

The Impact of the New Economy on Developing Countries

Lawrence J. Lau, Ph. D., D. Soc. Sc. (hon.)

Kwoh-Ting Li Professor of Economic Development

Department of Economics

Stanford University

Stanford, CA 94305-6072, U.S.A.

June 2000

Phone: 1-650-723-3708; Fax: 1-650-723-7145

Email: ljlau@stanford.edu; Website: www.stanford.edu/~ljlau

1. What Is the “New Economy”?

- ◆ The widespread access to, sharing of, and use of information (knowledge) in economic activities through technology
- ◆ It is greatly facilitated by the “Internet”
 - ◆ The communication, transmission and distribution of information are no longer limited by space and time
 - ◆ Information is accessed and transmitted in real time and at low marginal cost
 - ◆ Information flow can be targeted to specific individuals and audiences
- ◆ Complementarity of information with tangible and intangible capital
 - ◆ The increased flow of information greatly enhances and multiplies the benefits of tangible as well as intangible capital, such as human capital, R&D capital, and knowledge capital, and vice versa--complementarity
 - ◆ Example: the installation of new software or new database on existing computers

2. Implications of the New Economy

- ◆ “Internet” time
 - ◆ Real time information transmission and retrieval
 - ◆ What used to take days and weeks of research is now available with a few clicks of the “mouse”
 - ◆ Real time monitoring and communication
 - ◆ Capacity for real time response
- ◆ “Internet” distance
 - ◆ Proximity and geographical location are no longer as important

Impacts on the Microeconomy

- ◆ The shortening of the “Product Cycle”--reduction in “time to market”--mandates a reduction in fixed costs as well as timely responses, and hence de-verticalization and out-sourcing
 - ◆ The average product cycle has shortened from 5 years to between 12 and 18 months
- ◆ Transformation of the “Old Economy” through significant reductions in transactions costs
 - ◆ The costs of internal management, monitoring and control
 - ◆ The costs of inter-firm coordination
 - ◆ The IT revolution enhances predictability and reliability of division of labor across firms and thus shifts the advantage to “De-verticalization”, “Out-sourcing”, and “Globalization” of supply chains
 - ◆ Reduction in transactions costs enables the exploitation of efficiencies in specific segments of the design, manufacturing, marketing and distribution process
 - ◆ Many services have become highly tradable or potentially highly tradable
 - ◆ e.g., software, back-office paper work, design, quality assurance, entertainment

Impacts on the Microeconomy

- ◆ De-verticalization and out-sourcing permit efficient sharing of resources and thus enable the realization of economies of scale and learning-by-doing effects in particular tasks
 - ◆ e.g., firms do not typically generate their own electricity; the semiconductor foundry business; delivery services such as United Parcel Post (UPS) and Federal Express
 - ◆ Much duplication of efforts--"rediscovering the wheel"--can be avoided
- ◆ Realization of the benefits of targeted incentives in specific tasks or segments of the traditional business
- ◆ Significant reductions in the costs of market creation, expansion differentiation, and segmentation --a market without geographical boundaries
 - ◆ Aggregation of users/consumers to create new and diverse markets consisting of consumers who may be geographically dispersed
 - ◆ e.g. vegemite; vegetarians; exceptionally large and small sizes of clothing

Impacts on the Microeconomy

- ◆ The reductions in transactions costs more than offset the increased costs of transportation and communication due to globalization

The Product Cycle under the New Economy

- ◆ The product cycle will continue to shrink (time to market) because
 - ◆ More and more timely information is available
 - ◆ There is less vested interest (e.g., fixed costs, inventory, labor contracts) in prolonging a product's life time and because of competition; these fixed and quasi-fixed costs are reduced by de-verticalization and out-sourcing
 - ◆ The ease of customization
 - ◆ Product cycle as substitutions and rearrangements of the supply chain, e.g., shifting from metal to plastics
 - ◆ Strategic alliances of the moment made possible by timely and reliable exchange of information
 - ◆ Traditional life-time employment in the same industry and product segment is no longer possible
- ◆ The “first-move advantage” is magnified by the shortened product cycle as well as the expanded possibilities for the realization of economies of scale

