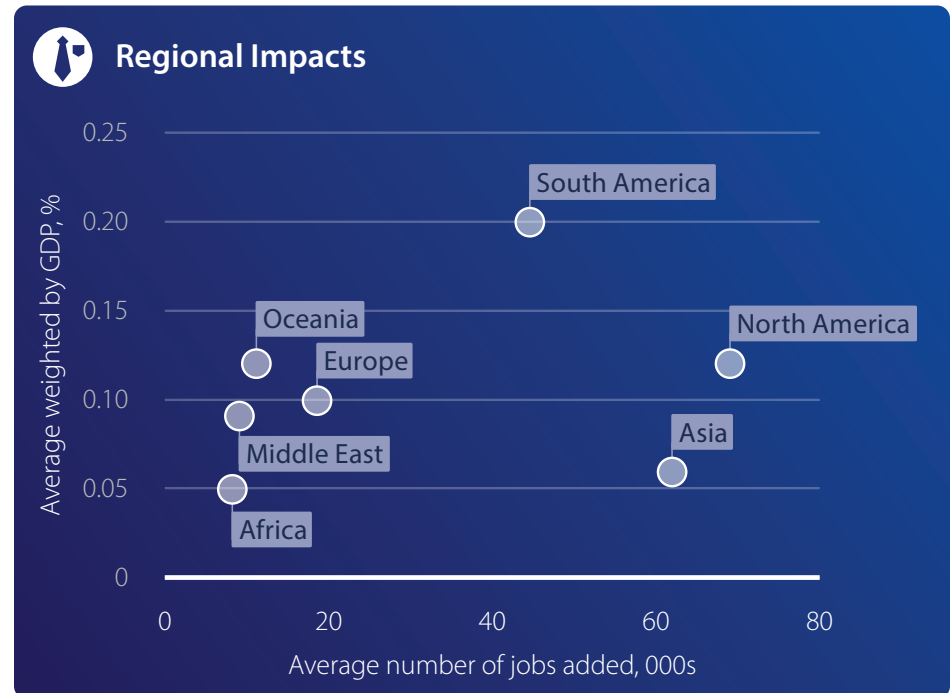
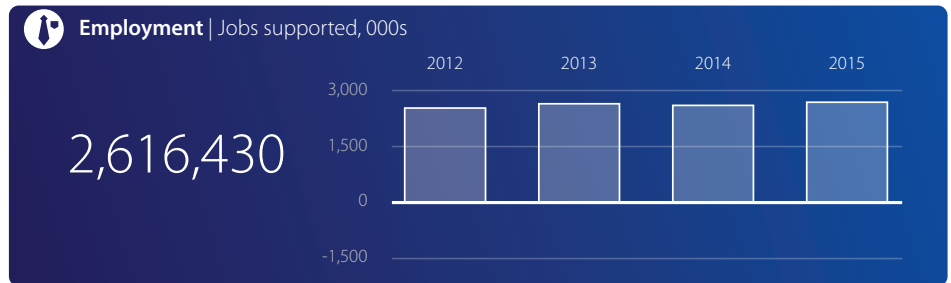


Table 2: Jobs Added Due to Increased Card Penetration*Average between 2011-2015, ths*

| | | | | | | | |
|----------------|--------|------------|--------|--------------|--------|-------------|----------|
| Argentina | 41.29 | Greece | (0.08) | Netherlands | 6.45 | South Korea | 10.96 |
| Australia | 21.36 | Hong Kong | 3.29 | New Zealand | 1.33 | Spain | 1.11 |
| Austria | 3.65 | Hungary | 9.86 | Nigeria | 16.88 | Sri Lanka | 3.42 |
| Azerbaijan | 1.13 | India | 336.93 | Norway | 1.39 | Sweden | 1.49 |
| Belgium | 1.76 | Indonesia | 62.96 | Oman | 1.90 | Switzerland | 2.56 |
| Brazil | 169.13 | Ireland | 3.74 | Peru | 33.49 | Taiwan | 9.98 |
| Cambodia | 4.73 | Israel | 0.14 | Philippines | 3.46 | Thailand | 75.73 |
| Canada | 17.61 | Italy | 25.95 | Poland | 30.42 | Tunisia | (0.01) |
| Chile | 18.40 | Japan | 27.84 | Portugal | 4.04 | Turkey | 56.62 |
| China Mainland | 427.10 | Jordan | 0.44 | Puerto Rico | 0.88 | UAE | 14.17 |
| Colombia | 11.02 | Kazakhstan | 2.08 | Qatar | 1.05 | UK | 34.51 |
| Czech Republic | 5.23 | Kenya | 5.33 | Russia | 235.05 | Ukraine | 13.52 |
| Denmark | 3.60 | Kuwait | 0.90 | Rwanda | 1.02 | Uruguay | 2.80 |
| Egypt | 2.30 | Lebanon | 0.72 | Saudi Arabia | 12.47 | USA | 180.85 |
| Finland | (0.52) | Malaysia | 4.75 | Serbia | 2.93 | Venezuela | 37.44 |
| France | 6.81 | Mexico | 77.54 | Singapore | 3.38 | Vietnam | 74.84 |
| Germany | 33.25 | Morocco | 4.01 | Slovakia | 2.66 | Total | 2,616.43 |
| Ghana | 2.82 | Myanmar | 4.92 | South Africa | 26.55 | | |

stable, higher capital banks. Countries like the United States that have abundant access to ATMs, large and small banks that can support the financing of their cardholders, as well as steady GDP growth tend to get more out of card usage than countries/regions that do not have any of those qualifications.

Some emerging economies have also experienced notable increases in productivity. For example, increased card penetration raised GDP in Vietnam by 0.14%. Vietnamese labor productivity also rose by 18% between 2011 and 2015, resulting in a total impact of around 75,000 jobs gained per

year. Serbia, an emerging market, which had an estimated 0.12% increase in GDP due to increased card penetration, experienced a 1% decline in labor productivity between 2011 and 2015. Job gains were lower, as a result, around 3,000 on average each year.

Part VI: Ongoing Effects on GDP of Greater Card Penetration: Measuring Elasticity by Country/Region

The steady migration from paper to electronic forms of payment around the world raises another interesting question: What effect would continued growth in card penetration have on overall consumption, and ultimately, economic growth across countries?

The simulation results in the following table measure consumption elasticity, or the impact that a 1% increase in card usage rates has on private consumption and GDP, assuming that all other variables are held constant.

Overall, a 1% increase in card usage in every country/region produced:

- » About a \$104 billion, or 0.06%, increase in consumption between 2011 and 2015.

» This accounts for a 0.04% increase in GDP between 2011 and 2015.

For developed countries/regions, a 1% increase in card usage produced:

- » About a \$75 billion, or a 0.07%, increase in consumption between 2011 and 2015.
- » This accounts for a 0.04% increase in GDP between 2011 and 2015.

For emerging markets, a 1% increase in card usage produced:

- » About a \$29 billion, or a 0.03% increase in consumption between 2011 and 2015.
- » This accounts for a 0.02% increase in GDP between 2011 and 2015.

The estimated elasticity shows wide variation across countries/regions (see

Table 3b below). In general, developed countries/regions have higher elasticities than emerging markets because consumers in developed countries/regions use electronic payments much more (42%) than consumers in emerging economies (16%). This is not surprising because developed countries/regions are places that have well-established payment networks, consumers who are more comfortable using electronic payments, and environments where electronic payments are likely more readily accepted by merchants. Cash, on the other hand, is still more prevalent in emerging economies. Table 3B below provides a summary of our findings. More details regarding the estimated consumption

Table 3B: GDP Elasticity w.r.t. Card Penetration (Percent)

% increase in GDP due to a 1% increase in card usage, Weighted Average 2012-2015

| | | | | | | | |
|----------------|--------|------------|--------|--------------|--------|-------------------|--------|
| Argentina | 0.0263 | Greece | 0.0057 | Netherlands | 0.0346 | South Korea | 0.0617 |
| Australia | 0.0572 | Hong Kong | 0.0765 | New Zealand | 0.0646 | Spain | 0.0189 |
| Austria | 0.0195 | Hungary | 0.0246 | Nigeria | 0.0010 | Sri Lanka | 0.0041 |
| Azerbaijan | 0.0028 | India | 0.0044 | Norway | 0.0420 | Sweden | 0.0477 |
| Belgium | 0.0431 | Indonesia | 0.0093 | Oman | 0.0086 | Switzerland | 0.0310 |
| Brazil | 0.0407 | Ireland | 0.0399 | Peru | 0.0176 | Taiwan | 0.0243 |
| Cambodia | 0.0043 | Israel | 0.0442 | Philippines | 0.0135 | Thailand | 0.0192 |
| Canada | 0.0667 | Italy | 0.0197 | Poland | 0.0191 | Tunisia | 0.0022 |
| Chile | 0.0343 | Japan | 0.0170 | Portugal | 0.0487 | Turkey | 0.0542 |
| China Mainland | 0.0405 | Jordan | 0.0127 | Puerto Rico | 0.0207 | UAE | 0.0259 |
| Colombia | 0.0142 | Kazakhstan | 0.0031 | Qatar | 0.0101 | UK | 0.0715 |
| Czech Republic | 0.0160 | Kenya | 0.0047 | Russia | 0.0169 | Ukraine | 0.0097 |
| Denmark | 0.0479 | Kuwait | 0.0226 | Rwanda | 0.0007 | Uruguay | 0.0158 |
| Egypt | 0.0031 | Lebanon | 0.0091 | Saudi Arabia | 0.0153 | USA | 0.0479 |
| Finland | 0.0489 | Malaysia | 0.0225 | Serbia | 0.0124 | Venezuela | 0.0468 |
| France | 0.0417 | Mexico | 0.0184 | Singapore | 0.0319 | Vietnam | 0.0125 |
| Germany | 0.0160 | Morocco | 0.0050 | Slovakia | 0.0155 | Emerging Market | 0.0158 |
| Ghana | 0.0008 | Myanmar | 0.0004 | South Africa | 0.0343 | Developed Country | 0.0393 |

Experiment on GDP Elasticity Using Mexico and Vietnam as an Example

The impact of different hypothetical card penetration rates on a country's economy is measured using Mexico and Vietnam, two of the world's fastest growing emerging economies. In 2015, Mexican and Vietnamese card usage rates ranked among the bottom 25 across the 70 countries/regions in the sample. In this experiment, we examine the effect on GDP of a 1% increase in card usage. In order to do this, we replace actual card penetration rates in Mexico and Vietnam with the median and maximum card usage rates across countries for every year of the sample. All other Mexican and Vietnamese economic variables such as consumption, GDP and real disposable income per person are unchanged at their actual values. The table below shows the resulting GDP elasticity, including the results obtained using the actual card usage rates for Mexico and Vietnam for reference.

