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Services, ICTs and the Changing Nature of Economic Development Processes in the KBE Era

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Abstract *We present a concise, exploratory, discussion paper that provides some promising hypotheses concerning how economic development processes may be evolving in the KBE era. Emerging roles for ICTs and services in the economy are driving these changes. Developing countries may be able to leapfrog stages of growth, or structural change, that presently developed nations historically went through. Case studies of India and Indonesia are utilized.*

Keywords: services; ICT; knowledge-based economy; economic development; structural change

Introduction

The onset of the on-line, globalized, knowledge-based economy[1] (KBE) era in the early 1990s, concurrent with the emergence of the Internet as the workhorse of modern economies, has revolutionized the nature of business and economic activity, to varying degrees, across the OECD. This paper explores some implications for economic development processes in developing countries, primarily from an information economics perspective.

By far, India, as will be shown, best illustrates the hypotheses raised in this paper. However, lest it be concluded that it's a special one-off case (albeit one that represents one sixth of humanity), given its remarkable success in the export of knowledge-based services, partly due to its special competitive advantages of the English language, decades of focused public sector investment in higher education,[2] and an active entrepreneurial overseas diaspora[3] (with Silicon Valley links), we also draw on the case of Indonesia. The latter, like most other developing countries, has little of these special attributes. Indonesia thus may provide a more generalized case study of the changing nature of development processes in the twenty-first century.

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Key Features of the On-Line, Globalized, KBE Era

The KBE era is part of a new economic context, or phase of global capitalism. Its emergence is the direct consequence of a communications revolution based largely on business and consumer use of the Internet. In this new phase of global capitalism, knowledge intensive services have assumed central importance, formerly separate activities are converging, innovation has shifted to services, business has been reorganized, and globalization has been revitalized. Below we examine these central features of this new era. Later we will examine their implications for economic development.

Knowledge Intensive Services

The KBE era is best considered a new evolutionary phase of the information society that information sector research showed was beginning to emerge in advanced economies by the 1950s.[4] This reflects a growing importance of intangible knowledge activities, especially knowledge-intensive services, in this new era. Knowledge resources are becoming the key factors of production. These include intellectual property, human and social capital, technology, ICTs, brand names, customer databases, core competencies and business relationships.

In the KBE, the information and service sectors become a key driver of economic activities, such that in OECD economies, services have emerged as the main source of job creation. The growth of the service economy is now being driven by the new on-line, digital economy made possible by the leap in ICT enabled knowledge capabilities that can now be deployed as marketable services.[5]

Convergence

Convergence, or the breaking down of boundaries between formerly separate activities, is now occurring quite generally across the economic and social order. The origins of the KBE era emerged, in significant part, from the convergence of two formerly separate industries: computers and telecommunications. Business IT usage shifted from the disconnectedness or stand-alone functions of the earlier era to the connectedness of networked personal computers linked to the Internet. Pervasive connectedness is changing how consumers buy things; how companies deal with suppliers, customers and rival firms; revolutionizing firms' management and organizational structure; creating a whole set of new or transformed firms, as well as collaborative alliances between firms to capture Internet-based gains in efficiency and to create new Internet-based products and services. For example, convergence has enabled new opportunities for the e-delivery of services, such as e-commerce generally, e-banking, share trading and innovative financial products in the finance sector, virtual shopping in retail, telemedicine and e-health in the health sector, flexible delivery in the education sector, and the e-provision of government services.

Convergence is also occurring between other industries with emerging technological overlap, or new logistics; between work and leisure with 24/7 schedules; between industry and government; and between business and the community with notions of stakeholders once distinct now overlapping.

Finally there is also evidence of convergence between long term broad, socio-economic trends. Phenomenon, such as the emergence of both globalization and

the information society, have been observed since the 1950s. By the 1990s, these were converging into the present on-line, globalized, KBE era.

Services Sector Innovation Based on ICTs

A radical change in the KBE era has been the extraordinary locus of service industries as the main source of innovation in some advanced economies, such as the US, Australia and the UK. This innovation is not directly based on R&D, but on investments in, and adoption of, new ICT platforms and adapting these to produce new products and services, improved business processes and other organizational innovations.[6] Before business adopted the Internet, there was limited capacity for productivity improvements in the services sector because a service was consumed almost immediately after it was produced. But use of the Internet has revolutionized the services sector and enabled it to become the major source of innovation in the economy by creating a space/time gap between the production and consumption of services. Previously, services generally had tended to be consumed at the same time and in the same place as they were produced. This provides an opportunity to innovate as well as more readily enabling trade in services via the e-delivery of services on domestic and international markets. Much services sector innovation also involves collaboration between firms.

