

Credit Card Market: Economic Benefits and Industry Trends

By Scott Schmith

Executive Summary

This paper discusses the most significant economic benefits and trends in the electronic payments sector. Among its conclusions are the following:

- The development of electronic payments markets offers numerous benefits for consumers and merchants in developed and developing economies.
- Credit card penetration is positively correlated with economic growth and exports.
- Growth in credit card purchase volume for U.S. credit card networks remains strong in the United States and internationally.
- Future growth will come from the introduction of new products in developed markets and from increased penetration of existing and new products in developing markets.

Introduction

Growth in the electronic payments sector has surpassed general economic growth and growth in other financial sectors. Electronic payments include credit, debit, and other electronic instruments used to transfer payments from consumers to merchants. This paper will use the terms “*electronic payments*” and “*credit cards*” interchangeably but will refer explicitly to credit cards when discussing empirical studies limited to credit card payments.

The growth in the electronic payments sector is accompanied by numerous economic and transactional benefits. As demonstrated by Muhammad Yunus and the Grameen Bank, winners of the 2006 Nobel Peace Prize, gains from financial innovations can be extensive, widespread, and developmentally favorable. Electronic payments improve economic inefficiencies, make payments more secure and convenient, and, as a corollary to the lessons learned from microfinance, provide the impetus for further economic and social development.

For developing countries, those gains could be significant, but they would depend on the concurrent development of the appropriate network and payments infrastructure, government regulation, consumer education, and competition within the sector. As governments in developed economies have learned, adequate regulatory oversight in the electronic payments sector is essential to maintaining financial stability, consumer confidence, and data privacy and security of the sector. Although electronic payments growth could represent an opportunity for developing countries to rebalance their economies by encouraging domestic consumption—and an opportunity for the United States to lower its trade deficit—governments, industry, and consumer groups will need to educate consumers to use electronic payments responsibly and securely.

This paper will first discuss how electronic payments promote economic efficiency and growth.



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Second, it will describe additional benefits for consumers and merchants. Third, it will show how the financial sector and electronic payments enhance economic growth and innovation. Fourth, it will discuss how electronic payments affect exports. Fifth, it will discuss credit card market penetration in selected countries. Next, it will discuss a forecast for the electronic payments market. Finally, it will discuss the infrastructure required for building a successful payment network.

Electronic Payments Promote Economic Efficiency and Growth

Electronic payments expand the consumer market, increase banking access to the unbanked, improve macroeconomic efficiency, and encourage entrepreneurial activity. The ultimate benefit of adapting an electronic payments system will depend on how competition and the evolution of the informal sector affect how widely electronic payments are adopted.¹

Electronic Payments Expand the Consumer Market

The development of an electronic payments system enlarges the consumer market and boosts the purchase of U.S. exports, particularly in the e-commerce and travel and tourism sectors. According to an analysis of a cross-section of 50 countries by Global Insight, increasing the existing share of electronic payments in a country by a margin of just 10 percent will generate an increase of 0.5 percent in consumer spending. For example, according to the Economist Intelligence Unit, consumer expenditure in China was \$865 billion in 2005. Increasing credit cards' share of the transaction market from 20 percent to 22 percent would result in an incremental \$4.33 billion in consumer expenditure.

Electronic Payments Increase Access to the Banking System

Electronic payments act as gateways into the banking system for unbanked segments, which make up as much as 70 percent of the world's population. In a simulation of the U.S. economy, a 10 percent shift of currency into deposits or other

reserves that can be used for loans increased GDP by more than 1 percent annually.² Many Latin American countries, such as Brazil and Mexico, with large unbanked or underbanked populations would benefit significantly from movements into the formal financial sector.