Experiment Table: Increase in GDP from a 1% Increase in Card Usage

| Card penetration | Mexico | | Vietnam | |
|------------------|--------|--------------------|---------|--------------------|
| | % | U.S. \$bil, change | % | U.S. \$bil, change |
| Actual | 0.0184 | 0.9217 | 0.0125 | 0.0774 |
| Sample Median | 0.0258 | 1.2892 | 0.0246 | 0.1521 |
| Sample Maximum | 0.0917 | 4.5911 | 0.0875 | 0.5406 |

For instance, the second row states that if Mexico (or Vietnam) consistently had the median observed card penetration rate in each year, a 1% increase in card penetration each year would raise GDP by about 0.0258% (or 0.0246%). This corresponds to almost a \$1.3 billion increase in GDP in Mexico and a \$152 million increase in GDP for Vietnam over the sample period. The final row shows if instead Mexico (or Vietnam) consistently had the highest observed card penetration rate, GDP would receive a 0.0917% (or .0875%) boost were penetration to increase by a 1% each year. This translates to almost a \$4.6 billion increase in GDP for Mexico over the sample period (or a \$541 million increase in GDP for Vietnam). Therefore, using Mexico and Vietnam, the benefits to GDP of higher card usage are clearly illustrated.

elasticity and GDP elasticity can be found in Tables 3, 3A and 3B in the Appendix.

Notably, Hong Kong (0.08%), the United Kingdom (0.07%), and Canada (0.07%) recorded the three highest percent increases in GDP following a 1% increase in card penetration, and are also among the highest users of cards across the 70 countries/regions. Myanmar (0.0004%), Rwanda (0.0007%), and Ghana (0.0008%) displayed the lowest percent increase in GDP due to a 1% increase in card penetration, and were also among the least frequent card users. Such countries/regions, mostly emerging markets, should however anticipate a steady increase to the responsiveness of GDP to card penetration as penetration

grows and deepens. That is, markets with very low card penetration rates could see sizable returns to GDP from rapid adoption of cards provided that the proper financial infrastructure were in place.

In light of this, there are significant implications for policymakers. Notably, as a country becomes wealthier and capital infrastructure improves, benefits from deepening card usage compound. Knowing this, policymakers, in close coordination with merchants, can encourage widespread use of electronic payments. Measures such as tax incentives to use electronic payments, using electronic payments for government disbursements, and government support for lower-cost card

readers that can be used with mobile phones or tablets could also play a role in increasing card usage. Such technology would reduce the need to invest in costly cash registers and the relevant software and limit financial costs associated with cash.

Consumption Growth and Card Penetration

How much increased card penetration can lift consumption growth is a key question from a growth-accounting perspective. This is calculated as the difference between the growth in observed consumption and the growth in consumption without increased card penetration. The results are presented in Table 4 in the Appendix.

While income and the proportion of income that is spent (marginal propensity to consume) are by far the main determinants of consumption, the report found that additional card penetration increased the average global annual real consumption growth rate by 0.4% in 2015. Global real consumption grew by about 2.3% per year during this time period, so card usage added an average 0.01% ($=0.4\% \times 2.3\%$) to consumption growth for 2015. The addition to the consumption growth rate due to increased card usage ranged tremendously across countries/regions.

Electronic payment usage, particularly credit card usage, enables consumers to spend even when cash flow may be limited and to repay over some period of time. Card penetration and usage consequently provided an important boost to global economies. Other factors that help boost consumption include the presence of affordable retail establishments, competition that drives down prices, and the availability of a developed transportation network that improves access to retail. Unlike these factors, cards help individuals track the amount they spend and somewhat dampen the impact of price increases or income changes on consumers' ability to maintain consumption patterns. Thus, electronic payment usage, especially credit card usage, can support and smooth out consumption during economic fluctuations.

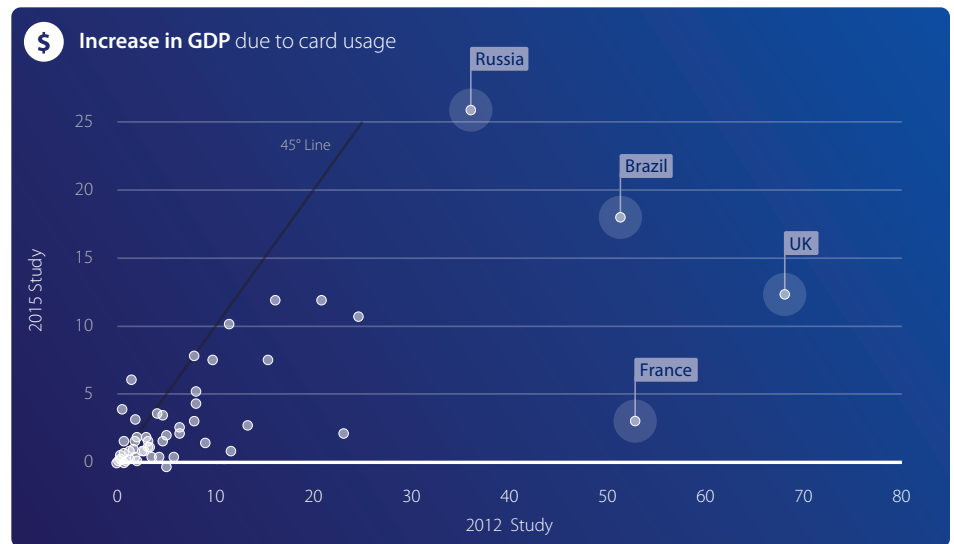
Part VII: The Evolution of the Report's Methodology

Overall, the methodology to calculate the increase in consumption and GDP from increases in card usage is consistent with the methodology of earlier reports.

The 2012 report, which included 56 countries/regions showed that payments made using credit and debit cards as a percent of total spending increased GDP by \$534 billion in emerging economies and by \$449 billion in developed countries/regions. This study, which included 70 countries/regions, found a \$125 billion increase in emerging economies and a \$171 billion increase in developed countries/regions.

Emerging markets benefited more in the 2012 report largely due to the role of Mainland China, which experienced exponential growth in card usage during the previous sample period and consequently significantly impacted the total contribution to GDP for emerging markets. Specifically, increased card usage in Mainland China correlated with an increase in GDP of an estimated \$374.5 billion, which accounted for about 70% of the emerging economies' share of increase in GDP. In this study, as the Chinese market has matured significantly, it experienced a more modest benefit of a \$17.8 billion increase in GDP from increased card usage. As such, Mainland China accounted for only 14% of emerging markets' total increase in GDP.

The graph above illustrates the differences between the results in the two reports for the countries/regions covered in both reports but excluding large outliers, namely China and the United States. Increases in GDP were larger during the 2012 study for the majority of countries/regions in the sample. However, countries/regions that



had larger estimates for the increase in GDP from increased card usage in the 2012 study also had larger estimates for the increase in GDP from increased card usage in the current study. The difference in the relative size of the increase in GDP comes from a change in methodology. The 2012 study methodology calculated the contribution to GDP based on a country's card usage in a year relative to its minimum card usage, whereas this study looks at the contribution of card usage based on the aggregation of yearly changes in card usage.

The economic gains from higher card usage remained the same in both reports. The 2012 study found a 1% increase in card penetration increased GDP by 0.03%, and the current study estimated a 0.04% increase in GDP. A 1% increase in card usage increased consumption by 0.06% of total consumption during both the earlier report and the most recent report. countries/regions still in recession during the recent sample period would experience declining employment and GDP,

even though, in some cases, card penetration continued to increase.

While the calculation for increases in consumption and GDP due to increases in card usage remained consistent among reports, the calculation for job creation has evolved. Building upon the methodology used for the 2012 report, which calculated the cumulative labor productivity over 2008-2012, the current study additionally assumes that labor productivity remains constant in economies during each specific year. We can then estimate the number of jobs created by calculating the ratio of the increase in GDP due to credit card usage to the country's labor productivity year by year and taking the average across the sample. Because of the change in methodology, the estimated number of jobs added in this report are not comparable to the estimates in the 2012 study.

Part VIII: Conclusion

Increasing use of electronic payments—which include credit, debit and prepaid cards in this report—boosts consumption and GDP. Moreover, the impact increases as penetration rises.

In the sample of 70 countries/regions, which make up 95% of global GDP, card usage added \$296 billion cumulatively to real GDP from 2011 to 2015. This amounts to 0.1% of total GDP per year for the 70 countries over this period. For all economies and markets analyzed, there is a positive correlation between card penetration and usage and economic growth.

Increased use of electronic payments makes the economy more efficient as well. Increased usage reduces transaction costs and thus improves the flow of

goods and services. It helps consumers by making purchasing more convenient and efficient. Merchants in turn can manage their businesses better and benefit from higher sales.

Electronic payments usage also promotes consumer confidence and improves access to credit for the population. It also promotes financial inclusion for the most vulnerable by enabling those without access to the formal banking system a safe and efficient payment alternative to cash. Electronic payment usage also benefits governments, which can potentially collect more tax revenue thanks to a clear electronic trail and more transparent transactions that can be taxed more readily. This would be espe-

cially helpful in countries/regions with a weak tax collection infrastructure.

Therefore, policy measures that promote open and market-driven electronic payment solutions for consumers and a level and competitive acceptance and issuance landscape for electronic payment companies, merchants, and the banking sector could improve the economic environment at the market level. A sustainable payments system is not just about technology, but about driving incentives for others to participate in it and derive value from doing so. Encouraging the growth of electronic payments gives consumers and merchants a choice and increases competition. When countries/regions allow for competition and a level playing field, banks and consumers benefit.