Rise of Organizational Networks and Collaboration

Business use of the Internet has not only revolutionized the internal structure of firms, but also resulted in business collaboration and networking becoming a key segment of corporate strategy. Indeed, the on-line economy is presently evolving into a networked economy and society of ties and interdependencies between people, organizations and nations.[7] The economic system is becoming a complex evolving network. In particular we are interested here in the network form of industrial and consumer organization. These can be interorganizational networks, an organization adopting a network structure, or loose coalitions of individuals.

The network form of organization may be contrasted to hierarchies. Most organizations, be they firms, government agencies, unions, churches, or universities, are still primarily hierarchical, with the traditional command and control, pyramid or triangular structure. Instead, we think of networks as 'unstructured organizations comprising clusters of communicating agents sharing common interests, values or goals'.[8] Whereas hierarchies tend to work by coercion, networks primarily work by cohesion, and thus the importance of shared values, goals, visions and trust in networks of distributed agents seeking to coordinate their specific goals. Networks are more flexible than hierarchies, mainly for informational reasons, and thus may be more suited to the natural generic turbulence of the KBE era. Services are perhaps better understood as networks, rather than as production systems, and the evolution of services is perhaps better understood as the increasing complexity of an evolving network rather than the shifting out of a production function.[9]

Organizational networks have become pervasive in the KBE in a number of areas.[10] Consider, first, inter-organizational networks in business and collaboration between firms. Examples include strategic alliances, geographic clusters of firms, joint ventures and industry associations. These have become so pervasive, and so necessary for competitiveness in most industries that Dunning has proclaimed the rise of what he calls 'alliance capitalism'.[11]

Second, the firm today often looks more like a network than a hierarchy. More precisely, the firm is evolving into a hybrid, converging traditional hierarchical practices with network forms. Examples include virtual teams, multi-skilled work teams, intrapreneurship, and the growing importance of shared values, visions, and corporate culture. Crucially, there is also the relatively recent emergence of flatter, lattice-like, web-like, or matrix-like forms of horizontally connected organizational structure, with lots of cross links between the nodes, gradually replacing the triangle-shaped, vertically-integrated, hierarchical chain of command.

A third dimension of organizational networks is converging collaborations. This is reflected in a growing number of collaborative arrangements across formerly separate segments of society, or between formerly separate sovereign governments. Examples include business collaborations involving participants from different industries, collaborative arrangements between business and government such as public–private partnerships, community–business partnerships, and the various forms of intergovernmental cooperation. This connective process is integral to the evolution of the service economy and naturally results in the evolution of complexity in its structure.[12]

Revitalized Globalization

Globalization is the increased integration of the global economy and society that has been occurring since WW2. Just as we hypothesize that the KBE era is a new phase of the information society that began around a similar time, we also suggest that it represents a new phase of global interdependence as well.

Financial markets have been early participants in this new process leading to the globalization of financial markets and a cascading wave of innovative products, as well as a host of players associated with that. Some of the risks associated with this phenomena have become apparent with the emergence of a Global Credit Crisis in 2007/2008.

For us, though, perhaps what more convincingly illustrates this new phase of global activity is the relatively recent globalization of knowledge jobs. While low level manufacturing jobs have been and still are being outsourced to developing countries, the KBE era has brought the novel phenomenon of high level, knowledge-based services jobs being outsourced as well, particularly to India.[13] This has implications for both economic development processes in developing countries, as well as for labour markets in advanced countries.

What does the KBE era mean for economic development processes? Below, we both present our hypotheses, as well as provide illustrations, using examples from Indonesia and India.

Potential to Bypass Traditional Stages of Growth

In the early 1960s, Walt Rostow's[14] stages of growth model, coupled with the structural change models[15] of the 1970s, formalized the idea that the processes of economic development followed a fairly universal pattern of sequential stages that presently advanced countries, such as the US, the UK, and Japan, went through.

Below, we hypothesize that the KBE era enables developing countries to potentially bypass traditional stages of development and structural change. That is, they now can accelerate the development process by leapfrogging traditional pathways both at the macro-economy and micro, or industry, levels.

