March 2002

The Roots of the New Economy: An Institutional Perspective

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In recent years, the term New Economy has been defined or understood in a variety of ways. For economists, an acceleration of productivity growth is considered the key manifestation of the emergence of the New Economy, a development that has taken place in the United States, but not in major European countries. An understanding of the New Economy requires an examination of the forces behind it and the phases of its development. This article analyzes the structural, institutional and organizational changes associated with the New Economy, with the objective of assessing whether the New Economy will emerge in major European countries and whether the acceleration of productivity growth is sustainable in the United States.

The first section of the article looks at the issues arising from an analysis of the surge in productivity gains in the United States during the second half of the 1990s. The second section attempts to explain the stages in the current transformation process, beginning with a discussion of the state of advancement of various structural changes that determine the effectiveness of the institutional changes. These institutional changes are in turn discussed in the third section. The fourth section endeavours to clarify the extent to which organizational change accompanies institutional change. The conclusion provides a brief outline of timelines and opportunities that are still open to structural policy.

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Quest for Lost Productivity Gains

In the latter half of the 1990s, the rapid growth of the American economy established the United States as the model for what the New Economy will be. Meanwhile, the old Japanese and European national models collapsed. The most successful European economies have been smaller countries where conditions for growth are favourable, but difficult to replicate elsewhere, such as Ireland, Finland, and even Portugal. However, studies on the resurgence of productivity gains in the United States only partially identify what the New Economy will look like. The discrepancies that appear raise a number of interesting questions. Bosworth and Triplett (2001:23) provide a comparative analysis of four recent studies on the resurgence of growth of productivity in the United States[2] that identifies three factors to explain the acceleration of labour productivity growth during the latter half of the 1990s:

- a contribution of between 0.3 and 0.5 per cent per annum from growth in capital per worker;
- a negligible contribution from improvements in the labour quality (between 0 and 0.1 per cent per annum); and
- an impact on aggregate productivity growth from the information technology (IT) producing sector of between 0.2 and 0.3 per cent per annum, which is considerable given the still small weight of these industries in the economy.

However, these studies differ considerably in their analysis of the sources of the productivity growth acceleration in the non-IT producing sector, a group dominated by services industries. The annual report of the Council of Economic Advisers (2000) estimates the contribution to the acceleration from the non-IT producing sector at 0.7 per cent per annum, which is very large, while Oliner and Sichel (2000) estimate it at 0.5 per cent, and Gordon (2000) at zero. Similar discrepancies are found in the sectoral estimates in growth of capital per worker, resulting in varying estimates for the acceleration of total factor productivity growth. These discrepancies may result from differences in methodologies[3] and assumptions regarding depreciation and the obsolescence of capital equipment. In addition, 1999 was a year of peak economic activity, while 1995 was a year of weak business conditions. This means that an assessment of developments for the entire 1990s is needed to put the productivity performance of the U.S. economy in perspective (see Table 1), a performance which largely comes from "traditional" capital/labour substitution.[4]

To be sure, institutional and macroeconomic contexts differ from country to country. We believe that the only way to guide the choice of structural policies for these various nations is through better understanding of the nature of the transformations taking place. To do this, we will use the following definition:
We define the New Economy as an economy where economic actors can obtain information and implement knowledge which significantly alters their strategic capacities. This new capacity is facilitated by a small number of major structural changes and developed by institutional changes that allow the exploitation of positive externalities. Economic actors are in rather unequal positions to benefit from these new economic circumstances.

[2] The studies compared are those of Jorgenson and Stiroh (2000), Oliner and Sichel (2000), Council of Economic Advisers (2000), and Gordon (2000).
[3] Cette, Mairesse and Kocoglu (2000) note that depending upon whether equipment asset stocks are appraised at factor cost or based on product services, the allocation of productivity gains ranges from equipment users to producers.
[4] As emphasized by Brender and Pisani (1999) and Artus (2001).