Appendix

Model

Dependent Variable: Log(Real consumption per capita)

Method: Pooled Least Squares

Sample: 2011 2015

Included observations: 5

Cross-sections included: 70

Total pool (balanced) observations: 350

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|-------------|------------|-------------|-------|
| Constant | 0.35 | 0.13 | 2.66 | 0.01 |
| Card Penetration, Developed Countries | 0.18 | 0.19 | 0.93 | 0.35 |
| Card Penetration, Emerging Markets | 0.2 | 0.15 | 1.37 | 0.17 |
| Log(Real Disposable income per capita), Developed Countries | 0.64 | 0.1 | 6.26 | 0 |
| Log(Real Disposable income per capita), Emerging Markets | 0.77 | 0.03 | 25.2 | 0 |
| Real interest rate, Developed Countries | 0 | 0 | -0.39 | 0.7 |
| Real interest rate, Emerging Markets | 0 | 0 | 1.08 | 0.28 |
| Trend, Emerging Markets | 0.01 | 0 | 4.4 | 0 |

Fixed Effects (Cross)

Fixed Effects (Period)

Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

| | | | |
|--------------------|----------|-----------------------|----------|
| R-squared | 0.99961 | Mean dependent var | 1.9375 |
| Adjusted R-squared | 0.9995 | S.D. dependent var | 1.18613 |
| S.E. of regression | 0.02644 | Akaike info criterion | -4.23653 |
| Sum squared resid | 0.19081 | Schwarz criterion | -3.38778 |
| Log likelihood | 818.392 | Hannan-Quinn criter. | -3.8987 |
| F-statistic | 9239.861 | Durbin-Watson stat | 1.23219 |
| Prob(F-statistic) | 0 | | |

Tables

Table 1: Card Usage's Contribution to GDP, constant 2011 U.S. \$bil

| Country/Region | 2012 | 2013 | 2014 | 2015 | Total |
|----------------|-------|-------|-------|-------|--------|
| UAE | 1.44 | 0.73 | 0.88 | 0.64 | 3.70 |
| Argentina | 1.29 | 1.26 | 1.34 | 1.41 | 5.30 |
| Australia | 1.91 | 3.26 | 3.45 | 3.31 | 11.93 |
| Austria | 0.43 | 0.43 | 0.39 | 0.29 | 1.55 |
| Azerbaijan | 0.00 | 0.02 | 0.02 | 0.03 | 0.07 |
| Belgium | 0.51 | 0.34 | 0.01 | -0.04 | 0.83 |
| Brazil | 4.50 | 4.26 | 4.63 | 4.64 | 18.04 |
| Canada | 1.43 | 1.16 | 2.41 | 2.50 | 7.50 |
| Switzerland | 0.81 | 0.64 | 0.08 | 0.12 | 1.65 |
| Chile | 0.70 | 1.16 | 0.36 | 0.38 | 2.60 |
| China Mainland | 17.46 | -3.11 | 1.64 | 1.79 | 17.79 |
| Colombia | 0.41 | 0.41 | 0.39 | 0.38 | 1.59 |
| Czech Republic | 0.36 | 0.21 | 0.20 | 0.19 | 0.95 |
| Germany | 3.29 | 3.08 | 3.35 | 2.27 | 11.99 |
| Denmark | 0.48 | 0.60 | 0.47 | 0.33 | 1.88 |
| Egypt | 0.04 | -0.00 | 0.03 | 0.02 | 0.10 |
| Spain | 0.04 | 0.68 | -0.25 | -0.10 | 0.37 |
| Finland | 0.13 | 0.01 | -0.31 | -0.06 | -0.23 |
| France | 0.84 | 0.63 | 1.16 | 0.42 | 3.06 |
| UK | -0.61 | 6.07 | 1.91 | 5.05 | 12.42 |
| Ghana | 0.02 | 0.00 | 0.01 | 0.01 | 0.05 |
| Greece | -0.01 | 0.01 | -0.00 | -0.01 | -0.02 |
| Hong Kong | 0.39 | 0.21 | 0.21 | 0.11 | 0.92 |
| Hungary | 0.63 | 0.29 | 0.25 | 0.23 | 1.41 |
| Indonesia | 1.07 | 0.00 | 0.45 | 0.64 | 2.17 |
| India | 0.97 | 1.30 | 1.65 | 2.16 | 6.08 |
| Ireland | 0.45 | 0.37 | 0.72 | 0.47 | 2.01 |
| Israel | -0.11 | 0.17 | -0.03 | 0.01 | 0.04 |
| Italy | 3.65 | 2.94 | 1.46 | 2.11 | 10.17 |
| Jordan | 0.01 | 0.01 | 0.01 | 0.01 | 0.04 |
| Japan | 1.88 | 2.94 | 2.49 | 3.43 | 10.74 |
| Kazakhstan | 0.03 | 0.06 | 0.05 | 0.06 | 0.21 |
| Kenya | 0.01 | 0.02 | 0.02 | 0.02 | 0.07 |
| Cambodia | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 |
| South Korea | 0.61 | 0.24 | 0.77 | 0.62 | 2.23 |
| Kuwait | -0.07 | 0.03 | 0.18 | 0.16 | 0.30 |
| Lebanon | -0.01 | 0.02 | 0.03 | 0.03 | 0.08 |
| Sri Lanka | 0.02 | 0.01 | 0.02 | 0.06 | 0.12 |
| Morocco | 0.01 | 0.08 | 0.04 | 0.04 | 0.17 |
| Mexico | 2.49 | 1.58 | 1.91 | 1.86 | 7.84 |
| Myanmar | 0.00 | 0.01 | 0.02 | 0.01 | 0.04 |
| Malaysia | -0.14 | 0.19 | 0.20 | 0.23 | 0.49 |
| Nigeria | -0.00 | 0.16 | 0.20 | 0.27 | 0.64 |
| Netherlands | 0.64 | 0.91 | 0.93 | 0.29 | 2.77 |
| Norway | 0.47 | -0.02 | 0.26 | 0.39 | 1.11 |
| New Zealand | 0.02 | 0.17 | 0.13 | 0.10 | 0.42 |
| Oman | 0.05 | 0.08 | 0.09 | 0.08 | 0.29 |
| Peru | 0.15 | 0.85 | 0.32 | 0.28 | 1.61 |
| Philippines | 0.01 | 0.04 | 0.04 | 0.01 | 0.10 |
| Poland | 0.66 | 0.85 | 1.28 | 1.51 | 4.30 |
| Puerto Rico | 0.31 | -0.18 | 0.10 | 0.12 | 0.35 |
| Portugal | 0.17 | 0.25 | 0.25 | 0.17 | 0.84 |
| Qatar | 0.24 | 0.03 | 0.12 | 0.12 | 0.51 |
| Russia | 6.71 | 7.35 | 6.51 | 5.36 | 25.93 |
| Rwanda | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Saudi Arabia | 2.23 | -0.40 | 0.85 | 0.74 | 3.43 |
| Singapore | 0.25 | 0.35 | 0.33 | 0.23 | 1.17 |
| Serbia | 0.05 | 0.07 | 0.05 | 0.05 | 0.23 |
| Slovakia | 0.16 | 0.07 | 0.25 | -0.01 | 0.46 |
| Sweden | 1.01 | 0.06 | -0.09 | -0.26 | 0.71 |
| Thailand | 1.10 | 0.67 | 0.71 | 0.71 | 3.18 |
| Tunisia | 0.00 | -0.00 | 0.00 | 0.00 | -0.00 |
| Turkey | 5.10 | 1.79 | -0.24 | 0.86 | 7.51 |
| Taiwan | 0.24 | 0.59 | 0.60 | 0.44 | 1.87 |
| Ukraine | 0.24 | 0.13 | 0.07 | 0.02 | 0.46 |
| Uruguay | 0.03 | -0.01 | 0.07 | 0.29 | 0.38 |
| USA | 0.17 | 25.60 | 27.13 | 28.65 | 81.55 |
| Venezuela | 1.48 | 1.49 | 0.50 | 0.47 | 3.93 |
| Vietnam | 0.23 | 0.19 | 0.23 | 0.23 | 0.88 |
| South Africa | 0.96 | 0.91 | 0.69 | 0.56 | 3.11 |
| Total | 70.09 | 74.31 | 74.06 | 77.52 | 295.99 |

Table 1A: Card Usage's Contribution to Consumption, %

| Country/Region | 2012 | 2013 | 2014 | 2015 | Average weighted by Consumption, % |
|----------------|-------|-------|-------|-------|------------------------------------|
| UAE | 0.87 | 0.42 | 0.48 | 0.34 | 0.52 |
| Argentina | 0.34 | 0.32 | 0.34 | 0.36 | 0.34 |
| Australia | 0.23 | 0.39 | 0.40 | 0.37 | 0.35 |
| Austria | 0.19 | 0.19 | 0.18 | 0.13 | 0.17 |
| Azerbaijan | 0.01 | 0.06 | 0.07 | 0.07 | 0.06 |
| Belgium | 0.19 | 0.12 | 0.00 | -0.01 | 0.07 |
| Brazil | 0.28 | 0.25 | 0.27 | 0.28 | 0.27 |
| Canada | 0.14 | 0.11 | 0.23 | 0.23 | 0.18 |
| Switzerland | 0.21 | 0.16 | 0.02 | 0.03 | 0.10 |
| Chile | 0.43 | 0.68 | 0.21 | 0.21 | 0.38 |
| China Mainland | 0.62 | -0.10 | 0.05 | 0.05 | 0.14 |
| Colombia | 0.19 | 0.19 | 0.17 | 0.16 | 0.17 |
| Czech Republic | 0.34 | 0.19 | 0.18 | 0.17 | 0.22 |
| Germany | 0.16 | 0.15 | 0.16 | 0.10 | 0.14 |
| Denmark | 0.30 | 0.37 | 0.29 | 0.20 | 0.29 |
| Egypt | 0.02 | -0.00 | 0.02 | 0.01 | 0.01 |
| Spain | 0.00 | 0.08 | -0.03 | -0.01 | 0.01 |
| Finland | 0.09 | 0.01 | -0.21 | -0.04 | -0.04 |
| France | 0.05 | 0.04 | 0.07 | 0.03 | 0.05 |
| UK | -0.04 | 0.35 | 0.11 | 0.27 | 0.18 |
| Ghana | 0.08 | 0.01 | 0.06 | 0.08 | 0.06 |
| Greece | -0.01 | 0.01 | -0.00 | -0.01 | -0.00 |
| Hong Kong | 0.24 | 0.12 | 0.12 | 0.06 | 0.13 |
| Hungary | 0.73 | 0.34 | 0.29 | 0.26 | 0.40 |
| Indonesia | 0.21 | 0.00 | 0.08 | 0.10 | 0.10 |
| India | 0.09 | 0.11 | 0.13 | 0.16 | 0.12 |
| Ireland | 0.39 | 0.32 | 0.61 | 0.38 | 0.42 |
| Israel | -0.07 | 0.11 | -0.02 | 0.01 | 0.01 |
| Italy | 0.27 | 0.22 | 0.11 | 0.16 | 0.19 |
| Jordan | 0.05 | 0.03 | 0.03 | 0.03 | 0.04 |
| Japan | 0.05 | 0.08 | 0.07 | 0.09 | 0.07 |
| Kazakhstan | 0.04 | 0.06 | 0.06 | 0.07 | 0.06 |
| Kenya | 0.02 | 0.05 | 0.05 | 0.04 | 0.04 |
| Cambodia | 0.10 | 0.09 | 0.05 | 0.05 | 0.07 |
| South Korea | 0.08 | 0.03 | 0.09 | 0.07 | 0.07 |
| Kuwait | -0.16 | 0.06 | 0.42 | 0.38 | 0.18 |
| Lebanon | -0.02 | 0.06 | 0.10 | 0.09 | 0.06 |
| Sri Lanka | 0.06 | 0.03 | 0.05 | 0.15 | 0.07 |
| Morocco | 0.01 | 0.12 | 0.06 | 0.07 | 0.07 |
| Mexico | 0.31 | 0.19 | 0.22 | 0.21 | 0.23 |
| Myanmar | 0.00 | 0.03 | 0.05 | 0.01 | 0.02 |
| Malaysia | -0.09 | 0.12 | 0.12 | 0.13 | 0.07 |
| Nigeria | -0.00 | 0.05 | 0.07 | 0.09 | 0.05 |
| Netherlands | 0.16 | 0.23 | 0.24 | 0.07 | 0.17 |
| Norway | 0.23 | -0.01 | 0.12 | 0.18 | 0.13 |
| New Zealand | 0.02 | 0.16 | 0.13 | 0.09 | 0.10 |
| Oman | 0.21 | 0.34 | 0.39 | 0.32 | 0.32 |
| Peru | 0.14 | 0.74 | 0.27 | 0.23 | 0.35 |
| Philippines | 0.00 | 0.02 | 0.02 | 0.01 | 0.01 |
| Poland | 0.21 | 0.26 | 0.39 | 0.44 | 0.33 |
| Puerto Rico | 0.45 | -0.25 | 0.14 | 0.17 | 0.13 |
| Portugal | 0.11 | 0.17 | 0.16 | 0.11 | 0.14 |
| Qatar | 1.02 | 0.10 | 0.43 | 0.41 | 0.47 |
| Russia | 0.67 | 0.70 | 0.61 | 0.57 | 0.64 |
| Rwanda | 0.01 | 0.03 | 0.03 | 0.04 | 0.03 |