Electronic Payments Create Macroeconomic Efficiency

Electronic payment networks have the potential to provide cost savings of at least 1 percent of GDP annually over paper-based systems through increased velocity, reduced friction, and lower costs.³ For China, with a nominal—that is, unadjusted for purchasing power parity (PPP)—GDP of \$2.278 trillion in 2005, that amount translates into a potential savings of roughly \$23 billion.⁴

Electronic Payments Are a Source of Capital for Start-ups

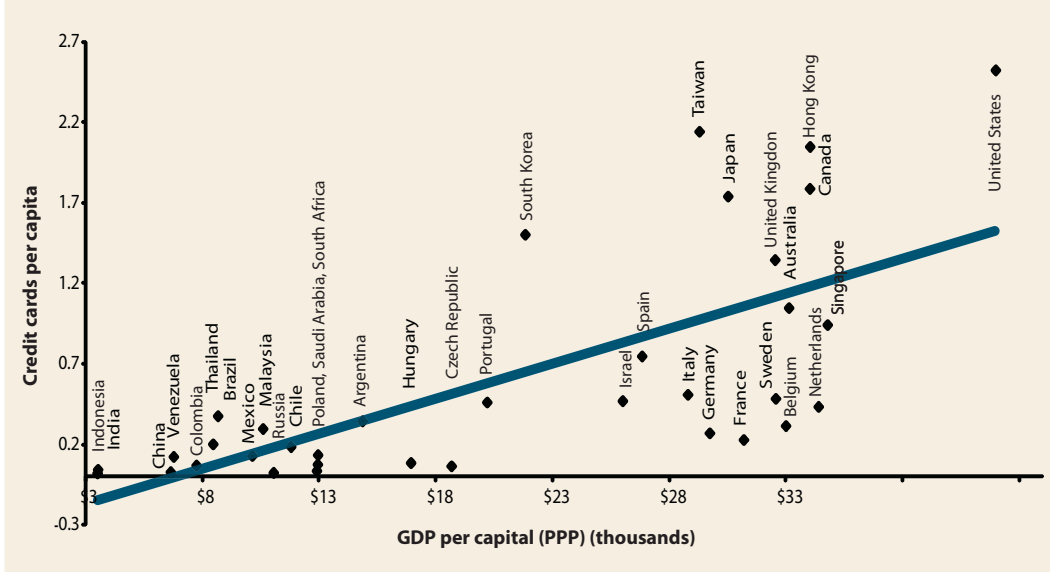
Credit cards are one of the most reliable sources of start-up funds for new entrepreneurs. Unlike bank loan officers, private angel investors, or government lending programs, credit cards offer a simple and rapid access to capital that has helped a significant number of U.S. entrepreneurs establish new businesses. In addition, factoring future credit card receipts for short-term capital needs is a valuable option for many small businesses. The small and medium-sized enterprise sector in emerging countries, which typically has difficulty accessing financing, could benefit from that alternative financing source.

Electronic Payments Benefit Consumers and Merchants

In addition to the numerous economic benefits that result from expanding the electronic payments markets, electronic payments systems also provide consumer and seller protection and convenience.

For consumers, electronic payments provide an established system of dispute resolution, increase the security of their payments, and reduce their liability for stolen or misused cards. Electronic payments also provide immediate access to funds

Figure 1: GDP Per Capita (Purchasing Power Parity) versus Credit Card Penetration



on deposit through debit cards and offer the convenience of global acceptance, a wide range of payment options, and enhanced financial management tools.

For sellers, electronic payments improve the speed and security of the transaction processing chain, from verification and authorization to clearing and settlement. Such payments also provide better management of cash flow, inventory, and financial planning through rapid bank payments. Electronic payments may also reduce costs and risks by eliminating the need to run an in-house credit facility.

Financial Sector Development Enhances Economic Growth and Innovation

Financial development increases economic growth by directing capital to an economy's most productive areas. The greater a country's financial development, the larger the economic growth over the subsequent decades.⁵ A doubling of the size of private credit in a developing country is associated with a 2 percent annual increase in economic growth.⁶ Finally, more new firms are

created in countries with developed financial systems, and capital-dependent industries and firms grow faster.⁷

The development of the financial system includes the banking, securities, and electronic payments sectors. Electronic payments, for example, contribute toward the development of a more efficient and sound financial system. Numerous studies show that the growth of electronic payments has measurable economic benefits for countries primarily because electronic payments are much more cost-effective on a large scale than cash payments. E-commerce and travel and tourism, for example, are two sectors that depend significantly on the ability of consumers to use electronic payments at the point of purchase. Figure 1 shows the relationship between per capita credit and charge card penetration and per capita GDP for 2005.⁸

The figure illustrates several key trends:

1. There is a positive and sizable relationship between credit card penetration and economic development, as measured by per capita income.⁹

Countries with higher levels of economic penetration also have more credit card usage.¹⁰

2. Credit card usage in the transitional countries of Eastern Europe and the countries of the former Soviet Union is below what we would expect for countries with similar levels of GDP per capita. But, as indicated earlier, that usage is likely a result of those countries' later adoption of credit cards.