This definition, without further embellishment, refers to a growth process that could be attributed just as well to periods in the past.[5] Its specificity can be seen in the structural conditions and modes of institutional change taking place. We thus propose to follow the paths of national economies toward the New Economy through a series of structural changes (largely the result of past choices) and institutional changes (largely the result of recently adopted political options) that each in turn govern the development of practices and organizations. Figure 1 demonstrates these relationships. By attempting to determine the positions of the main European countries and the United States in this process, we can assess the relative development of the New Economy in each country or region. This enables us to look at the nature of the relationship between structural and institutional change and to analyze eventual economic slowdowns in the various nations under review, while following the development of a new type of growth (with diverse national orientations).

Major Structural Changes as a Precondition for the Development of the New Economy

Here, we are interested in the long-term transformations taking place in the period following the Second World War. We emphasize three structural changes that contributed directly to the increased flow of information and implementation of knowledge:

- a rise in general education levels in a universe in which the role of formal education is changing;
- the contemporary phase of the internationalization of economies, characterized in particular by increased trade in services; and
- the development and diffusion of new information and communications technologies (ICTs).

These structural changes pave the way for two types of externalities, those that entail higher levels of education, and those that afford opportunities for increased intermediation, i.e. the two sources of endogenous growth found in the literature.[6] One deals with investments of human capital in the form of introductory education and occupational training, as well as in the form of jobs dedicated to the task of accumulating tangible investment, such as Research & Development jobs. The other deals more with the benefits associated with intermediation networks of all sorts, a whole logistical ball of wax allowing economic factors to have access to information and knowledge from beyond the economic unit involved. This involves all major network services (from banks and telecommunications to distribution, transportation and government infrastructure). However, the least tangible networks, complex business services (auditing, consulting, accounting, publicity, etc.), also show logistical features that can support the strategies of the operators.

In analyzing these three structural changes, we hypothesize that an initial phase will be achieved by most developed nations. At the end of this phase these countries will be forced to redefine their policies and undertake the institutional changes required in each area.[7]

[5] Innis' work (1950) falls clearly within this perspective in analyzing economic growth over the extremely long term. A recent article by Blum and Dudley (2001) also provides an historical illustratation, concluding from an economic analysis of the theories of Max Weber (using capitalist/protestant synergy to explain grown in northern Europe) based on a comparison of cities in southern and northern Europe that the latter's advantage is surely due to better information networks, regardless whether these benefit innovations in maritime transport, freedom of the press, or other common law practices.

[6] Both of these impacts are shown combined in Figure 1 by arrows 1 and 6.

[7] A phase represented in Figure 1 by arrows 2 and 3.

A General Rise in Education Levels

The general rise in education levels is a long-term phenomenon, widely felt without recognizing its possible impact on all aspects of our social and economic life. A large proportion of each cohort is now enrolled in post-secondary education or receives occupational training. In 1999-2000, this was true for 40 per cent of persons between the ages of 20 and 24 in most European countries (with even higher proportions in the United States and Japan), with the only relative exceptions being Italy, Greece, and Portugal, where the percentage was only 30%. However, the situations in these nations were not identical, since there were fluctuations and varying educational stocks; some nations have not increased efforts to encourage education until fairly recently (Table 2, column 1). These differences among educational stocks were mitigated by the double-edged influence of accelerated obsolescence of old training methods and new valuation of social capital. With developed countries now reaching similar levels of educational attainment, these countries are now forced to address the issue of the renewal of their educational policies.

A Steady Shift Toward Internationalization

The liberalization of trade was initiated during the 1950s. Since 1980, we have seen the development of intra-industry trade flows for both heterogeneous products (vertically differentiated trade) and similar products of different quality (horizontally differentiated trade), and greater importance of intermediate goods (see Table 2, columns 4, 5 and 6)[8]. The sectoral orientation of foreign direct investment in large network services, such as finance and transportation, has been demonstrated in the development of truly international logistics. To this are added the various "invisible" exchanges that comprise not only the development of agreements, particularly technological agreements mergers and acquisitions, and management and accounting standards, but also the flow of information, academic collaboration, cultural exchanges, and travel; that is, any field in which the stakes are high, but difficult to control. All this represents an international division of productive processes significantly more advanced than in the past.