| Country/Region | 2012 | 2013 | 2014 | 2015 | Average weighted by Consumption, % |
|----------------|------|-------|-------|-------|------------------------------------|
| Saudi Arabia | 1.10 | -0.19 | 0.39 | 0.32 | 0.40 |
| Singapore | 0.25 | 0.34 | 0.31 | 0.21 | 0.27 |
| Serbia | 0.17 | 0.22 | 0.19 | 0.19 | 0.19 |
| Slovakia | 0.28 | 0.12 | 0.43 | -0.02 | 0.20 |
| Sweden | 0.38 | 0.02 | -0.03 | -0.09 | 0.07 |
| Thailand | 0.53 | 0.32 | 0.34 | 0.33 | 0.38 |
| Tunisia | 0.01 | -0.01 | 0.00 | 0.00 | -0.00 |
| Turkey | 0.93 | 0.31 | -0.04 | 0.14 | 0.32 |
| Taiwan | 0.09 | 0.21 | 0.21 | 0.15 | 0.17 |
| Ukraine | 0.20 | 0.10 | 0.06 | 0.02 | 0.10 |
| Uruguay | 0.10 | -0.04 | 0.19 | 0.77 | 0.26 |
| USA | 0.00 | 0.23 | 0.24 | 0.25 | 0.18 |
| Venezuela | 0.78 | 0.75 | 0.26 | 0.27 | 0.52 |
| Vietnam | 0.25 | 0.20 | 0.23 | 0.21 | 0.22 |
| South Africa | 0.38 | 0.34 | 0.26 | 0.20 | 0.29 |
| Total | 0.18 | 0.19 | 0.18 | 0.19 | 0.18 |

Table 1B: Card Usage's Contribution to GDP, %

| Country/Region | 2012 | 2013 | 2014 | 2015 | Average Weighted by GDP, % |
|----------------|-------|-------|-------|-------|-------------------------------|
| UAE | 0.39 | 0.19 | 0.22 | 0.15 | 0.23 |
| Argentina | 0.23 | 0.22 | 0.23 | 0.24 | 0.23 |
| Australia | 0.12 | 0.21 | 0.21 | 0.20 | 0.19 |
| Austria | 0.10 | 0.10 | 0.09 | 0.07 | 0.09 |
| Azerbaijan | 0.00 | 0.03 | 0.03 | 0.03 | 0.03 |
| Belgium | 0.10 | 0.06 | 0.00 | -0.01 | 0.04 |
| Brazil | 0.17 | 0.16 | 0.17 | 0.17 | 0.17 |
| Canada | 0.08 | 0.06 | 0.13 | 0.13 | 0.10 |
| Switzerland | 0.12 | 0.09 | 0.01 | 0.02 | 0.06 |
| Chile | 0.26 | 0.42 | 0.13 | 0.13 | 0.23 |
| China Mainland | 0.22 | -0.04 | 0.02 | 0.02 | 0.05 |
| Colombia | 0.12 | 0.11 | 0.10 | 0.10 | 0.11 |
| Czech Republic | 0.16 | 0.09 | 0.09 | 0.08 | 0.11 |
| Germany | 0.09 | 0.08 | 0.09 | 0.06 | 0.08 |
| Denmark | 0.14 | 0.18 | 0.14 | 0.09 | 0.14 |
| Egypt | 0.02 | -0.00 | 0.01 | 0.01 | 0.01 |
| Spain | 0.00 | 0.05 | -0.02 | -0.01 | 0.01 |
| Finland | 0.05 | 0.00 | -0.12 | -0.02 | -0.02 |
| France | 0.03 | 0.02 | 0.04 | 0.01 | 0.03 |
| UK | -0.02 | 0.23 | 0.07 | 0.18 | 0.11 |
| Ghana | 0.04 | 0.01 | 0.02 | 0.03 | 0.03 |
| Greece | -0.01 | 0.00 | -0.00 | -0.01 | -0.00 |
| Hong Kong | 0.16 | 0.08 | 0.08 | 0.04 | 0.09 |
| Hungary | 0.46 | 0.21 | 0.17 | 0.16 | 0.25 |
| Indonesia | 0.11 | 0.00 | 0.04 | 0.06 | 0.05 |
| India | 0.05 | 0.06 | 0.08 | 0.09 | 0.07 |
| Ireland | 0.19 | 0.15 | 0.28 | 0.17 | 0.20 |
| Israel | -0.04 | 0.06 | -0.01 | 0.00 | 0.00 |
| Italy | 0.16 | 0.14 | 0.07 | 0.10 | 0.12 |
| Jordan | 0.04 | 0.03 | 0.03 | 0.02 | 0.03 |
| Japan | 0.03 | 0.05 | 0.04 | 0.06 | 0.04 |
| Kazakhstan | 0.02 | 0.03 | 0.02 | 0.03 | 0.02 |
| Kenya | 0.02 | 0.05 | 0.04 | 0.03 | 0.03 |
| Cambodia | 0.08 | 0.07 | 0.04 | 0.04 | 0.05 |
| South Korea | 0.05 | 0.02 | 0.06 | 0.05 | 0.04 |
| Kuwait | -0.04 | 0.02 | 0.11 | 0.10 | 0.04 |
| Lebanon | -0.01 | 0.05 | 0.08 | 0.07 | 0.05 |
| Sri Lanka | 0.04 | 0.02 | 0.03 | 0.08 | 0.04 |
| Morocco | 0.01 | 0.07 | 0.03 | 0.04 | 0.04 |
| Mexico | 0.21 | 0.13 | 0.15 | 0.14 | 0.16 |
| Myanmar | 0.00 | 0.02 | 0.04 | 0.01 | 0.02 |
| Malaysia | -0.04 | 0.06 | 0.06 | 0.06 | 0.04 |
| Nigeria | -0.00 | 0.04 | 0.04 | 0.05 | 0.03 |
| Netherlands | 0.07 | 0.10 | 0.10 | 0.03 | 0.08 |
| Norway | 0.09 | -0.00 | 0.05 | 0.07 | 0.05 |
| New Zealand | 0.01 | 0.10 | 0.07 | 0.05 | 0.06 |
| Oman | 0.06 | 0.10 | 0.12 | 0.10 | 0.10 |
| Peru | 0.08 | 0.45 | 0.16 | 0.14 | 0.21 |
| Philippines | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 |
| Poland | 0.12 | 0.16 | 0.23 | 0.26 | 0.19 |
| Puerto Rico | 0.31 | -0.17 | 0.10 | 0.12 | 0.09 |
| Portugal | 0.07 | 0.11 | 0.11 | 0.07 | 0.09 |
| Qatar | 0.13 | 0.01 | 0.06 | 0.06 | 0.07 |
| Russia | 0.34 | 0.37 | 0.33 | 0.28 | 0.33 |
| Rwanda | 0.00 | 0.02 | 0.02 | 0.03 | 0.02 |

| Country/Region | 2012 | 2013 | 2014 | 2015 | Average Weighted by GDP, % |
|----------------|------|-------|-------|-------|-------------------------------|
| Saudi Arabia | 0.32 | -0.06 | 0.11 | 0.10 | 0.12 |
| Singapore | 0.09 | 0.12 | 0.11 | 0.07 | 0.10 |
| Serbia | 0.11 | 0.14 | 0.12 | 0.12 | 0.12 |
| Slovakia | 0.16 | 0.07 | 0.24 | -0.01 | 0.11 |
| Sweden | 0.18 | 0.01 | -0.02 | -0.04 | 0.03 |
| Thailand | 0.28 | 0.16 | 0.17 | 0.17 | 0.19 |
| Tunisia | 0.00 | -0.01 | 0.00 | 0.00 | -0.00 |
| Turkey | 0.64 | 0.22 | -0.03 | 0.10 | 0.22 |
| Taiwan | 0.05 | 0.12 | 0.11 | 0.08 | 0.09 |
| Ukraine | 0.15 | 0.08 | 0.05 | 0.01 | 0.07 |
| Uruguay | 0.07 | -0.02 | 0.13 | 0.52 | 0.18 |
| USA | 0.00 | 0.16 | 0.16 | 0.17 | 0.12 |
| Venezuela | 0.44 | 0.43 | 0.15 | 0.15 | 0.30 |
| Vietnam | 0.16 | 0.13 | 0.15 | 0.14 | 0.14 |
| South Africa | 0.23 | 0.21 | 0.16 | 0.12 | 0.18 |
| Total | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |

Table 2A: Labor Productivity, Constant 2011 U.S. \$bil per worker

| Country/Region | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------|------------|------------|------------|------------|------------|
| UAE | 60,918.69 | 63,269.42 | 64,825.69 | 66,892.19 | 67,999.30 |
| Argentina | 32,080.36 | 31,892.79 | 32,166.65 | 31,873.37 | 32,328.41 |
| Australia | 134,192.28 | 137,323.11 | 138,845.12 | 141,472.19 | 139,913.65 |
| Austria | 106,053.95 | 105,997.57 | 105,760.41 | 106,052.95 | 106,580.31 |
| Azerbaijan | 14,909.73 | 15,040.41 | 15,599.89 | 15,766.36 | 16,132.76 |
| Belgium | 117,278.92 | 117,274.39 | 117,565.08 | 118,430.93 | 119,681.88 |
| Brazil | 26,640.60 | 26,569.06 | 26,951.31 | 26,878.67 | 26,291.75 |
| Canada | 103,921.44 | 104,399.34 | 105,257.98 | 107,190.45 | 107,695.01 |
| Switzerland | 159,973.58 | 160,226.76 | 161,165.30 | 161,516.14 | 160,683.07 |
| Chile | 33,626.23 | 34,758.17 | 35,506.30 | 35,599.62 | 35,878.19 |
| China Mainland | 9,527.22 | 10,226.25 | 10,971.59 | 11,724.93 | 12,449.82 |
| Colombia | 34,766.33 | 34,976.30 | 35,984.41 | 36,512.46 | 37,000.43 |
| Czech Republic | 45,861.80 | 45,319.02 | 44,644.37 | 45,195.97 | 46,580.95 |
| Germany | 90,361.01 | 89,870.19 | 89,664.92 | 90,282.10 | 91,020.92 |
| Denmark | 129,443.09 | 130,432.93 | 130,090.22 | 130,871.38 | 131,556.08 |
| Egypt | 10,089.07 | 10,247.76 | 10,429.80 | 10,621.91 | 11,032.79 |
| Spain | 81,256.47 | 82,670.05 | 83,614.65 | 83,744.99 | 84,018.06 |
| Finland | 110,818.41 | 108,790.97 | 108,746.22 | 108,711.99 | 109,254.73 |
| France | 111,028.95 | 111,129.72 | 112,173.55 | 112,196.73 | 113,537.93 |
| UK | 88,304.33 | 88,381.94 | 89,249.45 | 89,832.07 | 90,715.87 |
| Ghana | 3,952.75 | 4,109.27 | 4,219.54 | 4,296.94 | 4,356.93 |
| Greece | 71,113.69 | 72,302.89 | 73,684.98 | 73,735.68 | 72,490.39 |
| Hong Kong | 69,570.36 | 69,199.39 | 69,991.54 | 71,248.19 | 71,920.83 |
| Hungary | 37,217.88 | 35,999.02 | 35,985.76 | 35,362.23 | 35,553.86 |
| Indonesia | 8,064.74 | 8,290.56 | 8,658.16 | 8,918.73 | 8,942.28 |
| India | 4,019.72 | 4,185.36 | 4,362.88 | 4,560.60 | 4,746.24 |
| Ireland | 130,924.77 | 131,921.75 | 130,744.98 | 135,197.58 | 139,118.60 |
| Israel | 81,056.75 | 80,223.57 | 80,650.92 | 80,365.18 | 80,051.47 |
| Italy | 101,048.46 | 98,225.82 | 98,081.63 | 97,563.02 | 97,535.40 |
| Jordan | 20,132.07 | 20,286.97 | 20,283.49 | 19,925.95 | 19,572.24 |
| Japan | 94,221.18 | 96,151.70 | 96,823.00 | 96,116.14 | 96,455.55 |
| Kazakhstan | 22,701.96 | 23,209.41 | 24,393.38 | 25,231.58 | 25,400.15 |
| Kenya | 2,905.45 | 2,939.14 | 3,005.51 | 3,072.85 | 3,179.43 |
| Cambodia | 1,591.94 | 1,668.47 | 1,754.80 | 1,840.89 | 1,930.98 |
| South Korea | 49,659.01 | 49,895.59 | 50,552.96 | 51,134.55 | 51,800.87 |
| Kuwait | 95,037.58 | 95,893.23 | 90,960.06 | 86,595.56 | 83,497.59 |
| Lebanon | 27,179.38 | 27,465.07 | 27,661.20 | 27,880.78 | 28,105.99 |
| Sri Lanka | 7,201.92 | 7,830.77 | 8,354.91 | 8,917.24 | 9,438.04 |
| Morocco | 9,623.68 | 9,926.51 | 10,277.88 | 10,469.94 | 10,921.07 |
| Mexico | 24,852.48 | 24,965.76 | 25,101.53 | 25,541.05 | 25,548.56 |
| Myanmar | 2,006.00 | 1,960.00 | 1,969.86 | 2,160.69 | 2,217.90 |
| Malaysia | 24,383.86 | 25,051.58 | 24,646.00 | 25,648.41 | 26,374.63 |
| Nigeria | 8,858.86 | 8,976.51 | 9,181.72 | 9,483.70 | 9,586.52 |
| Netherlands | 107,902.42 | 106,108.51 | 106,471.00 | 108,257.77 | 109,774.35 |
| Norway | 195,566.70 | 197,091.77 | 197,756.84 | 199,897.91 | 203,673.61 |
| New Zealand | 74,526.60 | 76,307.54 | 78,183.94 | 77,812.71 | 78,113.42 |
| Oman | 49,149.22 | 44,688.84 | 40,736.91 | 37,535.75 | 35,453.39 |
| Peru | 11,037.40 | 11,454.89 | 11,928.11 | 12,129.00 | 12,394.43 |
| Philippines | 6,019.34 | 6,350.39 | 6,894.68 | 7,121.96 | 7,390.86 |
| Poland | 33,753.64 | 34,281.43 | 34,763.36 | 35,276.81 | 36,100.97 |
| Puerto Rico | 98,650.54 | 98,101.12 | 100,516.07 | 102,692.09 | 101,699.30 |
| Portugal | 50,715.02 | 50,795.67 | 52,550.11 | 52,196.24 | 52,489.46 |
| Qatar | 120,371.88 | 119,689.78 | 120,450.22 | 121,866.67 | 124,242.60 |
| Russia | 26,825.35 | 27,478.73 | 27,885.68 | 28,002.60 | 26,800.06 |
| Rwanda | 1,229.89 | 1,303.41 | 1,325.73 | 1,378.72 | 1,428.59 |

Table 2A: Labor Productivity, Constant 2011 U.S. \$bil per worker (Cont.)

| Country/Region | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------|------------|------------|------------|------------|------------|
| Saudi Arabia | 67,385.13 | 68,744.39 | 67,814.94 | 68,236.60 | 68,688.44 |
| Singapore | 85,981.22 | 85,816.05 | 87,549.67 | 86,933.86 | 86,654.13 |
| Serbia | 19,307.81 | 19,313.68 | 19,367.23 | 19,018.83 | 19,111.23 |
| Slovakia | 42,180.23 | 42,605.88 | 43,208.06 | 43,617.57 | 43,882.59 |
| Sweden | 121,688.21 | 120,986.54 | 121,200.43 | 122,348.76 | 124,861.94 |
| Thailand | 9,542.67 | 10,116.92 | 10,398.13 | 10,720.09 | 11,023.24 |
| Tunisia | 14,635.01 | 14,739.08 | 14,653.61 | 14,586.17 | 14,345.00 |
| Turkey | 33,406.07 | 33,078.55 | 33,493.89 | 32,798.56 | 32,777.09 |
| Taiwan | 45,497.50 | 45,784.74 | 46,351.97 | 47,615.86 | 47,288.67 |
| Ukraine | 8,441.78 | 8,465.44 | 8,437.82 | 8,426.91 | 8,220.13 |
| Uruguay | 29,711.60 | 30,517.86 | 31,859.92 | 32,897.25 | 34,028.12 |
| USA | 110,936.19 | 111,345.24 | 111,853.54 | 112,712.52 | 113,560.75 |
| Venezuela | 26,247.07 | 27,252.22 | 26,846.87 | 25,145.48 | 23,151.08 |
| Vietnam | 2,653.53 | 2,740.79 | 2,857.22 | 2,988.60 | 3,141.78 |
| South Africa | 29,705.56 | 29,618.64 | 29,376.88 | 29,277.41 | 28,793.36 |
| Total | 27,692.57 | 28,084.61 | 28,463.76 | 28,853.74 | 29,111.63 |

Table 2: Jobs Added Due to Increased Card Penetration, ths

| Country/Region | 2012 | 2013 | 2014 | 2015 | Average |
|----------------|----------|----------|----------|----------|----------|
| UAE | 22.84 | 11.21 | 13.16 | 9.47 | 14.17 |
| Argentina | 40.53 | 39.09 | 41.97 | 43.58 | 41.29 |
| Australia | 13.90 | 23.51 | 24.38 | 23.66 | 21.36 |
| Austria | 4.08 | 4.07 | 3.70 | 2.74 | 3.65 |
| Azerbaijan | 0.15 | 1.23 | 1.52 | 1.60 | 1.13 |
| Belgium | 4.36 | 2.92 | 0.11 | (0.35) | 1.76 |
| Brazil | 169.35 | 158.24 | 172.38 | 176.54 | 169.13 |
| Canada | 13.69 | 11.07 | 22.48 | 23.21 | 17.61 |
| Switzerland | 5.08 | 3.96 | 0.46 | 0.73 | 2.56 |
| Chile | 20.08 | 32.70 | 10.20 | 10.64 | 18.40 |
| China Mainland | 1,707.84 | (283.86) | 140.27 | 144.14 | 427.10 |
| Colombia | 11.79 | 11.47 | 10.65 | 10.16 | 11.02 |
| Czech Republic | 7.94 | 4.60 | 4.40 | 4.00 | 5.23 |
| Germany | 36.58 | 34.36 | 37.11 | 24.95 | 33.25 |
| Denmark | 3.67 | 4.61 | 3.63 | 2.50 | 3.60 |
| Egypt | 4.38 | (0.06) | 3.09 | 1.80 | 2.30 |
| Spain | 0.49 | 8.10 | (2.95) | (1.22) | 1.11 |
| Finland | 1.20 | 0.07 | (2.83) | (0.53) | (0.52) |
| France | 7.53 | 5.65 | 10.35 | 3.73 | 6.81 |
| UK | (6.87) | 67.97 | 21.31 | 55.62 | 34.51 |
| Ghana | 4.44 | 0.74 | 2.71 | 3.40 | 2.82 |
| Greece | (0.19) | 0.13 | (0.05) | (0.21) | (0.08) |
| Hong Kong | 5.68 | 3.04 | 2.97 | 1.47 | 3.29 |
| Hungary | 17.59 | 8.15 | 7.12 | 6.60 | 9.86 |
| Indonesia | 129.30 | 0.57 | 50.85 | 71.13 | 62.96 |
| India | 232.53 | 297.63 | 362.37 | 455.20 | 336.93 |
| Ireland | 3.43 | 2.83 | 5.34 | 3.36 | 3.74 |
| Israel | (1.33) | 2.10 | (0.38) | 0.16 | 0.14 |
| Italy | 37.20 | 30.02 | 14.97 | 21.63 | 25.95 |
| Jordan | 0.62 | 0.38 | 0.39 | 0.38 | 0.44 |
| Japan | 19.52 | 30.33 | 25.94 | 35.59 | 27.84 |
| Kazakhstan | 1.36 | 2.44 | 2.12 | 2.38 | 2.08 |
| Kenya | 2.61 | 6.97 | 6.05 | 5.68 | 5.33 |
| Cambodia | 6.70 | 5.78 | 3.30 | 3.14 | 4.73 |
| South Korea | 12.18 | 4.77 | 14.98 | 11.90 | 10.96 |
| Kuwait | (0.68) | 0.29 | 2.05 | 1.94 | 0.90 |
| Lebanon | (0.20) | 0.77 | 1.20 | 1.10 | 0.72 |
| Sri Lanka | 3.07 | 1.29 | 2.44 | 6.87 | 3.42 |
| Morocco | 0.66 | 7.57 | 3.69 | 4.11 | 4.01 |
| Mexico | 99.87 | 62.77 | 74.83 | 72.66 | 77.54 |
| Myanmar | 0.25 | 5.55 | 11.41 | 2.49 | 4.92 |
| Malaysia | (5.50) | 7.83 | 7.89 | 8.77 | 4.75 |
| Nigeria | (0.16) | 17.81 | 21.39 | 28.48 | 16.88 |
| Netherlands | 6.01 | 8.52 | 8.58 | 2.68 | 6.45 |
| Norway | 2.39 | (0.08) | 1.32 | 1.91 | 1.39 |
| New Zealand | 0.27 | 2.13 | 1.70 | 1.22 | 1.33 |
| Oman | 1.01 | 1.88 | 2.46 | 2.24 | 1.90 |
| Peru | 13.05 | 71.39 | 26.56 | 22.98 | 33.49 |
| Philippines | 1.12 | 5.33 | 5.47 | 1.93 | 3.46 |
| Poland | 19.22 | 24.43 | 36.21 | 41.84 | 30.42 |
| Puerto Rico | 3.14 | (1.75) | 0.94 | 1.20 | 0.88 |
| Portugal | 3.38 | 4.75 | 4.79 | 3.24 | 4.04 |
| Qatar | 2.01 | 0.21 | 1.01 | 0.99 | 1.05 |
| Russia | 244.06 | 263.49 | 232.59 | 200.07 | 235.05 |
| Rwanda | 0.25 | 1.25 | 0.95 | 1.64 | 1.02 |
| Saudi Arabia | 32.49 | (5.97) | 12.53 | 10.84 | 12.47 |
| Singapore | 2.96 | 4.05 | 3.81 | 2.68 | 3.38 |
| Serbia | 2.58 | 3.44 | 2.85 | 2.84 | 2.93 |
| Slovakia | 3.73 | 1.53 | 5.62 | (0.22) | 2.66 |
| Sweden | 8.36 | 0.47 | (0.77) | (2.08) | 1.49 |
| Thailand | 108.58 | 63.98 | 66.13 | 64.22 | 75.73 |
| Tunisia | 0.11 | (0.21) | 0.07 | 0.00 | (0.01) |
| Turkey | 154.03 | 53.37 | (7.21) | 26.28 | 56.62 |
| Taiwan | 5.26 | 12.72 | 12.61 | 9.32 | 9.98 |
| Ukraine | 28.06 | 15.47 | 8.31 | 2.24 | 13.52 |
| Uruguay | 1.07 | (0.39) | 2.11 | 8.41 | 2.80 |
| USA | 1.57 | 228.85 | 240.70 | 252.26 | 180.85 |
| Venezuela | 54.26 | 55.52 | 19.71 | 20.25 | 37.44 |
| Vietnam | 82.36 | 67.74 | 76.80 | 72.44 | 74.84 |
| South Africa | 32.50 | 30.90 | 23.50 | 19.29 | 26.55 |
| Total | 2,531.07 | 2,645.79 | 2,602.07 | 2,686.81 | 2,616.43 |