Evolving Patterns of Structural Change in the Macro-economy

All current advanced countries went through the traditional processes of structural change associated with economic growth and development. This begins with a relative emphasis on agriculture, in terms of GDP and employment, followed by a relative emphasis on the growth of manufacturing, which in turn is followed by a relative emphasis on the growth of services. Structural change, then, is the process by which developing countries transform their economies from a heavy dependence on traditional, subsistence agriculture, to a more modern, more urbanized and more industrially diverse manufacturing and service economy. Figure 1 illustrates the standard model of structural change.

However, since the KBE era began, the standard developmental process of structural change, outlined above, may be evolving, but not necessarily in all developing or emerging economies. Importantly, China in its long march to become the world's factory, is strictly following the traditional pattern, at least at the macro level. Manufacturing was the largest sector in the Chinese economy in 2004, at 47% of GDP,[16] but elsewhere, in what used to be called the Third World, different, entirely new, patterns of structural change would seem to be emerging.

Since the early 1990s, when India seriously began to takeoff in terms of GDP growth, it appears to have largely bypassed the middle manufacturing phase of structural change. Focusing on knowledge-intensive services exports, it has proceeded straight from agriculture to services, with the latter the largest sector of the economy, at 53% of GDP, in 2004.[17] India thus became a major beneficiary of the KBE era, Internet-enabled trade in services/outsourcing phenomenon. Interestingly, India more recently seems to be proceeding on from services to manufacturing, or in the context of the standard linear model of structural change, it is now backtracking from services to manufacturing, at least to some extent. Five years ago, the services sector was growing at about 10% per year, and manufacturing at about 5% per year. Now manufacturing is catching up with about 8% per annum growth, compared with 9% for services.[18] Figure 2 illustrates the Indian model of structural change.

Indonesia is also proceeding along a different structural change path. Not only is it different from the conventional model, it is also different from the Indian model. The structural change process in Indonesia seems to be one of proceeding simultaneously from traditional agriculture onward to both manufacturing and services (Figure 3). By 2005, both sectors each contributed somewhat over 40% to

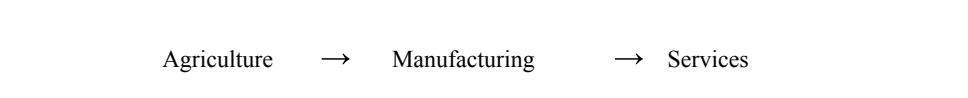

Figure 1. Standard model of structural change.

Figure 2. Indian model of structural change.

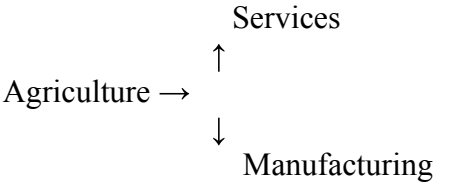

Figure 3. Indonesian model of structural change.

GDP, although by that year services were slightly larger at 45.3%, while manufacturing was 40.7% of GDP.[19] There seems to be a convergence between industrial development and the growing importance of the service sector in the Indonesian economy. Services have also become the second largest source of employment after agriculture. In 2006, agriculture employed about 45% on the Indonesian labour force, while services employed 42%. Manufacturing accounted for only 13% of total employment.[20]

With regard to patterns of structural change in the KBE era, it is not so much that the old model is obsolete, but that new alternative patterns are emerging as well. China is illustrative of the conventional model, while Indonesia and India illustrate possible, new, emerging patterns that emphasize services sooner in a nation's development history. Overall at the macro level in the KBE era, services may become the leading sector for development and structural change much earlier in a nation's development process. India, and to a slightly lesser extent, Indonesia, both illustrate this point. More generally, World Bank data suggest that services have become the fastest growing sector in developing countries.[21] Finally, the structure of comparative advantage may also be evolving as a consequence of the uptake of ICTs and the evolution of services.

In Key Sectors—e.g. Telecommunications

ICTs have generally lowered barriers to entry in services industries during the KBE era. In sectors like telecommunications, this can enable developing countries to bypass stages of development that advanced countries previously went through. OECD countries all have extensive analogue landline telecommunications networks installed at huge fixed costs. This first stage of telecommunications development was later followed by the installation of analogue mobile phone networks. The third stage of investment was digital mobile phone networks. Finally most advanced countries have installed, or are installing, 3G mobile phone networks that provide wireless broadband services to users.