3. There are several large economies with low levels of credit card penetration, including China and India. That lack of use can be explained by their low level of economic development. As those countries develop, they are likely to use credit cards more intensely.

Electronic Payments and Exports

In addition to its role in developing a country's domestic economy, the electronic payments sector is also linked to an expansion of exports. As

discussed earlier, more accessible and convenient payment options facilitate larger consumer purchases. An analysis of credit card penetration data shows a moderate correlation between credit cards per capita and exports per capita, which is higher than the correlation between GDP per capita and exports per capita. Also, a moderate correlation exists between changes in credit card penetration and exports. Although it is likely that both credit card penetration and exports between 1998 and 2005 were affected by economic growth in GDP, that analysis suggests that the development of electronic payments markets has important implications for further economic and trade opportunities for U.S. businesses.¹¹

Credit Card Market Penetration in Selected Countries Is Growing

Table 1 shows the extent to which credit and charge cards were used in different countries in 1998 and 2005. Because of the complicated nature of the electronic payments sector, this table is

Table 1: Market Penetration in Selected Countries (Credit and Charge Cards per Capita)

Country	1998	2005	Change (%)	Number of Companies	Country	1998	2005	Change (%)	Number of Companies
Malaysia	0.10	0.30	192	n.a.	United States	1.80	2.53	40	7
Germany	0.19	0.27	46	7	Taiwan	0.49	2.14	341	n.a.
France	0.15	0.23	50	5	Hong Kong	1.12	2.05	84	n.a.
Thailand	0.04	0.20	372	4	Canada	1.40	1.79	28	5
Chile	0.14	0.19	37	n.a.	Japan	1.95	1.74	-11	6
South Africa	0.08	0.13	69	5	South Korea	0.88	1.50	71	6
Mexico	0.06	0.13	112	4	United Kingdom	0.71	1.35	90	6
Venezuela	0.13	0.12	-5	n.a.	Australia	0.85	1.05	24	5
Hungary	0.00	0.09	3,022	n.a.	Singapore	0.52	0.94	80	n.a.
Poland	0.02	0.08	251	4	Spain	0.33	0.75	130	8
Colombia	0.04	0.07	70	n.a.	Italy	0.25	0.51	101	5
Czech Republic	0.00	0.07	2,323	4	Sweden	0.34	0.49	43	5
Indonesia	0.00	0.04	360	4	Israel	0.40	0.47	18	n.a.
Saudi Arabia	0.02	0.04	101	5	Portugal	0.20	0.46	127	5
China	0.01	0.03	136	1	Netherlands	0.26	0.43	70	n.a.
Russia	0.00	0.02	>9,999*	8	Brazil	0.14	0.38	168	6
India	0.00	0.02	405	4	Argentina	0.24	0.35	44	n.a.
					Belgium	0.28	0.32	13	n.a.

n.a. = data not available

Source: Economist Intelligence Unit, *European Marketing Data and Statistics 2007* (London: Euromonitor International, 2007); Economist Intelligence Unit, *International Marketing Data and Statistics 2007* (London: Euromonitor International, 2007); and Visa International.

*Russia's 1998 card usage was 0.00002 per capita compared to 0.0091 for India

better for understanding general sector trends and not payment markets in particular countries.¹² The table reveals six important trends or characteristics:

1. More developed countries generally have higher card penetration, although there are several examples of less developed countries that have higher usage than more developed countries.

2. Credit card penetration varies widely among countries. The United States, for example, had a penetration of 2.53 cards per capita in 2005 versus only 0.02 cards per capita in India.

3. There has been impressive growth in credit card penetration across income levels and in economic growth. The average growth rate in credit card penetration has greatly exceeded country and global growth for all but a few countries.

4. There is more variation in credit card penetration in Asia than in Latin America or the transitional economies in Eastern Europe (such as the Czech Republic, Hungary, Poland, and Russia).

5. Credit card penetration in the transitional countries has grown faster than in other countries, primarily because of the recent opening of the financial markets in countries that were already enjoying moderate levels of economic development.