General Access to New Technologies

The transformations under review are also associated with technological discoveries dating back to the immediate postwar period with the development of the first computers and the beginning of the race to miniaturize processors,[9] which became the primary factor in the dissemination of ICTs during the 1980s and 90s, not only because it lowered costs but also because it facilitated the physical integration of microprocessors in all products and equipment. The diffusion of this new technical system initially occurred worldwide without countries having established major infrastructure projects, as was the case for railroads and electrical networks. This does not mean that the logistics (and knowledge) allowing users full

[8] During the 1980s and 90s we witnessed the internationalization of productive processes, as evidenced in the increased significance of trade of intermediate goods and technological specialization noted in the rise of intra-branch trade of various types of products (increasing in Europe from 12 per cent to between 35 per cent and 43 per cent of trade between 1980 and 1996) while the relative proportion of inter-branch trade fell from 45 per cent to 37 per cent of trade at the same time.

[9] Intel president Gordon Moore formulated the "rule" of doubling the density of microprocessors every 18 months in 1964.

access to ICTs were immediately available. More often than not, the commercial equipment-manufacturing sector was directly responsible for this diffusion, with the support of a rapidly developing business services sector and, particularly during the 1990s, association with the telecommunications sectors (newly emerged from their obsolete legislative framework, an important issue to which we will return). Consequently, by the late 1990s a high rate of diffusion of computers and Internet use had been attained in developed countries. For example, in 2000, 40 per cent of Europeans over the age of 15 had access to a computer and 30 per cent had Internet access. In 2001 nearly all secondary schools had Internet access. Table 2 provides data on the number of Internet hosts and personal computers on a per capita basis in OECD countries.

During the 1990s, a threshold appears to have been crossed, with investment in ICT attaining between 6 per cent and 9 per cent of GDP (Table 2, column 7). The emergence and rapid diffusion of Internet use in the business world of the late 1990s (a system already widely used in the academic world) demonstrated the familiarity of the same group of players with these technologies. Southern European countries (Greece, Portugal, Spain) seemed to be the exception; however, their degree of integration in Europe (with the investment policies that this implies, driven as much by market forces as by assistance policies), like the levels of education, where discrepancies in the younger generations are small, suggests that this delay will be compensated rapidly.[10] Therefore, all developed nations face similar problems linked to the diffusion and use of ICTs and the avoidance of a digital gap less related to opportunities for ICT access than to the ability of small businesses and disadvantaged households to know how to exploit ICTs.

New Challenges

The initial phase in the rise of the new growth model has fostered the development of a logistical base favouring the development of two types of externalities (learning by doing and access to external information and knowledge). However, the three areas of structural transformation targeted in this phase raise certain issues that call for a redefinition of policies. These issues also demonstrate the new interdependency of the areas in question.

The first issue involves changes in the actual skills of people that have received varying levels of education. Of course, the quality of this education varies widely from one country to the next, but it is important to analyze the rate of obsolescence of this education. Indeed, the internationalization of knowledge, information, and their accompanying organizational modes, such as the speed at which the technologies themselves change, means an accelerated rate of skills obsolescence. This is a new beginning, a long-anticipated risk that has driven calls for continuing professional education, a concept that is currently underdeveloped, except

[10] This is not useful for household access to high-speed lines that require costly infrastructure that is not available in all of the developed countries under review. It is also of no use to developing countries where diffusion of ICT remains limited due to lack of telecommunications infrastructure and/or lack of skilled personnel. Africa is an extreme example. There diffusion relies on NGO networks and government assistance policies, which are constrained by the extremely difficult economic conditions in all of these countries during the past two decades (see www.bamako2000.org and the *Cambridge Journal of Economics* special edition, May 2001). Note, too, that New York has more telephone lines than the entire African continent, South Africa included.

somewhat in the Scandinavian countries and United Kingdom.[11] Furthermore, the organization of work is far from being able to provide large numbers of skilled jobs or even mitigate through training the depreciation of human capital. Moreover, one must look beyond the analysis of basic data on educational attainment to understand the impact on growth (see Temple (2000a) and de la Fuente and Domenech (2000)).