Table 3: Change in Consumption due to 1% Increase in Card Usage Constant 2011 U.S. \$bil

| Country/Region | 2012 | 2013 | 2014 | 2015 | Total |
|----------------|---------|---------|---------|---------|----------|
| UAE | 0.0844 | 0.0953 | 0.1105 | 0.1202 | 0.4105 |
| Argentina | 0.1283 | 0.1465 | 0.1591 | 0.1751 | 0.6089 |
| Australia | 0.8386 | 0.8858 | 0.9445 | 1.0021 | 3.6710 |
| Austria | 0.0792 | 0.0835 | 0.0874 | 0.0905 | 0.3405 |
| Azerbaijan | 0.0014 | 0.0018 | 0.0022 | 0.0026 | 0.0080 |
| Belgium | 0.2250 | 0.2292 | 0.2315 | 0.2355 | 0.9212 |
| Brazil | 1.0121 | 1.0901 | 1.1509 | 1.1548 | 4.4080 |
| Canada | 1.1848 | 1.2249 | 1.2800 | 1.3306 | 5.0203 |
| Switzerland | 0.2131 | 0.2242 | 0.2279 | 0.2322 | 0.8974 |
| Chile | 0.0787 | 0.0949 | 0.1007 | 0.1063 | 0.3806 |
| China Mainland | 3.1686 | 3.3714 | 3.6664 | 3.9847 | 14.1911 |
| Colombia | 0.0441 | 0.0500 | 0.0560 | 0.0616 | 0.2117 |
| Czech Republic | 0.0325 | 0.0347 | 0.0372 | 0.0402 | 0.1446 |
| Germany | 0.5604 | 0.5955 | 0.6351 | 0.6693 | 2.4603 |
| Denmark | 0.1560 | 0.1624 | 0.1681 | 0.1752 | 0.6617 |
| Egypt | 0.0077 | 0.0075 | 0.0077 | 0.0082 | 0.0310 |
| Spain | 0.2749 | 0.2733 | 0.2740 | 0.2813 | 1.1034 |
| Finland | 0.1318 | 0.1315 | 0.1291 | 0.1302 | 0.5227 |
| France | 1.1831 | 1.1950 | 1.2144 | 1.2384 | 4.8309 |
| UK | 1.8108 | 1.9053 | 1.9741 | 2.1000 | 7.7902 |
| Ghana | 0.0003 | 0.0004 | 0.0004 | 0.0005 | 0.0016 |
| Greece | 0.0151 | 0.0148 | 0.0148 | 0.0147 | 0.0594 |
| Hong Kong | 0.1864 | 0.1971 | 0.2055 | 0.2166 | 0.8057 |
| Hungary | 0.0307 | 0.0336 | 0.0367 | 0.0399 | 0.1409 |
| Indonesia | 0.0843 | 0.0890 | 0.0982 | 0.1098 | 0.3812 |
| India | 0.0633 | 0.0796 | 0.1009 | 0.1302 | 0.3740 |
| Ireland | 0.0927 | 0.0961 | 0.1053 | 0.1133 | 0.4073 |
| Israel | 0.1161 | 0.1224 | 0.1266 | 0.1328 | 0.4978 |
| Italy | 0.4023 | 0.4211 | 0.4373 | 0.4622 | 1.7229 |
| Jordan | 0.0036 | 0.0040 | 0.0040 | 0.0042 | 0.0157 |
| Japan | 0.9856 | 1.0314 | 1.0464 | 1.0724 | 4.1358 |
| Kazakhstan | 0.0055 | 0.0071 | 0.0064 | 0.0071 | 0.0262 |
| Kenya | 0.0018 | 0.0021 | 0.0024 | 0.0027 | 0.0089 |
| Cambodia | 0.0005 | 0.0006 | 0.0007 | 0.0008 | 0.0026 |
| South Korea | 0.7619 | 0.7810 | 0.8046 | 0.8289 | 3.1763 |
| Kuwait | 0.0349 | 0.0364 | 0.0390 | 0.0411 | 0.1514 |
| Lebanon | 0.0035 | 0.0036 | 0.0040 | 0.0044 | 0.0155 |
| Sri Lanka | 0.0024 | 0.0025 | 0.0029 | 0.0038 | 0.0116 |
| Morocco | 0.0043 | 0.0053 | 0.0059 | 0.0066 | 0.0221 |
| Mexico | 0.1967 | 0.2176 | 0.2409 | 0.2665 | 0.9217 |
| Myanmar | 0.0000 | 0.0001 | 0.0004 | 0.0004 | 0.0009 |
| Malaysia | 0.0689 | 0.0744 | 0.0783 | 0.0843 | 0.3059 |
| Nigeria | 0.0015 | 0.0036 | 0.0056 | 0.0085 | 0.0193 |
| Netherlands | 0.2979 | 0.3029 | 0.3122 | 0.3215 | 1.2345 |
| Norway | 0.2104 | 0.2158 | 0.2222 | 0.2310 | 0.8794 |
| New Zealand | 0.1071 | 0.1119 | 0.1168 | 0.1211 | 0.4568 |
| Oman | 0.0048 | 0.0059 | 0.0072 | 0.0083 | 0.0262 |
| Peru | 0.0232 | 0.0329 | 0.0375 | 0.0415 | 0.1350 |
| Philippines | 0.0320 | 0.0342 | 0.0364 | 0.0389 | 0.1416 |
| Poland | 0.0870 | 0.0957 | 0.1109 | 0.1295 | 0.4230 |
| Puerto Rico | 0.0213 | 0.0196 | 0.0207 | 0.0220 | 0.0836 |
| Portugal | 0.1101 | 0.1112 | 0.1162 | 0.1211 | 0.4586 |
| Qatar | 0.0157 | 0.0179 | 0.0206 | 0.0228 | 0.0769 |
| Russia | 0.2339 | 0.3189 | 0.3880 | 0.3946 | 1.3353 |
| Rwanda | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0002 |
| Saudi Arabia | 0.1033 | 0.1025 | 0.1168 | 0.1283 | 0.4508 |
| Singapore | 0.0867 | 0.0933 | 0.0989 | 0.1049 | 0.3838 |
| Serbia | 0.0049 | 0.0056 | 0.0059 | 0.0065 | 0.0230 |
| Slovakia | 0.0140 | 0.0145 | 0.0173 | 0.0175 | 0.0634 |
| Sweden | 0.2687 | 0.2743 | 0.2795 | 0.2835 | 1.1059 |
| Thailand | 0.0669 | 0.0741 | 0.0817 | 0.0906 | 0.3134 |
| Tunisia | 0.0011 | 0.0010 | 0.0011 | 0.0011 | 0.0042 |
| Turkey | 0.4144 | 0.4535 | 0.4575 | 0.4849 | 1.8102 |
| Taiwan | 0.1127 | 0.1212 | 0.1308 | 0.1374 | 0.5021 |
| Ukraine | 0.0144 | 0.0167 | 0.0159 | 0.0123 | 0.0593 |
| Uruguay | 0.0069 | 0.0071 | 0.0081 | 0.0111 | 0.0333 |
| USA | 7.1633 | 7.5410 | 8.0153 | 8.5528 | 31.2724 |
| Venezuela | 0.1413 | 0.1628 | 0.1617 | 0.1529 | 0.6186 |
| Vietnam | 0.0149 | 0.0175 | 0.0207 | 0.0243 | 0.0774 |
| South Africa | 0.1344 | 0.1474 | 0.1562 | 0.1645 | 0.6025 |
| Total | 23.9689 | 25.3260 | 26.7797 | 28.3157 | 104.3903 |

