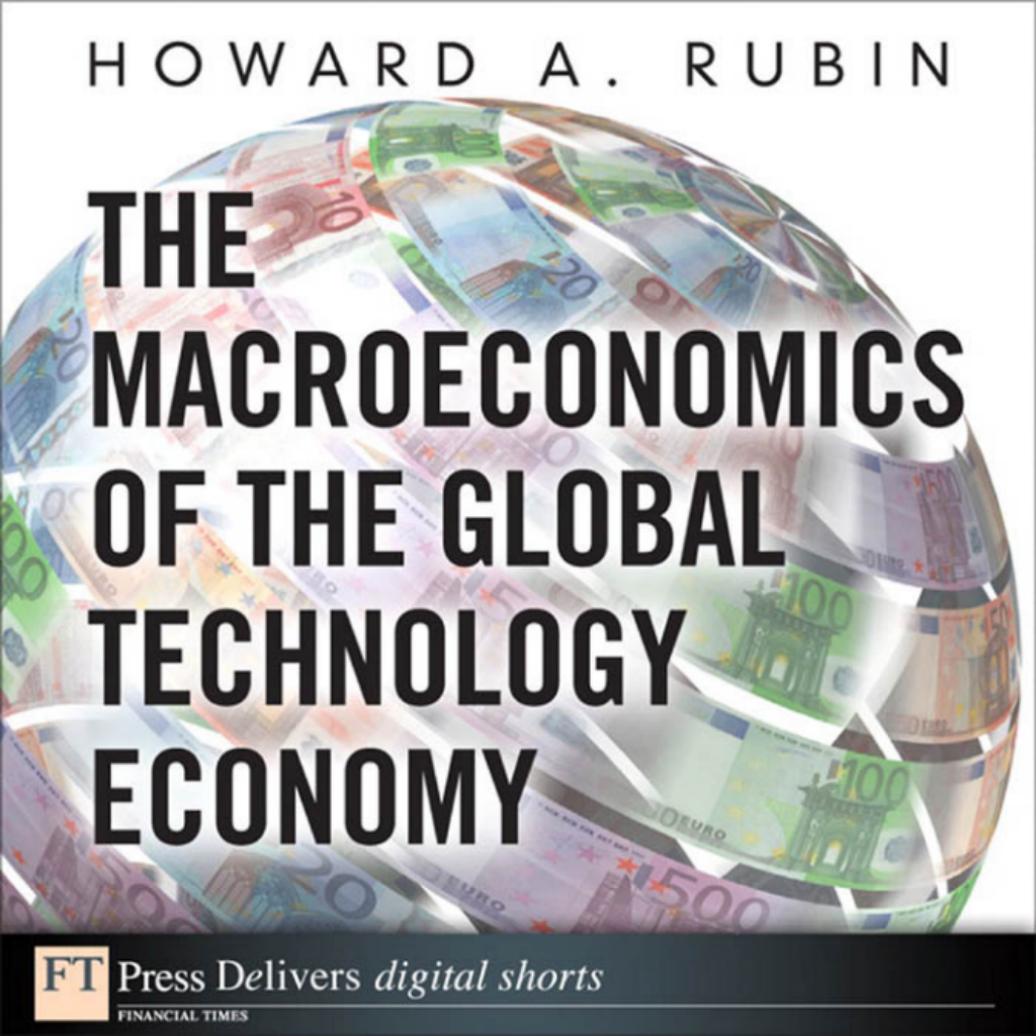


HOWARD A. RUBIN

A globe where the continents are represented by various Euro banknotes, including 100, 20, and 500 Euro notes, creating a textured, colorful surface.

**THE
MACROECONOMICS
OF THE GLOBAL
TECHNOLOGY
ECONOMY**

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Press Delivers *digital shorts*

FINANCIAL TIMES

THE MACROECONOMICS OF THE GLOBAL TECHNOLOGY ECONOMY

Howard A. Rubin

THE MACROECONOMICS OF THE GLOBAL TECHNOLOGY ECONOMY

well surpassing such investment by the United States and every other country.

The Dow Jones Industrial index no longer exists, replaced by a Technology Leaders Index that precisely gauges a company's mastery of technology and the impact this mastery has on profitability. The Gross Domestic Product (GDP) is no longer relevant, because a Global New Economy Index assesses the amount of change occurring as a result of digitization, privatization, and globalization, based on measuring such variables as availability of IT human capital skills, technological innovation, export of goods and services, Internet connections, and the development of e-commerce, computer usage, and computing power.

This is the “technology economy”—a massive, underlying force that drives every aspect of business today. By recognizing it, mapping it, and understanding the interaction of technology investment and the creation of value, we will fundamentally change the way business is done. We will be able to use this knowledge to optimize all aspects of technology investment on a global, national, and corporate level.