The rapid development of the new technologies does not favour stabilization of standards either, particularly in the software area. Rather, it can promote speculative behavior and accelerate technological obsolescence, prompting a shake-up in investment (Universal Mobile Telecommunications Systems (UMTS) financial contingencies in the telecommunications sector provide a recent, far-reaching example). National policies are largely incapable of regulating these contingencies,[12] which brings us to the third type of question, this time stemming from the ongoing process of internationalization.

The new phase of internationalization, through the growth of trade in services, once again escapes government control, calling for the implementation of new rules. This is not a question of lowering trade tariffs or promoting investment. We must rather, for example, develop intellectual property laws and precautionary standards (in the banking and consulting and audit sectors) that would be universally applied where national differences remain substantial[13] in an environment in which the initial phase of internationalization has decreased the active limits of macroeconomic, industrial, social and fiscal policies. In this context, regional integration policies appeared as spaces within which a fraction of this control could be recouped through coordination among partners and appropriate division of labour. The challenge is thus to understand how these regional dynamics will develop (there is wide disparity among the European Community, Southeast Asia, and NAFTA) to both respond to needs for coordination and regulation in each zone and to act together internationally to settle issues initially inherent in this dimension, as is the case for intellectual property, financial transparency, even mobility of skilled labour (an issue giving rise to brain drain problems). All of these processes bring the United Nations into a new phase calling for policy choices that give contemporary form to the long-term structural transformations that we have described.

These challenges are faced by countries with similar levels of development, defined by GDP per capita or per hour worked (see Table 1).[14] It remains to be seen whether these countries are committed to the action needed to bring about the institutional changes that meet these new challenges.

[11] The risks of more rapid educational obsolescence are accentuated by new relationships between industrial and financial capital that, through mergers, acquisitions, and other reorganization bring new market forces to bear on occupational paths. The difficulties in retraining senior staff provide evidence of this heightened risk.

[12] Note in passing, as we will see later, that, despite a multitude of international technological agreements, the multinationals are no longer able to conform to this regulation.

[13] The complexity of developing a European patent to satisfy widely differing legal systems clearly demonstrates the difficulties of this second phase of internationalization. The concern created by the Enron bankruptcy within the auditing and accounting firms that certified it also illustrates the control and coordination problems that must be resolved. The WTO can only contribute gradually to this coordination through the specific cases it is called upon to handle.

[14] The difference between the two columns clearly demonstrates that disparities among countries are largely related to time worked, but free time is also a resource in tertiary economies where both time and financial resources limit household end demands.

Institutional Change as a Catalyst for Opportunities for Growth

The political will behind contemporary institutional changes appeared, with Reagan in the United States and Thatcher in the United Kingdom, to be focused primarily on liberalization and decentralization policies. One can chart the progress of these policies using OECD studies of deregulation of product markets, regulatory bodies and the labour market.

Product Market Deregulation

The wide variety of regulatory systems was markedly reduced in OECD countries beginning in the 1980s, as shown by a comparison of regulations for four service networks between 1975 and 1990 (OECD 1996). However, it was more during the 1990s that we observed not only an expansion of certain types of deregulation, but also as the maintenance of certain restrictions. If, based on Nicoletti, Scarpetta and Boylaud (2000),[15] we consider separately regulations affecting foreign relations (business and investment) and domestic activities, we see an overall international harmonization of the former (influenced by international negotiations within GATT and the WTO) and the maintenance of significant national differences in the latter (see Table 3, columns 1 and 2)) for regulations under direct or indirect control of government.[11]. However, we could situate these discrepancies more accurately by distinguishing, as do the authors of general regulations, entrepreneurial dynamics, with moderate disparities (see Table 3, column 3), from regulations associated with direct State control or trusteeship. This last category is itself extremely multi-faceted, since it is related to both the size of the public sector (Table 3, column 4) and to government involvement in the operations of various sectors (Table 3, column 5). This last indicator, which involves, for example, the procedures for government intervention in major service networks such as the transportation and financial sectors, itself stems from certain situations characterized by quite similar levels of liberalization between countries (even where organizational forms are widely different) and from others where there exists a wide range of restrictions.