De-Verticalization or Fragmentation of Production

- ◆ De-Verticalization or “Fragmentation”--vertical division of labor-- separation of design, manufacturing, marketing, inventory and distribution functions (generalized out-sourcing) both within and across national boundaries
- ◆ Logistics and supply chain management--managing a production process not all of which lies within a single firm
- ◆ Emphasis on “core competence”
- ◆ Focus on adding value
- ◆ Aligns incentives within the different supply segments
- ◆ Facilitates competition through lowering the barriers to entry (lower capital requirements)
 - ◆ e.g., semiconductor design firms

The Concept of De-Verticalization Is Not New

- ◆ Vertical division of labor--subcontracting
 - ◆ e.g., the construction industry in developed market economies--all the “trades” (services) are traditionally performed by specialist subcontractors
- ◆ “Original Equipment Manufacture” (OEMs) in developing economies
 - ◆ Nike, Polo, Dell, Compaq, brand name products
- ◆ “Fabless” semiconductor companies and contract manufacturing
 - ◆ e.g., Taiwan Semiconductor Manufacturing Corporation, Solectron, Flextron
- ◆ “Original Design and Manufacture” (ODMs)
- ◆ Outsourcing of services
 - ◆ e.g., processing of credit cards (many credit card issuers are nominal issuers only); information processing for financial institutions
- ◆ Can the design and marketing and manufacturing of the automobile be separated in the future?

Logistics Revolution and the Globalization of Supply Chains

- ◆ Just-in-time inventory system has been used by Japanese manufacturers (mostly captive suppliers, incentive-improving)
- ◆ Quality assurance, possibly by third parties, is required
- ◆ Standardization, uniform grading, and a common platform (wafer size, resolution of equipment, software) are also needed
- ◆ Savings from consolidation of transportation, inventory and warehousing; reduction in the transactions cost of communication, and increased timeliness of delivery; reduction in the transactions cost of marketing and distribution
- ◆ Competition among suppliers and potential suppliers
- ◆ Market differentiation and segmentation create value; the ease of customization with the internet
 - ◆ e.g. many different choices are possible (Dell)
 - ◆ Specific groups of geographically dispersed consumers can be targeted

The Story of a Super-Market

- ◆ Scanner at the checkout stand
- ◆ Direct and instantaneous communication with the supplier
- ◆ Just-in-time delivery by the supplier
- ◆ Efficient inventory maintained by the supplier
- ◆ Coordination of inventory and production by the supplier
- ◆ Savings realized by the super-market--no paper-work, no inventory, no warehouse, no trucks

Economic Globalization under the New Economy

- ◆ Products and firms can no longer last forever
- ◆ Specialization of firms in “Tasks” rather than “Products”
 - ◆ Global vertical division of labor--global supply chains
- ◆ Trade in “Intermediate Inputs” and “Services” rather than finished “Products”
 - ◆ A substantial proportion of world trade is intra-company trade
- ◆ Realignment of the traditional industrial structure
- ◆ Down-sizing as well as proliferation of firms
 - ◆ Outsourcing
 - ◆ Reduction of middle management
 - ◆ Small and medium-sized firms can have access to high quality services previously unavailable on the market
 - ◆ Small and medium-sized firms can specialize in niche markets
- ◆ Specialization results in lower prices, greater output, and more new varieties of products and services

Impacts on the Macroeconomy

- ◆ Increases in productivity lower the cost of production and hence reduce the upward pressure on prices and keep the rate of inflation low (one-time expansion of the set of production possibilities)
- ◆ Existing demands for goods and services are supplied by new entrants into the businesses, most of them small and medium-sized start-up firms, using new technology.
 - ◆ e.g., internet bookstores wipe out real brick and mortar bookstores; internet securities trading knock out traditional stock brokerages (however, there is still a role to play--assurance of fulfillment, assumption of credit and performance risks--reputation and brand name are still important)
 - ◆ The new firms will take away the business from the old firms--"Creative Destruction"
- ◆ New businesses, and hence new jobs, are created faster than old businesses and old jobs are destroyed (not a zero-sum story)

Impacts on the Macroeconomy

- ◆ The rise of completely new businesses
 - ◆ “Cuusoo” (Japan)--consumer participation in the design of new products
 - ◆ e.g., special suppliers of tools for left-handed individuals
- ◆ The concept of national origin of a product or a service becomes fuzzy