Table 3A: Consumption Elasticity w.r.t. Card Penetration, %

| Country/Region | 2012 | 2013 | 2014 | 2015 | Weighted Average |
|----------------|--------|--------|--------|--------|------------------|
| UAE | 0.0510 | 0.0551 | 0.0599 | 0.0633 | 0.0576 |
| Argentina | 0.0340 | 0.0372 | 0.0406 | 0.0441 | 0.0390 |
| Australia | 0.1014 | 0.1053 | 0.1093 | 0.1130 | 0.1074 |
| Austria | 0.0354 | 0.0374 | 0.0391 | 0.0404 | 0.0381 |
| Azerbaijan | 0.0053 | 0.0059 | 0.0067 | 0.0074 | 0.0064 |
| Belgium | 0.0822 | 0.0834 | 0.0835 | 0.0833 | 0.0831 |
| Brazil | 0.0620 | 0.0645 | 0.0672 | 0.0700 | 0.0660 |
| Canada | 0.1163 | 0.1174 | 0.1196 | 0.1219 | 0.1189 |
| Switzerland | 0.0551 | 0.0567 | 0.0569 | 0.0572 | 0.0565 |
| Chile | 0.0485 | 0.0552 | 0.0573 | 0.0594 | 0.0553 |
| China Mainland | 0.1117 | 0.1106 | 0.1111 | 0.1116 | 0.1113 |
| Colombia | 0.0206 | 0.0224 | 0.0241 | 0.0257 | 0.0233 |
| Czech Republic | 0.0303 | 0.0322 | 0.0340 | 0.0356 | 0.0331 |
| Germany | 0.0267 | 0.0281 | 0.0297 | 0.0308 | 0.0288 |
| Denmark | 0.0975 | 0.1012 | 0.1041 | 0.1061 | 0.1023 |
| Egypt | 0.0040 | 0.0039 | 0.0041 | 0.0042 | 0.0041 |
| Spain | 0.0329 | 0.0337 | 0.0334 | 0.0333 | 0.0333 |
| Finland | 0.0892 | 0.0893 | 0.0872 | 0.0868 | 0.0881 |
| France | 0.0743 | 0.0747 | 0.0754 | 0.0756 | 0.0750 |
| UK | 0.1065 | 0.1100 | 0.1111 | 0.1138 | 0.1104 |
| Ghana | 0.0013 | 0.0014 | 0.0020 | 0.0028 | 0.0018 |
| Greece | 0.0081 | 0.0082 | 0.0082 | 0.0081 | 0.0081 |
| Hong Kong | 0.1139 | 0.1151 | 0.1163 | 0.1169 | 0.1156 |
| Hungary | 0.0353 | 0.0387 | 0.0415 | 0.0441 | 0.0400 |
| Indonesia | 0.0161 | 0.0162 | 0.0169 | 0.0180 | 0.0168 |
| India | 0.0056 | 0.0067 | 0.0080 | 0.0096 | 0.0076 |
| Ireland | 0.0794 | 0.0825 | 0.0886 | 0.0924 | 0.0858 |
| Israel | 0.0760 | 0.0771 | 0.0769 | 0.0770 | 0.0768 |
| Italy | 0.0298 | 0.0321 | 0.0332 | 0.0348 | 0.0325 |
| Jordan | 0.0155 | 0.0158 | 0.0161 | 0.0164 | 0.0160 |
| Japan | 0.0270 | 0.0278 | 0.0285 | 0.0294 | 0.0281 |
| Kazakhstan | 0.0062 | 0.0068 | 0.0074 | 0.0080 | 0.0071 |
| Kenya | 0.0049 | 0.0055 | 0.0059 | 0.0064 | 0.0057 |
| Cambodia | 0.0046 | 0.0055 | 0.0060 | 0.0065 | 0.0057 |
| South Korea | 0.0944 | 0.0947 | 0.0956 | 0.0963 | 0.0953 |
| Kuwait | 0.0874 | 0.0880 | 0.0922 | 0.0960 | 0.0910 |
| Lebanon | 0.0101 | 0.0108 | 0.0118 | 0.0126 | 0.0113 |
| Sri Lanka | 0.0062 | 0.0064 | 0.0070 | 0.0084 | 0.0070 |
| Morocco | 0.0073 | 0.0086 | 0.0092 | 0.0098 | 0.0088 |
| Mexico | 0.0242 | 0.0260 | 0.0283 | 0.0304 | 0.0273 |
| Myanmar | 0.0000 | 0.0003 | 0.0008 | 0.0009 | 0.0005 |
| Malaysia | 0.0449 | 0.0461 | 0.0473 | 0.0486 | 0.0468 |
| Nigeria | 0.0006 | 0.0012 | 0.0018 | 0.0027 | 0.0016 |
| Netherlands | 0.0749 | 0.0772 | 0.0796 | 0.0803 | 0.0780 |
| Norway | 0.1013 | 0.1013 | 0.1025 | 0.1042 | 0.1024 |
| New Zealand | 0.1088 | 0.1105 | 0.1117 | 0.1126 | 0.1110 |
| Oman | 0.0226 | 0.0260 | 0.0299 | 0.0330 | 0.0281 |
| Peru | 0.0213 | 0.0287 | 0.0314 | 0.0338 | 0.0290 |
| Philippines | 0.0183 | 0.0185 | 0.0187 | 0.0187 | 0.0185 |
| Poland | 0.0271 | 0.0297 | 0.0336 | 0.0380 | 0.0322 |
| Puerto Rico | 0.0309 | 0.0284 | 0.0298 | 0.0315 | 0.0301 |
| Portugal | 0.0721 | 0.0738 | 0.0754 | 0.0765 | 0.0745 |
| Qatar | 0.0663 | 0.0672 | 0.0715 | 0.0756 | 0.0704 |
| Russia | 0.0235 | 0.0304 | 0.0366 | 0.0423 | 0.0331 |
| Rwanda | 0.0005 | 0.0008 | 0.0011 | 0.0015 | 0.0010 |
| Saudi Arabia | 0.0507 | 0.0488 | 0.0526 | 0.0559 | 0.0521 |
| Singapore | 0.0849 | 0.0883 | 0.0913 | 0.0934 | 0.0896 |
| Serbia | 0.0168 | 0.0190 | 0.0210 | 0.0229 | 0.0199 |
| Slovakia | 0.0250 | 0.0262 | 0.0305 | 0.0304 | 0.0281 |
| Sweden | 0.1021 | 0.1023 | 0.1020 | 0.1010 | 0.1019 |
| Thailand | 0.0323 | 0.0354 | 0.0388 | 0.0421 | 0.0372 |
| Tunisia | 0.0037 | 0.0036 | 0.0037 | 0.0037 | 0.0037 |
| Turkey | 0.0753 | 0.0784 | 0.0780 | 0.0794 | 0.0779 |
| Taiwan | 0.0417 | 0.0438 | 0.0459 | 0.0475 | 0.0448 |
| Ukraine | 0.0122 | 0.0133 | 0.0139 | 0.0141 | 0.0133 |
| Uruguay | 0.0205 | 0.0202 | 0.0221 | 0.0297 | 0.0232 |
| USA | 0.0660 | 0.0684 | 0.0708 | 0.0732 | 0.0697 |
| Venezuela | 0.0746 | 0.0821 | 0.0847 | 0.0874 | 0.0821 |
| Vietnam | 0.0162 | 0.0182 | 0.0204 | 0.0225 | 0.0195 |
| South Africa | 0.0524 | 0.0558 | 0.0584 | 0.0604 | 0.0568 |
| Total | 0.0615 | 0.0635 | 0.0656 | 0.0679 | 0.0647 |

Table 3B: GDP Elasticity w.r.t. Card Penetration, %

| Country/Region | 2012 | 2013 | 2014 | 2015 | Weighted Average |
|----------------|--------|--------|--------|--------|------------------|
| UAE | 0.0227 | 0.0245 | 0.0272 | 0.0287 | 0.0259 |
| Argentina | 0.0228 | 0.0253 | 0.0273 | 0.0295 | 0.0263 |
| Australia | 0.0538 | 0.0557 | 0.0579 | 0.0610 | 0.0572 |
| Austria | 0.0183 | 0.0192 | 0.0200 | 0.0206 | 0.0195 |
| Azerbaijan | 0.0022 | 0.0025 | 0.0031 | 0.0034 | 0.0028 |
| Belgium | 0.0425 | 0.0432 | 0.0431 | 0.0435 | 0.0431 |
| Brazil | 0.0379 | 0.0397 | 0.0418 | 0.0435 | 0.0407 |
| Canada | 0.0651 | 0.0658 | 0.0671 | 0.0689 | 0.0667 |
| Switzerland | 0.0302 | 0.0312 | 0.0311 | 0.0314 | 0.0310 |
| Chile | 0.0297 | 0.0344 | 0.0358 | 0.0370 | 0.0343 |
| China Mainland | 0.0404 | 0.0399 | 0.0404 | 0.0411 | 0.0405 |
| Colombia | 0.0126 | 0.0136 | 0.0146 | 0.0156 | 0.0142 |
| Czech Republic | 0.0146 | 0.0158 | 0.0166 | 0.0171 | 0.0160 |
| Germany | 0.0148 | 0.0157 | 0.0165 | 0.0171 | 0.0160 |
| Denmark | 0.0456 | 0.0476 | 0.0486 | 0.0498 | 0.0479 |
| Egypt | 0.0032 | 0.0030 | 0.0030 | 0.0031 | 0.0031 |
| Spain | 0.0189 | 0.0191 | 0.0189 | 0.0188 | 0.0189 |
| Finland | 0.0488 | 0.0492 | 0.0485 | 0.0489 | 0.0489 |
| France | 0.0412 | 0.0413 | 0.0419 | 0.0423 | 0.0417 |
| UK | 0.0690 | 0.0711 | 0.0715 | 0.0743 | 0.0715 |
| Ghana | 0.0007 | 0.0008 | 0.0008 | 0.0011 | 0.0008 |
| Greece | 0.0056 | 0.0057 | 0.0057 | 0.0057 | 0.0057 |
| Hong Kong | 0.0738 | 0.0757 | 0.0770 | 0.0793 | 0.0765 |
| Hungary | 0.0222 | 0.0240 | 0.0253 | 0.0267 | 0.0246 |
| Indonesia | 0.0089 | 0.0089 | 0.0094 | 0.0100 | 0.0093 |
| India | 0.0033 | 0.0039 | 0.0046 | 0.0055 | 0.0044 |
| Ireland | 0.0382 | 0.0391 | 0.0407 | 0.0415 | 0.0399 |
| Israel | 0.0431 | 0.0440 | 0.0443 | 0.0455 | 0.0442 |
| Italy | 0.0181 | 0.0193 | 0.0202 | 0.0212 | 0.0197 |
| Jordan | 0.0122 | 0.0130 | 0.0127 | 0.0130 | 0.0127 |
| Japan | 0.0164 | 0.0169 | 0.0171 | 0.0174 | 0.0170 |
| Kazakhstan | 0.0028 | 0.0034 | 0.0029 | 0.0032 | 0.0031 |
| Kenya | 0.0041 | 0.0045 | 0.0048 | 0.0052 | 0.0047 |
| Cambodia | 0.0036 | 0.0042 | 0.0045 | 0.0048 | 0.0043 |
| South Korea | 0.0619 | 0.0616 | 0.0615 | 0.0617 | 0.0617 |
| Kuwait | 0.0210 | 0.0218 | 0.0233 | 0.0243 | 0.0226 |
| Lebanon | 0.0085 | 0.0086 | 0.0093 | 0.0100 | 0.0091 |
| Sri Lanka | 0.0038 | 0.0037 | 0.0040 | 0.0049 | 0.0041 |
| Morocco | 0.0041 | 0.0049 | 0.0052 | 0.0056 | 0.0050 |
| Mexico | 0.0162 | 0.0176 | 0.0191 | 0.0206 | 0.0184 |
| Myanmar | 0.0000 | 0.0002 | 0.0006 | 0.0007 | 0.0004 |
| Malaysia | 0.0219 | 0.0226 | 0.0224 | 0.0231 | 0.0225 |
| Nigeria | 0.0003 | 0.0008 | 0.0011 | 0.0017 | 0.0010 |
| Netherlands | 0.0337 | 0.0344 | 0.0351 | 0.0353 | 0.0346 |
| Norway | 0.0412 | 0.0418 | 0.0421 | 0.0428 | 0.0420 |
| New Zealand | 0.0630 | 0.0643 | 0.0651 | 0.0659 | 0.0646 |
| Oman | 0.0067 | 0.0079 | 0.0093 | 0.0102 | 0.0086 |
| Peru | 0.0128 | 0.0172 | 0.0191 | 0.0206 | 0.0176 |
| Philippines | 0.0134 | 0.0134 | 0.0134 | 0.0136 | 0.0135 |
| Poland | 0.0163 | 0.0177 | 0.0198 | 0.0223 | 0.0191 |
| Puerto Rico | 0.0211 | 0.0194 | 0.0204 | 0.0218 | 0.0207 |
| Portugal | 0.0468 | 0.0478 | 0.0495 | 0.0508 | 0.0487 |
| Qatar | 0.0088 | 0.0096 | 0.0106 | 0.0112 | 0.0101 |
| Russia | 0.0119 | 0.0160 | 0.0194 | 0.0204 | 0.0169 |
| Rwanda | 0.0004 | 0.0006 | 0.0007 | 0.0010 | 0.0007 |