Seven service activities were analyzed in detail using the same OECD data base by Gonenc, Maher and Nicoletti (2000) and Nicoletti (2001). Four of these services involved activities that were already competitive: truck transport, mobile telephones (conditions for competition for both of these sectors were harmonized during the 1990s), air transport, and retail sales, where fairly significant differences in regulation persist (see Table 4). The air transport industry relies on bilateral accords for certain international routes, while in retail trade some countries, which are in fact fairly liberal, maintain significant restrictions.

The importance of the infrastructure network and historical operators stemmed the movement toward deregulation in three other major activities: fixed telephones (local service), electricity, and railroads (Table 4), resulting in diversity in national situations (particularly with respect to electricity), fairly independent of the degree of overall liberalization of the economy.

We conclude from this brief overview that the developed nations under review underwent during the 1990s a major phase of liberalization, harmonizing operating conditions in numerous fields, but leaving untouched strict regulations in certain service networks and government involvement in certain activities which present specific challenges for adjustment.

[15] Refer to their classification of regulations, page 25.

How can we understand the current phase from the standpoint of the arrival of a New Economy? Note, in terms of international relations or business dynamics (Table 3), that the leading developed countries all find themselves in similar situations. We should consider as blocking factors for certain nations the persistence of regulatory restrictions in some service sectors or the relative size of the public sector. We also consider that, on one hand, numerous countries (including the United States) are affected by these exceptions (Table 4); on the other hand, the impact of government legislation largely relies on a sector's organizational capacities. Privatization in the electricity sector (in the United States) and of railroads (United Kingdom) has not always been successful. An important factor for an understanding of these outcomes is the strength and dynamism of the financial sector.

The role of this sector is to reallocate capital among firms and sectors and at the same time fund innovative projects.[16] Market-oriented financial systems (i.e., not dominated by the banks) appear better suited to fulfil this role. Bank-dominated financial systems (themselves fairly differentiated) have also found ways to participate in capital restructuring operations and develop mechanisms to fund innovation. The United States, benefiting from economies of scale, has been able to develop mechanisms for the financing of high-risk activities. But a number of other countries have also succeeded in venture capital financing, developing formulas adapted to their own financial systems (including, at a minimum, development of their financial market). Moreover, the brutal downturn in financial markets in 2001 reminded us that transparency and reliability are still top priorities and concerns for both types of systems.[17] Finally, the presumed link between the nature of the financial system and the performance of a developed economy remains likely, but is difficult to prove (Temple 2000b).

From our brief overview of the adaptation of competitive relationships of OECD countries during the 1990s, we find that the changes were significant and similar in nature in a number of areas. At the same time, a certain degree of diversity has been preserved and countries have adapted to the new context (this is the case for public sectors, such as financial systems). Indeed no represent the most efficient model toward which all economies will converge. Changes in the labour market confirm this diagnosis.

Impact on the Evolution of the Labour Market

Since its beginning, the policy of liberalization has had as an objective greater labour market flexibility. The debate on European markets blames labour market rigidity for the high European unemployment rates in the early 1980s. During the 1990s this debate shifted focus, comparing European unemployment with poor employment in the United States, and raised questions concerning the impoverishment and inequity that these two forms of labour market management could engender. At the same time, the issue of labour market flexibility lost its edge. Indeed, during the 1980s and 90s, the labour market developed forms of employment facilitating efforts at short-term adjustment, especially in the area of unskilled labour. Between the late 1980s and the 1990s, job protection indicators for non-standard jobs fell considerably[18] while those for regular jobs (with indeterminant contracts) were unchanged (see Nicoletti, Scarpetta and Boylaud 2000, Figure 11).

[16] For information concerning the diversity of financial systems, see Rajan and Zingales (2000).
[17] Witness the symmetry shown by the Enron affair and the credibility gap it engendered in the US, as well as the creeping bank crisis experienced in Japan for more than 10 years.
[18] The notable exception is France, which nevertheless experienced strong increases in temporary jobs during the 1990s.