However, in the KBE era most developing countries are proceeding straight to digital mobile, thereby bypassing the expense of the previous two stages of development. Low costs have enabled very rapid rates of diffusion of telecommunications services. China went from zero mobile phone users in 1995 to about 300 million users by 2005.[22] Today, India is considered the world's fastest growing mobile phone market.[23] Such improved connectivity is likely to accelerate development processes, *ceteris paribus*. Of course, two of the fastest growing economies over the past decade have been China and India.

ICTs and Telecommunications in Indonesia

Information and communications infrastructures have become key enablers in the KBE era. As in India and China, the diffusion of mobile telephones in Indonesia has been rapid. Mobile subscribers increased from 13.8% of the population in 2004 to 37% in 2007.[24]

With regard to Internet takeup, China has recently surpassed the US as the country with the most Internet users. However, in Indonesia Internet diffusion has been relatively slow, since its introduction to the country in 1994/95, with one estimate suggesting only 5.6% of the population being users in 2007.[25] Some of the reasons for this include: a lack of competition in fixed domestic and international sectors due to regulatory barriers, high Internet connection prices, and a lack of telecommunications infrastructure.[26]

Some Public Policy Implications

The KBE era requires new policy frameworks at both the national and international levels to reflect the new realities.[27] Below we consider aspects of this in the context of our hypotheses and some of the key features of the KBE era.

Knowledge, Services and ICTs

Previously development economists only indirectly and grudgingly accepted the role of knowledge in economic development. Early on, as embodied in capital, and later, as embodied in people, from the relatively more recent human capital and new growth theories. From the perspective of the KBE era, though, knowledge, its creation, communication and use, is central to development. But even today, international development agencies, lacking a crucial economics of information and knowledge perspective, tend to take a narrow, knowledge management view of the role of knowledge in economic development.[28]

Policy makers need to be cognizant of the new key roles for ICTs and services in the development process. This does not mean that countries like Indonesia should abandon their industrialization efforts. Rather, Indonesia illustrates the huge potential for services activities that are highly correlated with industrial activities such as wholesale and retail trade, transportation, and telecommunications.[29]

Attention needs to be given to both improving competition in and facilitating investment in, telecommunications infrastructure in developing countries. ICTs are essential enabling infrastructure, in both advanced and developing countries, in the KBE era. Of course social infrastructure cannot be ignored, as well. Investment in education and health enables the essential human capital for development.

Collaboration and Networks

Governments of developing countries can proactively look at ways of collaborating with the private sector, including foreign investors and MNEs to realize opportunities. South Korea, China, and some Indian State Governments in the Southern part of the nation, provide models for successful implementation of this process.

With regard to intergovernmental collaboration, many considered commentators[30] have recently pointed to a pressing need for new institutions enabling global cooperation on issues like global macro-economic management,

economic development, and environmental sustainability. Existing institutions such as the World Bank, IMF and G7/G8 are looking somewhat tired in this new century. Those institutions reflect old realities and previous eras. They should be scrapped or reinvented along, for example, the following lines:

- A new institution to replace G7/G8 to at least include the emerging superpowers of China and India. G20 looks promising in this regard.
- A new global institution, or institutions, to deal with global poverty and environmental sustainability/climate change.

Globalization

OECD countries, in spite of looming recession, should avoid a protectionist response to the globalization of knowledge jobs and services. Instead they should continue to move up the value chain, focusing on areas where their human capital and connective infrastructure still provide them with competitive advantages.

Free trade is a global public good that benefits all. More work still needs to be done at the WTO to ensure a level global playing field for trade, especially for agricultural products. Agriculture remains the starting point, and is by far the largest sector of the economy, for all countries near the beginning of their development process. Growing imbalances between Western trade deficits and non-Western trade surpluses will also need to be reconciled, or at least continue to be addressed, in global forums.

This new era of globalization has also seen a very rapid convergence of rich and poor countries per capita incomes as the BRIC (Brazil, Russia, India, China) group of countries, as well as many other developing countries, have grown rapidly (6–12% GDP growth per annum) compared to the advanced countries (1–4% GDP growth per annum) over this period. Like the information society, this convergence in global incomes has also been generally occurring since the 1950s (rapid growth of Japan and later the South East Asian economies over the 1950s–1980s period), but, again, a new more intensive phase seems to have occurred in the KBE era. This massive global structural change, coupled with both the bypassing of much of Africa by this new phase of global capitalism, as well as the paradoxical rising levels of inequality in incomes and wealth in many countries, such as the US and China, also brings forth new global public policy challenges.

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