Measuring Impact of Electronic Commerce on Business Activities

Dr. Mairaj Salim
Associate Professor (e-Commerce Marketing)
School of Business Studies-Shobhit University, India.

Abstract: Electronic commerce may be defined as the process of buying, selling, or exchanging products, services, or information via computer networks. E-commerce has definitely been changing the world in terms of the way people interact and schedule their time, in the way companies reorganize their selling processes and human resources, in the way governments relate to the people, to companies and to other countries. The economy, markets, society, the labor market and industry have all been and still are being shaken by e-commerce. An electronic commerce Website is successful if it achieves the purpose for which it has been created. There is a need to measure and monitor e-commerce from the perspectives of both policy and measuring the economy. The paper aims to measure the impact of e-commerce on business activity.

Keywords: E-commerce, Business, Activity, Impact and Measure.

Traditional macroeconomic methods and existing economic indicators may not apply to and cannot keep pace with the information economy’s Internet speed, expanding markets, and changing industry structure. Thomas R. Spacek have described new capabilities, characteristics, classes of indicators that are being developed to measure, monitor, and forecast business activity within the emerging Internet-based economy at the global, country, industry segment, and individual company level. These are describe below

A. New Capabilities.
B. Characteristics of Measurements.
C. Classes of Indicators.

A. New Capabilities

The Internet has been growing very rapidly for a number of years. Two of the major driving forces for its current and projected future growth are productivity improvements for businesses and government agencies and electronic commerce both business-to-business and business-to-consumer. Electronic commerce is a very small part of many countries’ economies but is growing rapidly. There is increasing demand for capabilities to measure electronic commerce and its impact on individual firms, industries, and the economy of individual countries and regions of the world. In the Internet electronic commerce world, many traditional ways of organizing and measuring economic activity simply do not work. For example organizing companies or products by Standard Industry Classification (SIC) codes or other systems in common use does not apply too much of the new digital economy. There are many tools and methods available where monitors are placed at individual web sites to measure parameters of interest such as the number of hits, the total number of unique visitors, how long users are connected to the site, what pages they are visiting, whether purchases are made, response time and performance of links within a site, etc. Some of the tools also provide analysis of those parameters to gain further insights into, e.g., customer-buying behavior. A firm using such tools may find them very useful in helping the firm make various business and technology decisions regarding its site, but, for the most part, the value is limited to that firm. Other capabilities exist where monitors are placed on a large sample of PCs most often in people’s homes to measure parameters such as which sites are being visited most often and exactly what the users are doing on those sites. Analyses of data from such tools are useful for such applications as helping advertisers decide where to place ads, providing inputs for establishing advertising rates for web sites, understanding what customers are doing and their purchase behavior across the sampled sites and by using statistical techniques across all sites, and thus to some degree measuring the impact of electronic commerce.

These later PC-based tools have several drawbacks, e.g., they may have sampling biases and may miss certain important segments of the buyer population, and e.g., purchases made from PCs at the workplace may have limited samples, if any. Hence there remain questions as to the accuracy of the results obtained from these tools. Some vendors in this category have faced severe criticism from individual web sites and from some members of the Internet advertising community for inaccurately reporting traffic on their sites, which may point to lack of sophisticated sampling and forecasting methodologies. An important advantage, however, of both of these types of tools is the detailed “click” data that is captured and made available for analysis.

In addition to web server-based and PC-based monitoring, other measurement methods include: software enabled in browsers, tracking capabilities embedded in software used by Internet advertising brokers, software embedded in routers, remote monitoring of web site performance, and information on electronic purchases collected by some credit card firms. Each method is suited for a particular application or set of applications, and each has its advantages and drawbacks.

ISSN: 2455-2631 © February 2019 IJSDR | Volume 4, Issue 2
B. Measurement Characteristics

B.i. Large-Scale Monitoring of Internet Protocol (IP) Networks

Problems in monitoring often include scaling. That is, a methodology may successfully apply to a small network, but may not easily or practically extend to large networks nor to a country nor to the world. The methodology being developed here is based on statistical sampling techniques and will apply to an individual company's web site as well as to a large extranet, an industry, a state, a country or the world.