Spurred by financial markets, labour markets thus retained their distinct features (see Table 5, columns 2 and 3), but created for themselves opportunities for short-term adjustment. These were not the only changes. Economies that placed more emphasis on knowledge and information were directly prompted to review the ways in which they compensated and more generally motivated the people that had acquired these skills. This took many forms, from profit sharing to new occupational mobility schemes to new labour relationships. Benchmarking is less common in this sector, but we could even believe that during the decade labour markets quickly found ways to adapt to their specific natures—ways that enabled them to encourage the involvement of highly qualified workers to a greater or lesser degree. Note that this management style has a strong generational component, since the qualifications needed are often new and thus are the prerogative of newly trained generations.[19]

Other institutional changes mitigate these labour market adjustments, particularly in the area of pensions and health insurance, which we do not discuss in this paper. The labour market changes under review confirm the flexibility of the institutions involved in the 1990s, adjusting to the new environment while remaining individual, without our being able to confirm the predominance of one model while giving up an excessively one-dimensional view of institutional change. This could be a transitional phase that will end with a change in practices, prompting us to examine at the same time the organizational changes observed during the same decade.

Changes in Work Practices and Organization

A first phase of structural change, defined in terms of access to new technology, internationalization, and educational efforts, has been completed in developed countries. . Institutional changes have likewise produced by the end of the 1990s a certain level of product market deregulation. Countries are often now only differentiated by the role played by the public sector. We will now seek to understand to what extent changes in behaviour and in organizations have fostered economic growth in the 1990s, and to what extent changes in the structural and institutional context have slowed or accelerated this microeconomic dynamic of growth.

Three types of factors in this area, which could promote growth, should be considered:

- a leading sector, such as the ICT-producing sector;
- intermediation sectors, such as finance and telecommunications, that are able to encourage product and process innovation and, in particular, new types of inter-firm relationships; and
- sustained consumer demand, open to innovations, especially in the services sector.

[19] This also results in part from international competition, a pressure that may be keenly felt by young professionals in the poorer developed countries.

The Leading Role of the ICT-producing Sector

The strength of productivity gains in the ICT-producing industry makes it a leading sector for future growth. However, the limited relative importance of this sector means that its impact on aggregate productivity growth is small, except in a few countries (Table 1, column 5).

This impact may have been significant in several countries toward the late 1990s. We note that Gordon (2001) credits them with a major portion of the growth in overall productivity during the second half of the 1990s in the United States. Furthermore, the location of these activities was largely internationalized and during the 1990s we witnessed some movement toward countries having less costly skilled labour, at the same time benefiting from transportation and telecommunications infrastructures that meet international standards. Research and development activities, like those of marketing, were certainly less affected by the internationalization of productive systems.

A more accurate measure of the leading sector can be gauged by combining all service activities directly associated with the production and implementation of new technologies. However, the business services sector, which includes computer services firms, does not appear to be the source of significant productivity gains.[20] If our criterion for a leading sector remains the magnitude of productivity gains and their impact on the overall economy, this sector, even expanded to include related activities, cannot be considered a strong enough force to spur growth, even if these activities contribute more noticeably to economic growth than in the past, as in the United States and Finland.

We must consider what ICT activities represent in terms of innovation rents and intellectual property rights. This is a difficult field in which the limits of what can be patented fluctuate (from the patenting of certain source codes to file sharing, as in the Napster dispute). The current situation is certainly more favourable in the United States than in other countries (less developed in this area with narrower domestic markets and quite different, and more rigid, intellectual property regulations). However, uncertainty harms all of the countries as a group and heightens the risks associated with technological development (such as mobile telephones with UMTS or biotechnologies whose medium-term applications appear to have been overestimated). It therefore appears that the restructuring of intellectual property rights is a condition for increased growth within this new technology sector.

Intermediation Sectors and Distribution of New Organizational Forms

Analyzing growth through the dynamics of a single leading sector does not at first appear to be the most appropriate perspective for a growth system fostered by the development of new externalities (based on the definition of the new economy in Section 1). The intermediation sectors (banks, communications, transport and wholesale and retail trade) are closer to the heart of the new growth dynamics. Their role is not evidenced as much in spectacular domestic productivity gains as in the potential for these activities to fulfil their intermediation

[20] These are not included among the services for which Sharpe and Gharani (2001) observed a resurgence of productivity gains during the latter half of the 1990s. However, the business services sector is extremely heterogeneous and includes numerous activities for which it is quite difficult to measure productivity gains.

function. While the telecommunications sector has experienced significant productivity gains (arising in large part from investment in ICTs), productivity gains in the trade and transport sectors have been more problematic (OECD 2001a, p. 22). As for finance (most often lumped together with business services activities), productivity gains remained weak, despite intensive use of computer equipment.