| Country/Region | 2012 | 2013 | 2014 | 2015 | Weighted Average |
|----------------|--------|--------|--------|--------|------------------|
| Saudi Arabia | 0.0146 | 0.0141 | 0.0156 | 0.0165 | 0.0153 |
| Singapore | 0.0304 | 0.0314 | 0.0323 | 0.0336 | 0.0319 |
| Serbia | 0.0107 | 0.0120 | 0.0128 | 0.0140 | 0.0124 |
| Slovakia | 0.0141 | 0.0144 | 0.0168 | 0.0165 | 0.0155 |
| Sweden | 0.0477 | 0.0481 | 0.0479 | 0.0470 | 0.0477 |
| Thailand | 0.0169 | 0.0182 | 0.0199 | 0.0214 | 0.0192 |
| Tunisia | 0.0023 | 0.0021 | 0.0021 | 0.0021 | 0.0022 |
| Turkey | 0.0523 | 0.0549 | 0.0538 | 0.0554 | 0.0542 |
| Taiwan | 0.0227 | 0.0238 | 0.0248 | 0.0259 | 0.0243 |
| Ukraine | 0.0088 | 0.0102 | 0.0104 | 0.0093 | 0.0097 |
| Uruguay | 0.0139 | 0.0137 | 0.0151 | 0.0201 | 0.0158 |
| USA | 0.0452 | 0.0468 | 0.0486 | 0.0506 | 0.0479 |
| Venezuela | 0.0417 | 0.0474 | 0.0487 | 0.0496 | 0.0468 |
| Vietnam | 0.0105 | 0.0117 | 0.0131 | 0.0144 | 0.0125 |
| South Africa | 0.0315 | 0.0337 | 0.0352 | 0.0366 | 0.0343 |
| Total | 0.0339 | 0.0350 | 0.0360 | 0.0372 | 0.0356 |

Table 4

| Country/Region | Consumption Without Card Contribution, Constant 2011 U.S. \$bil | | | | Relative Change in Consumption with Changes in Card Penetration vs No Change in Penetration |
|----------------|---|----------|----------|----------|--|
| | 2012 | 2013 | 2014 | 2015 | 2015 |
| UAE | 164.25 | 172.16 | 183.51 | 189.27 | 0.959 |
| Argentina | 376.33 | 392.88 | 390.80 | 395.41 | 1.015 |
| Australia | 824.82 | 837.89 | 860.63 | 883.23 | 0.994 |
| Austria | 223.20 | 223.01 | 222.98 | 223.70 | 0.862 |
| Azerbaijan | 26.97 | 29.71 | 33.17 | 34.51 | 1.001 |
| Belgium | 273.23 | 274.33 | 277.22 | 282.65 | 0.990 |
| Brazil | 1,628.16 | 1,685.43 | 1,707.45 | 1,644.35 | 1.000 |
| Canada | 1,017.54 | 1,042.23 | 1,067.41 | 1,088.72 | 1.004 |
| Switzerland | 385.94 | 394.78 | 400.54 | 405.92 | 1.008 |
| Chile | 161.58 | 170.67 | 175.28 | 178.42 | 1.006 |
| China/Mainland | 2,820.40 | 3,050.59 | 3,297.54 | 3,567.69 | 1.001 |
| Colombia | 214.13 | 222.38 | 232.10 | 239.66 | 0.998 |
| Czech Republic | 106.84 | 107.73 | 109.32 | 112.51 | 0.996 |
| Germany | 2,096.51 | 2,112.89 | 2,134.13 | 2,173.88 | 0.973 |
| Denmark | 159.60 | 159.86 | 160.91 | 164.80 | 0.963 |
| Egypt | 195.10 | 189.33 | 185.48 | 193.27 | 0.998 |
| Spain | 836.26 | 810.01 | 820.28 | 845.27 | 1.006 |
| Finland | 147.61 | 147.27 | 148.34 | 150.05 | 1.146 |
| France | 1,592.39 | 1,600.01 | 1,609.99 | 1,636.90 | 0.973 |
| UK | 1,700.84 | 1,725.95 | 1,775.21 | 1,840.06 | 1.048 |
| Ghana | 23.04 | 25.86 | 18.63 | 19.28 | 1.005 |
| Greece | 185.41 | 180.67 | 181.94 | 182.31 | 0.970 |
| Hong Kong | 163.32 | 171.06 | 176.53 | 185.23 | 0.988 |
| Hungary | 86.16 | 86.64 | 88.01 | 90.25 | 0.992 |
| Indonesia | 521.16 | 550.63 | 579.29 | 609.89 | 1.006 |
| India | 1,127.18 | 1,186.09 | 1,258.19 | 1,353.69 | 1.005 |
| Ireland | 116.36 | 116.07 | 118.08 | 122.09 | 0.936 |
| Israel | 152.75 | 158.56 | 164.60 | 172.46 | 1.006 |
| Italy | 1,344.36 | 1,309.39 | 1,316.02 | 1,326.79 | 1.060 |
| Jordan | 23.24 | 25.06 | 24.74 | 25.45 | 0.999 |
| Japan | 3,650.74 | 3,710.50 | 3,675.30 | 3,644.97 | 0.969 |
| Kazakhstan | 88.65 | 105.60 | 87.15 | 88.45 | 1.005 |
| Kenya | 36.31 | 38.40 | 39.77 | 42.36 | 1.000 |
| Cambodia | 10.92 | 11.29 | 11.76 | 12.58 | 1.000 |
| South Korea | 806.28 | 824.33 | 840.56 | 859.69 | 0.992 |
| Kuwait | 39.96 | 41.29 | 42.16 | 42.67 | 0.970 |
| Lebanon | 34.72 | 33.56 | 33.97 | 34.65 | 0.996 |
| Sri Lanka | 38.41 | 39.06 | 41.94 | 44.62 | 1.016 |
| Morocco | 58.60 | 62.24 | 63.95 | 67.06 | 1.002 |
| Mexico | 811.86 | 833.80 | 849.87 | 874.65 | 0.998 |
| Myanmar | 41.71 | 42.51 | 47.33 | 49.32 | 0.990 |
| Malaysia | 153.71 | 161.16 | 165.29 | 173.04 | 1.004 |
| Nigeria | 239.87 | 308.19 | 306.37 | 318.43 | 1.006 |
| Netherlands | 396.95 | 391.28 | 391.30 | 399.95 | 0.927 |
| Norway | 207.14 | 213.15 | 216.50 | 221.25 | 1.026 |
| New Zealand | 98.35 | 101.14 | 104.38 | 107.39 | 0.988 |
| Oman | 21.29 | 22.68 | 23.86 | 24.92 | 0.988 |
| Peru | 108.42 | 113.51 | 118.78 | 122.78 | 0.991 |
| Philippines | 175.41 | 185.25 | 195.33 | 207.70 | 0.998 |
| Poland | 320.34 | 320.95 | 328.90 | 339.08 | 1.023 |
| Puerto Rico | 68.59 | 69.32 | 69.44 | 69.82 | 1.068 |
| Portugal | 152.40 | 150.49 | 153.88 | 158.14 | 0.981 |
| Qatar | 23.40 | 26.59 | 28.64 | 29.99 | 1.000 |

Table 4 (Cont.)

| Country/Region | Consumption Without Card Contribution, Constant 2011 U.S. \$bil | | | | Relative Change in Consumption with Changes in Card Penetration vs No Change in Penetration |
|----------------|---|-----------|-----------|-----------|--|
| | 2012 | 2013 | 2014 | 2015 | 2015 |
| Russia | 990.34 | 1,039.88 | 1,054.38 | 927.33 | 1.009 |
| Rwanda | 5.27 | 5.05 | 5.19 | 5.53 | 1.003 |
| Saudi Arabia | 201.39 | 210.49 | 221.08 | 228.81 | 0.986 |
| Singapore | 101.79 | 105.31 | 107.96 | 112.14 | 0.976 |
| Serbia | 29.21 | 29.59 | 28.28 | 28.42 | 1.000 |
| Slovakia | 55.68 | 55.37 | 56.41 | 57.73 | 0.807 |
| Sweden | 262.15 | 267.98 | 274.19 | 280.78 | 0.975 |
| Thailand | 206.39 | 208.54 | 209.76 | 214.60 | 1.000 |
| Tunisia | 28.71 | 28.81 | 28.89 | 29.18 | 0.997 |
| Turkey | 544.88 | 576.38 | 586.51 | 609.56 | 1.048 |
| Taiwan | 270.04 | 276.05 | 284.21 | 289.14 | 0.968 |
| Ukraine | 117.29 | 125.50 | 114.24 | 87.44 | 1.002 |
| Uruguay | 33.61 | 35.40 | 36.81 | 37.09 | 1.777 |
| USA | 10,845.15 | 11,004.30 | 11,299.89 | 11,653.22 | 1.004 |
| Venezuela | 187.90 | 196.77 | 190.41 | 174.54 | 1.002 |
| Vietnam | 91.89 | 96.17 | 101.00 | 107.58 | 1.000 |
| South Africa | 255.69 | 263.19 | 266.99 | 271.85 | 0.973 |
| Total | 38,885.42 | 39,828.88 | 40,723.75 | 41,654.35 | 1.004 |

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