6. The number of credit card companies competing in a country varies significantly, from eight in Russia to one in China. There appears to be a rough correlation between the number of companies and credit card penetration.

Growth Is Forecast for the Global Electronic Payments Market

Global Insight, an economic consultancy, expects a 13.1 percent growth in electronic retail transactions from 2004 to 2009 across 79 countries, supported by global economic growth and the transition from cash and paper transactions to electronic payments.^{13, 14} Table 2 shows the actual and forecasted growth by region. Global Insight predicts that the transitional economies of Eastern Europe are likely to have the highest growth rates, behind India, China, and South Korea (individual countries are not shown in the table). Among emerging regions, Latin America will experience more moderate growth in electronic transactions because its overall economic growth rate is slower and it already has higher credit card penetration rates than other regions, particularly Eastern Europe. Electronic payments usage will depend on economic growth, infrastructure, consumer education, transparency, and regulation.

Successful Electronic Payment Systems Need Strong Infrastructure and Efficient Regulation

The infrastructure needed to support a vibrant electronic payments sector has four components:

Table 2: Actual and Forecasted Growth for Electronic Payments, 1999–2009

	Electronic Payments (US\$ billions)			Annual Change (%)	
	1999	2004	2009	1999–2004	2004–2009
World	\$117.4	\$209.8	\$384.2	12.3	12.9
North American Free Trade Agreement	\$44.9	\$78.3	\$140.0	11.8	12.3
South America	\$3.8	\$12.5	\$24.7	26.7	14.6
Western Europe	\$50.2	\$74.8	\$111.9	8.3	8.4
Eastern Europe	\$3.8	\$9.7	\$25.8	20.5	21.6
Asia	\$12.9	\$31.1	\$74.8	19.2	19.2
Middle East and Africa	\$1.8	\$3.3	\$6.9	13.2	15.9

Source: Global Insight.

a telecommunication system, an acceptance network, credit bureaus, and consumer education. In addition, electronic payments require sound and efficient regulation, from both the relevant government bodies and the private payments network.

Telecommunication System

A telecommunication system that can support real-time authorization is essential. Until recently, a sufficient telecommunication system required fixed telephone landlines, but recent innovations in wireless technology permit the development of electronic payments systems in places where they were previously unsustainable.

Acceptance Network

Consumers react most positively to electronic payments when the acceptance infrastructure is widespread and robust. Depending on the target segment, point-of-sale terminals, automatic teller machines, bank branches, and Internet, mail order, or telephone merchants need to be available to accept consumers' cards.

Credit Bureaus

Credit bureaus are necessary to provide accurate and timely credit information to issuing banks. Credit bureaus that cover a wide consumer base, that include positive and negative credit information, that require information sharing, and whose credit information extends for at least two years are integral components of sustainable electronic payments markets. Auxiliary information, such as utility and rent payment timeliness, has recently been used for sectors or markets outside of the traditional credit markets.

Consumer Education

Financial literacy initiatives help to promote safe and responsible banking habits as new payment instruments are introduced. Merchants will need to understand the electronic devices they are using, and institutional buyers will need to develop appropriate procedures and safeguards.

Regulation

A payment system needs common effective operating regulations that are understood and adhered to by all participants. Payment systems should support economies of scale while encouraging competition.¹⁵ Public and private regulators must also effectively oversee the payments network's stability and security, prevent fraud, and manage credit and financial risk concerns that threaten to undermine consumer confidence in new and existing electronic payments systems.