Productivity levels would be a fairly good performance indicator. But their lack of availability means that other indicators are used, such as Internet connection costs, the number of ADSL lines for telecommunications, and the relative importance of venture capital in the financial sector (Table 5, column 4).

All systems have adapted to respond in various ways to the need to finance innovation. The financial crisis that between spring 2000 and spring 2001 reduced the value of technological stocks by half. One can ask whether the systems overreacted to speculation concerning dot-com enterprises.[21] It is also true that financial systems demonstrated a remarkable ability to adapt, overcoming a series of crises from 1987 to 2001, gradually developing new precautionary rules.[22] This does not mean that these systems are now protected from major systemic crises. Certain macroeconomic imbalances, such as excessive household debt, foreign trade deficit in the United States, and the fragility of the Japanese banking system remain a real threat.

However, as we have already noted, the quality of these network services relies less on ease of access than on opportunities for full exploitation of the skills of a wide range of users (from small business workers to individuals having no particular qualifications). It is from a perspective combining the features of the services offered and the capabilities of the users that we must analyze these intermediation systems.

We can trace this indirectly if we attempt to monitor the diffusion of new organizational structures among firms. In this respect, the most typical features of the contemporary period revolve around new organizations of the relationships among the firms themselves and with their markets. Standardization of products and processes is a major component that facilitates out-sourcing and externalization. More radical yet, a potentially significant source of productivity gains is the development of business-to-business platforms, also known as B2B. We have observed that these organizations are even easier to establish when partners already have some knowledge and mutual trust. These observations have prompted us to anticipate extremely rapid development of these types of organization during the late 1990s; and on this basis, low entry costs encouraged the creation of a large number of market sites. The inverse of this theory opened a certain credibility gap and prompted a clear retreat of these types of intermediation, with the bankruptcy of many new enterprises. Through a balancing effect, expectations became less favourable to this type of organization, while we could reasonably predict steady growth in sales on a par with concentrations.[23]

[21] Biotechnology also attracts venture capital, speculating on potential for quick application to the health care field. The disappointment engendered by the slowness of such developments may prompt even greater withdrawal of this venture capital, since the financial system of the country is based on financial markets.

[22] Except for Japan and financial systems of less developed countries that are more seriously affected by financial crises.

[23] Even using the estimated 15 per cent to 30 per cent savings in the cost price of each product suggested by Brooke and Wahhaj (2000), this is no doubt exaggerated.

We could find further examples of the difficulties related to inter-firm coordination. Small firms have trouble accessing the logistics of complex services (which often requires the presence of qualified people in-house). Opportunities to use the Internet to distribute these types of fairly standard services are still quite underdeveloped. The development of business-to-business organizations requires a climate of trust and shared knowledge that is difficult to establish.[24] Establishment of these types of inter-business organizations resembles the organization of a network, with all of its rules, managers, and members. In the long run, this organizational innovation can itself result in product innovations.[25] Moreover, the new way of organizing relationships among firms does not necessarily lead to the disappearance of the old system, which survives by adapting and becoming complementary. All of these factors influence the timing of change to the New Economy.

Households

Consumer demand and changes in lifestyles are often ignored in the analysis of the transformations taking place in contemporary economies, even while business is more attentive to consumer behaviour than in the past. Marketing services have difficulty keeping up with more strategic changes in consumer behaviour. It is true that these new technologies can greatly influence modes of consumption. E-commerce and online banking are new forms of organization that are likely if not to change household budget structures, at least to influence competitive relationships and modify time use.[26] This last impact is particularly important, since the increased time for leisure is a basic condition for the shift in spending patterns toward new recreational, educational, and health-related activities.