B ii. Remote Non-Intrusive Monitoring Techniques

The methodology being developed will allow for the collection of many modeling parameters without needing to install a device on PCs nor in routers nor on web servers nor on data lines.

B iii. Real-Time Estimates and Analysis

Internet statistics are often based upon surveys or monitoring devices that capture data for later analysis. The capabilities being developed will, for the most part, capture and analyze data in real-time. As we will see in an example below, real-time availability may produce new useful applications even in cases where similar data available months later (say, based on analysis of survey results) may have little value for the application.

B.iv. Innovative Statistical Techniques

The methodology being developed includes efficient sampling methods, algorithms, and accuracy estimates. Note that most Internet measurements today do not produce accuracy estimates. It is also important to note that samples can be designed from the set of all IP addresses available in the public Internet, hence making it possible to generate very accurate results.

C. Classes of Indicators

Prior to embarking on an effort to define and test indices and indicators of Internet electronic commerce, we had two examples which although not sufficient to be a proof of concept did give us optimism that we could produce indicators. The first was a study we became aware of (but unfortunately do not have all the details because they were proprietary) which was done several years ago by a major interexchange telephony carrier. The study showed that for individual firms, as business telephone traffic increased (decreased), sales increased (decreased). Also the correlation varied by industry, but there were similar patterns among firms within a given industry. Based upon these results, we speculated that increased traffic to an electronic commerce web site may indicate increased revenues. In a second example we looked at a six-month average host growth rate in Hong Kong from November 1996 through mid-1999 produced by NetSizer. This appeared to be a leading indicator by several months of the beginning (June 1997) of the country's economic downturn when compared to the annual GDP growth rate. In the longer run as Internet growth stabilizes, traffic growth may be a better measure than host growth, but in countries with the Internet expanding very rapidly, host growth may be a reasonable proxy for traffic. What we perhaps were observing was investors, businesses, and entrepreneurs becoming more cautious and spending less on getting into or expanding their Internet businesses as the economic downturn progressed. Of course the host growth rate may not be a leading indicator, but perhaps appeared to be one because it can be produced in real-time whereas measures such as GDPs, etc. are often based on surveys which are typically analyzed and reported on months later. In any case both of these examples gave us some optimism that we could produce indicators. A key focus of the research upon which we have embarked is to define measures to monitor and track Internet electronic commerce; indices against which to measure performance improvement of a firm, industry, country, etc.; and indicators to predict performance changes. For some applications, traffic growth may itself be an indicator. Most of the measures, indices and indicators will likely include traffic or traffic growth as one of the components along other data either produced by NetSizer (e.g., host counts) or obtained elsewhere. Two of the several new classes of indicators we are pursuing are described below.

C.i Indicators for the Digital Economy

These measures, indices, and indicators will focus on Internet economic activity at a high level. This new class of indicators will be analogous to indicators in the traditional economy such a country's GNP, Leading Economic Indicators, the number of telephone lines, the number of PCs, etc. An example of an indicator for a country might be a weighted linear combination of two or more of the following NetSizer generated measures: electronic commerce traffic growth within the country, web server growth, growth of other types of hosts, Internet subscriber growth, and Internet traffic growth into and out of the country. These could possibly be combined with other data such as PC growth, growth in ASDL lines and cable modems, demographic information, etc. The uses of indicators in this class include: a) tracking and measuring the growth of Internet electronic commerce; b) measuring the impact of the Internet electronic commerce on the overall economy; and c) predicting economic changes based on Internet economic activity.

C.ii Leading Indicators of Corporate Business Activity

Indicators in this class will include Wall Street-like indices. These would be analogous to indices in the traditional economy such as the Dow Jones, Standard and Poors, and Heng Seng indices. This class of indicators will also include indicators for specific
industries and for individual firms. Our current research is examining the relationship between traffic on the last network link between a router and an electronic commerce web site and revenue generation. The research is also attempting to isolate that portion of traffic that is attributable to revenue generation. The uses of indicators in this class include growth projections for a firm or portfolio, strategic planning, and competitive analysis.

References