The Global Technology Economy Is Already Enormous, and Growing

In 2010, global technology spending—the combined spending on information technology as we think of it today, coupled with

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spending on all operational technology (such as processors embedded in cars, appliances, the smart grid, traffic lights, and so on)—was approximately \$4.2 trillion. This is the equivalent of \$701 per year (or one personal computer, or 3.5 iPhones) for each and every person on the planet. If this \$4.2 trillion in technology spending was treated as GDP, it would represent the fourth largest economy of the 186 tracked by the World Bank, ranking behind only the United States, Japan, and China.

With an estimated 2011 growth rate of 3.5%, the global technology economy is growing faster than the GDP of all advanced economies (@2.6%) and is somewhat lower than the world's total GDP growth rate with emerging markets included (@4.5%). Within the global technology economy, remarkably (though not surprisingly), the financial services sector accounts for 9.2%—or about \$400 billion—of the global technology economy. Financial services also remains the fastest growing component as it is the most technology intense and becoming “intenser.” We can examine this phenomenon using some new metrics that relate technology expense and investment to the economics of nations.

For example, in the United States, total technology spending is equivalent to \$3,500 per citizen and \$5,600 per worker; in Switzerland, it is higher at \$5,100 per citizen and \$6,700 per worker. And in third world countries such as Zimbabwe and Bangladesh, it is a mere \$20 to \$40 per worker. The correlation of technology spending and level of development is astonishingly clear, as shown in Figure 1.

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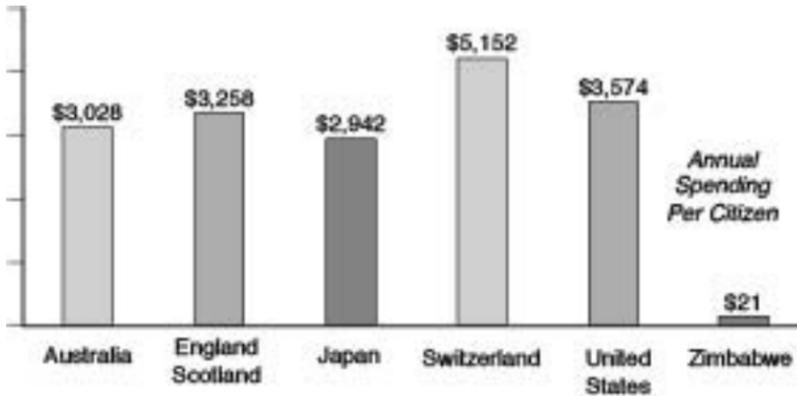


Figure 1 National technology spending

Already, technology spending represents approximately 5% of revenue and 7% of operating expense across all sectors worldwide, and as much as 10% to 12% of new revenue and 16% to 18% of non-interest expense for the world's most technology-intense financial services firms.

This technology economy is not static. It is fluid and dynamic, and moves across the globe in waves that can be viewed in the same manner as trade balances, as shown in Figure 2. For instance, for every \$1 of technology services spending (“imports”) flowing into the United States, \$.87 flows out. Yet in China, every \$1 in spending produces an outflow of \$1.70, and in the high-growth economy of India, the gap increases to \$8.86 out for every dollar in.

In addition, the technology economy is growing at a rapid pace. India's technology investment per worker will grow 77% by 2011, the Ukraine's by 95%, Brazil's by 60%, China's by 55%, and the

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United States', which started well ahead, by 10%. Worldwide technology spending was \$800 billion between 1980 and 1990 and \$3.2 trillion between 1990 and 2000. Technology spending for 2009 is estimated at \$4.2 trillion—which means that in this one single year, the world spent more on technology than it did in the 20 years between 1980 and 2000.

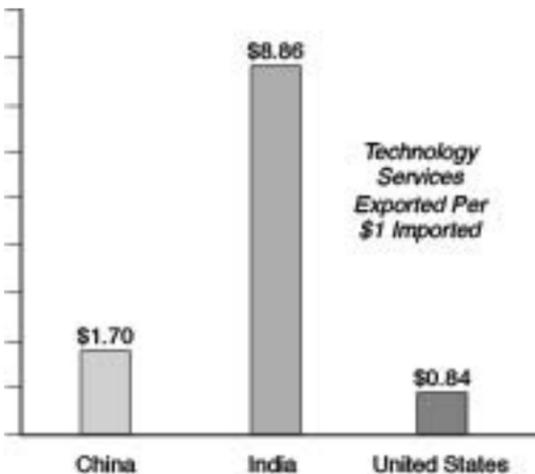


Figure 2 Technology balance of trade

New Indicators Will Make the Technology Economy Transparent

As we begin to chart, calibrate, and take charge of this technology economy, new indicators—all of which will relate directly to