Realization of the Benefits of Scale

- ◆ Vertical division of labor can greatly lower the entry cost into certain segments of the business while allowing certain other segments to take advantage of the efficiencies of economies of scale (resulting from either the technology of manufacturing or production and learning by doing and market increasing returns to scale resulting from market dominance through network or use externalities, including user-specific investment.
- ◆ The internet has greatly lowered the costs of market creation and expansion and hence the benefits of market increasing returns to scale--a market without geographical boundaries
- ◆ The ability to exploit market increasing returns to scale greatly magnifies the “first move” advantage

3. How Can One Profit from the New Economy?

- ◆ The “Gold Rush” in California of 1849
 - ◆ Very few people made money from the gold but Levi Strauss made significant profits by selling picks and shovels to the miners
- ◆ The automobile revolution in the early Twentieth Century
 - ◆ There were at one time a couple of hundreds of automobile manufacturing firms in the United States--today there are only two and a half in the United States
 - ◆ Only a few investors (e.g. Alfred Sloan, who put General Motors together) made money
 - ◆ If in the 1920s and 1930s, knowing that the automobile age is inevitable (just as the internet age is today), where should one have invested?
 - ◆ Oil, rubber (tires), and suburban real estate, road-building equipment
- ◆ The internet age
 - ◆ Is it too late to buy into Yahoo or Amazon.com?
 - ◆ The focus should be on internet infrastructure
 - ◆ e.g., Nationwide delivery services, telecommunication networks and equipment, internet security, other enabling technologies

Did Amazon.com Make the Right Choice?

- ◆ Not faithful to business model
- ◆ Time will tell

Is It a Bubble?

- ◆ There is genuine added value
- ◆ However, there is also a bubbly quality to the internet stocks
 - ◆ Securitization of venture capital

4. Implications for Developing Countries

- ◆ The “New Economy” is here to stay
- ◆ The “New Economy” facilitates and encourages “de-verticalization” or “fragmentation”--the need to identify, improve and sharpen “core competence” in order to survive; productivity can actually be enhanced by taking advantage of the opportunities for “de-verticalization” and “out-sourcing”
- ◆ The “New Economy” facilitates and encourages global division of labor--i.e., globalization of sources of supply--hence new opportunities but also competitive challenges

Implications for Developing Countries

- ◆ Developing countries have the ability to leap-frog--there are no vested interests to protect; no existing business to be cannibalized; there can be creation without destruction
 - ◆ e.g., facsimile machines; video compact discs; mobile and wireless telephones; debit and credit cards instead of checks
- ◆ Uncertainty created by globalization of supply chains and hence global competition
- ◆ The possibility of local adaptation--taking advantage of local conditions
 - ◆ e.g., the Legend story
 - ◆ language
 - ◆ local supply and demand conditions, e.g., stability of the voltage of the electric power supply

Policy Options for Facilitating the New Economy

- ◆ Investment in the Infrastructure
 - ◆ Traditional economy requires physical infrastructure--railroads, roads, ports, airports, power, etc.
 - ◆ New economy requires, in addition, virtual infrastructure
 - ◆ United Parcel Service (UPS), Federal Express; Trading platforms; Telecommunication (Fiber optic links); Enabling technologies
 - ◆ The legal infrastructure
 - ◆ Enforcement of contracts; prevention and prosecution of fraud
 - ◆ Protection of intellectual property rights

Policy Options for Facilitating the New Economy

- ◆ Investment in intangible capital
 - ◆ Investment in Human Capital (formal, technical, on-the-job training, and re-training); re-orientation from firm-specificity to worker-specificity (flexibility, adaptability and re-employability); lengthening of the time for formal and general education
 - ◆ Investment in R&D Capital--necessary for both learning and diffusion
 - ◆ indigenous R&D essential, e.g., new rice variety
 - ◆ the requirement of cross-licensing
 - ◆ strategic R&D as an instrument of industrial policy
 - ◆ Investment in other forms of Intangible Capital (Design, Market Development, Information System and Software, Etc.)
 - ◆ The case for public support
 - ◆ Non-appropriability--social rate of return greater than private rate of return
 - ◆ Size distribution of firms
 - ◆ Non-availability of venture capital

Policy Options for Facilitating the New Economy

- ◆ Establishment of a social safety net
- ◆ Maintenance of free entry and competition (anti-trust and fair trade laws)
- ◆ Maintenance of a hospitable legal, tax and competitive environment for start-up and small and medium-sized firms that can be expected to be more nimble than large firms
- ◆ Promotion of a culture of open communication and mobility; of acceptance of risk and failures; and network externalities and the benefits of networking