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Endnotes

1. Economic growth increases the quantity of disposable income available for payments. The economic and consumer benefits of electronic payments will depend on how effectively market competition increases the advantage of electronic payments over cash and check payments. Finally, more open, transparent, and regulated economies increase the demand for electronic payments. Cash's relative value over electronic payments for anonymity is affected by a reduction of the informal sector and corruption. See Gene Amromin and Sujit Chakravorti, "Debit Card and Cash Usage: A Cross-Country Analysis," *Working Paper 4*, Federal Reserve Bank of Chicago, 2007.
2. Ibid.
3. David Humphrey, Magnus Willeson, Ted Lindblom, and Goran Bergendahl, "What Does It Cost to Make a Payment?," *Review of Network Economics* 2, no. 2 (2003): 159–74.
4. Economist Intelligence Unit figures for GDP.
5. Ross Levine, "Finance and Growth: Theory and Evidence," in *Handbook of Economic Growth*, vol. 1, ed. Philippe Aghion and Steven Durlauf (Amsterdam: North Holland, 2005); Robert King and Ross Levine, "Finance and Growth: Schumpeter Might Be Right," *Quarterly Journal of Economics* 108, no. 3 (1993): 717–37; Thorsten Beck, Ross Levine, and Norman Loayza, "Finance and the Sources of Growth," *Journal of Financial Economics* 58, nos. 1–2 (2000): 261–300.
6. Beck, Levin, and Loayza.
7. Raghuram G. Rajan and Luigi Zingales, "Financial Dependence and Growth," *American Economic Review* 88, no. 3 (June 1998) Demirguc-Kunt and Maksimovic 1998 Asli Demirguc-Kunt and Vojislav Maksimovic, "Law, Finance and Firm Growth," Working Paper (July 1998). *The Journal of Finance*, Vol 53, No. 6 (Dec., 1998), pp. 2107–2137.
8. GDP per capita adjusted for purchasing power parity is used because it is a better measure than nominal GDP to compare levels of economic development across countries.
9. Although the correlation of credit card penetration with economic development does not demonstrate a causal link between the credit card market and economic development, such a relationship would not be inconsistent with what is known about the link between other financial markets and economic development. For the credit card market, such a link is likely bidirectional, with higher economic growth encouraging greater electronic payments usage, which, in turn, offer substantial micro- and macroeconomic benefits that promote further economic development.
10. The correlation (0.696) with economic development and credit card penetration is positive and substantial (where 1.0 equals perfect correlation), especially in studies of trade and international development. *Correlation from 0.40 to 0.60 would be considered moderate, from 0.60 to 0.80 marked, and from 0.80 to 1.0 high. See Abraham Franzblau, A Primer of Statistics for Non-Statisticians (New York: Harcourt, Brace & World, 1958). The correlation of 0.696 is based on 35 observations.*
11. Correlations between 2005 credit cards per capita and exports per capita, correlations between GDP per capita and exports per capita, and changes in the level of credit card penetration and exports are 0.514, 0.433, and 0.488, respectively, and relate to a sample of 35 countries. See the Economist Intelligence Unit, *European Marketing Data and Statistics 2007* (London: Euromonitor International, 2007); Economist Intelligence Unit, *International Marketing Data and Statistics 2007* (London: Euromonitor International, 2007); and TradeStats Express, Office of Trade and Industry Information, International Trade Administration, U.S. Department of Commerce, <http://tse.export.gov>.
12. Market penetration in the credit card sector can be measured in various ways, including the total

number of transactions, the transaction amounts, or the number of cards per capita. Inherent problems in the availability, validity, and consistency of the data support using the number of cards per capita to compare market penetration across countries. The data in the table include credit cards (such as Visa and MasterCard) and charge cards (such as American Express) but might also include retailer cards (such as Target and Sears). Because the measure is based on per capita, it does not distinguish between debit and credit card transactions. The access and reproducibility of data in the credit card market is often limited and restricted in its dissemination. Data are available for a restricted number of countries and are often incomplete, inconsistent, or unreliable. In some countries, reported credit card network data also includes partial or complete debit card transactions. Card data can differ because the information originates from acquiring banks, issuing banks, or both. This paper follows the methodology of Gene Amromin and Sujit Chakravorti, "Debit Card and Cash Usage: A Cross-Country Analysis," Working Paper 4, Federal Reserve Bank of Chicago, 2007. They perform a similar analysis of the debit market using the number of cards and the number of debit terminals to measure debit demand.

13. Up from 12.7 percent from 1999 to 2004.

14. Globally, economic growth of 3.2 percent is expected between 2004 and 2009, and the use of checks is predicted to decline annually by 3.3 percent, from 20 percent in 2004 to 10 percent in 2009.

15. Barriers that restrict issuing banks' ability to offer competing electronic payments brands or that limit the banks' participation in electronic payments processing will hamper electronic payment usage by reducing consumer awareness, limiting innovation, and increasing consumer and merchant fees. China is the best example of a restricted market. Until recently, issuing banks have been unable to issue single-branded cards, other than China Union Pay, a Chinese electronic payments company. Currently, it is still not possible for foreign electronic payments companies to process their electronic payments on their own network.

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