

Executive Summary

The Electronic Payment System: An Assessment of Benefits for the US and State Economies

An easy to use, efficient method of purchasing goods and services is essential to a well-functioning economy. Payment methods have evolved throughout human history, from barter to primitive forms of money, to full-bodied coins and precious metals, to bank notes, to national fiat currency and checks. Each advance has brought with it more economic efficiency, productivity, and integration. More recently, various types of electronic payment mechanisms have become an increasingly large share of total transaction volume. Electronic payments are highly efficient, offering advantages such as speed, reduced costs, and accuracy. These enhancements have contributed significantly to the expansion of the US economy, increasing liquidity and stimulating personal consumption.

The essential rationale for the theory that improved efficiency in transactions processing generates economic benefits lies in two basic concepts, both of which have been known since long before economics emerged as a discipline. Initially, the basic notion that economic agents (such as consumers, producers, and investors) respond to incentives is relevant. As transactions costs are reduced, there is an incentive to engage in exchange more frequently. This notion has been widely accepted for many millennia. In fact, Aristotle wrote extensively about it.

The second key idea is the "equation of exchange," which notes that the product of the quantity of money and its turnover rate (velocity) equals the total volume of activity that can be supported. This expression was actually posited by astronomer Nicolaus Copernicus in the early 1500s and explored at length by philosopher John Locke in the late 17th century. It was formalized into economics in the early 19th century and, although often identified with the Monetarist school of thought, is actually fundamental to all major strains of economic analysis. For present purposes, it illustrates that improvements in the technology available to process transactions allows more activity to occur with a given money supply.

As would be expected, the velocity of money has tended to generally improve over time as new innovations are implemented (there has been a recent cyclical reversal in this pattern, as the Great Recession brought massive infusions of money during a period of declining output followed by very sluggish growth). By far the most significant contributor to the improvements in recent decades has been the introduction of the various aspects of the electronic payments system.

The Perryman Group (TPG) was recently asked by MasterCard Inc. (MasterCard) to evaluate the impact of electronic payments on the United States and the 50 states. This report presents the findings from this analysis.

Highlights of Study Findings

The electronic payment system enhances efficiency by making payments faster and easier. As a result, consumer spending has been enhanced, production has been facilitated, and the US economy has been able to grow at a faster pace than it would have otherwise.

- The Perryman Group estimates that electronic payment systems have, since their inception, led to gains in business activity in the United States for 2014 (compared to the results if no such system existed) totaling **\$1.760 trillion** in gross product and almost **23.2 million** permanent jobs.
- Looking at the cumulative impact from 1970 to 2014, the increase in gross product is **\$34.314 trillion** in gross product and **387.5 million** person-years of employment.
- The increased usage of electronic payments from 2004 to 2014 has generated **\$432.927 billion** in gross product and nearly **5.7 million** permanent US jobs for 2014.

The electronic payments system and associated efficiencies have (as of 2014)

- ✓ **increased the size of the US economy by more than 12%** (as measured by gross product),
- ✓ **increased personal consumption expenditures by almost 17%, and**
- ✓ **increased employment by 20%.**

Every state economy benefits from the enhanced economic activity associated with payment system efficiencies.

Summary of Economic Benefits of the Electronic Payments System to the United States Economy*

	Annual Impact of the Electronic Payments System Relative to 1970 (Scenario I)	Cumulative Impact: 1970-2014	Annual Impact of Increased Usage of Electronic Payments Relative to 2004 (Scenario II)
Gain in Gross Product	\$1.760 trillion	\$34.313 trillion	\$432.927 billion
Gain in Employment	23.16 million (permanent jobs)	387.522 million (person-years)	5.652 million (permanent jobs)

SOURCE: The Perryman Group

*Scenario I measures the current (2014) effects of the electronic payments system by comparing US economic performance to a simulation of the US economy in which no such mechanism existed. The cumulative impact of the payment system covers the entire 1970 to 2014 period. Scenario II examines the economic benefits observed in 2014 resulting from growth in the use of the electronic payments system over the past 10 years (2004-2014). All results reflect the overall (direct, indirect, and induced) effects of both the stimulus to real personal consumption and the efficiency gains that are observed across the entire economy. Results are fully adjusted for gains in productivity over the relevant time horizon where necessary. Monetary values are in constant (2009) dollars for consistency with available data and to eliminate the effects of inflation. Annual results are expressed in permanent jobs to reflect their ongoing nature. Cumulative jobs impacts are in person-years, which is one person working for one year. Methods used, assumptions, and additional detail may be found elsewhere in this report as well as in the Appendices. Totals may not add due to rounding.