While e-commerce in its various forms offers a point of entry for new users to new lifestyles, its beginnings in the late 1990s were fairly cautious and steady. For a small number of well-calibrated products, such as books and discs, e-commerce developed rather quickly. The same is true for products for which distance was not a factor, for example travel reservations and tourism packages. In contrast, in all of the other markets there was more complementarity than substitutability between traditional markets and electronic ones, where clients were researching information and comparing prices (Moati and Raffour, 2000).

Any major restructuring must in some way proceed via changes in time management. Citizens' concerns for health and educational issues may serve to drive these types of policies. Freeing up enough time for professional development throughout the active life cycle or taking advantage of modern preventative and diagnostic health care services can indeed spur significant changes in time management. In highly urbanized societies, such restructuring of social time is possible, although it must be part of wide-ranging class action.[27] For the

[24] Diffusion of the multidivisional structure was a neutral impact organizational innovation in terms of the exterior environment of the firm (Kogut, 2000) that of a new inter-firm organization involves coordination that threatens to extend time for diffusion, which for multidivisional firms already took some twenty years in each country.

[25] Inverting the more traditional product innovation / process innovation cycle, since this is current among services.

[26] We also expect that generally only 5 per cent to 10 per cent of business can be done electronically in future (Moati and Raffour, 2000).

[27] A policy to reduce work time is an example.

moment, the potential for free time continues to vary widely from country to country and it appears that it will take a long time to develop policies that encourage this potential.[28]

This very long-term perspective may mean that New Economies will have a growth path that is fairly slow, unequal, and cyclical, subject to various sorts of speculation. Such an outcome is by no means inevitable. However, if we do not exercise caution, a series of complex inter-connecting events could in time, and given market mechanisms, lock us into a series of short-term solutions.

The New Economy and its Future in the United States and Europe

This article has examined the roots of the New Economy in the United States and Europe, looking at the structural and institutional changes which in turn engendered organizational changes. These changes led to an acceleration of productivity growth in the second half of the 1990s in the United States, a development that many American economists interpreted as the launching of a New Economy. The sustainability of this New Economy is of course uncertain. On one hand, the U.S. economy has demonstrated an increased capacity to develop and diffuse ICT products that contribute significantly to the overall growth of the economy. On the other hand, the financial markets supporting these new activities have proven fragile and growing consumer debt and trade deficits may impede demand growth. In major European countries, the New Economy has not yet emerged, at least as manifested by an acceleration in productivity growth.

What are the prospects for the New Economy? Our analysis of long-term structural changes, which created the necessary conditions for the rise of the new system, suggests that most OECD countries have reached similar levels in terms of the educational attainment of the younger population, the internationalization of production processes, and the diffusion of the new technologies and have thus now entered a new phase of development. The structural changes are now raising similar issues in all countries, for example the quality of the education system, requiring appropriate institutional changes.

The major institutional changes of the past decade have largely focused on liberalization of markets and decentralization of public intervention. This has clearly increased the openness and the capacity of OECD economies for short term adjustment, without reducing the diversity of the institutional contexts regulating the labor markets and the financial markets. But major differences remain with regard to the regulation of large network services, such as the financial and transportation systems, and the importance of the public sector.

Beyond this diversity of institutional backgrounds new institutional change seems now to face different challenges. There is no easy answer to the issue of the optimal degree of regulation of economic activity. Instead of facilitating access to large network services, whether intermediation services or public services such as health and education, institutions must now ensure that all members of society can take advantage of the new range of possibilities offered by the modernization of these activities. This goes beyond the old objective of universal service to include that of transfer of knowledge and know-how and calls for new forms of regulation and intermediation. Our brief analysis of organizational change confirms the

[28] Observing repeated failure to reform health care and education systems on one hand, and the reluctance of many countries to encourage shorter work times on the other.

importance of such an expansion of the diffusion of new practices and capabilities to small and medium size businesses and households with limited knowledge and financial resources. Such a development would give momentum to the New Economy, supporting its emergence in Europe and its continuation in the United States.

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Figure 1

RELATIONSHIPS AMONG STRUCTURAL, ORGANIZATIONAL AND INSTITUTIONAL CHANGES

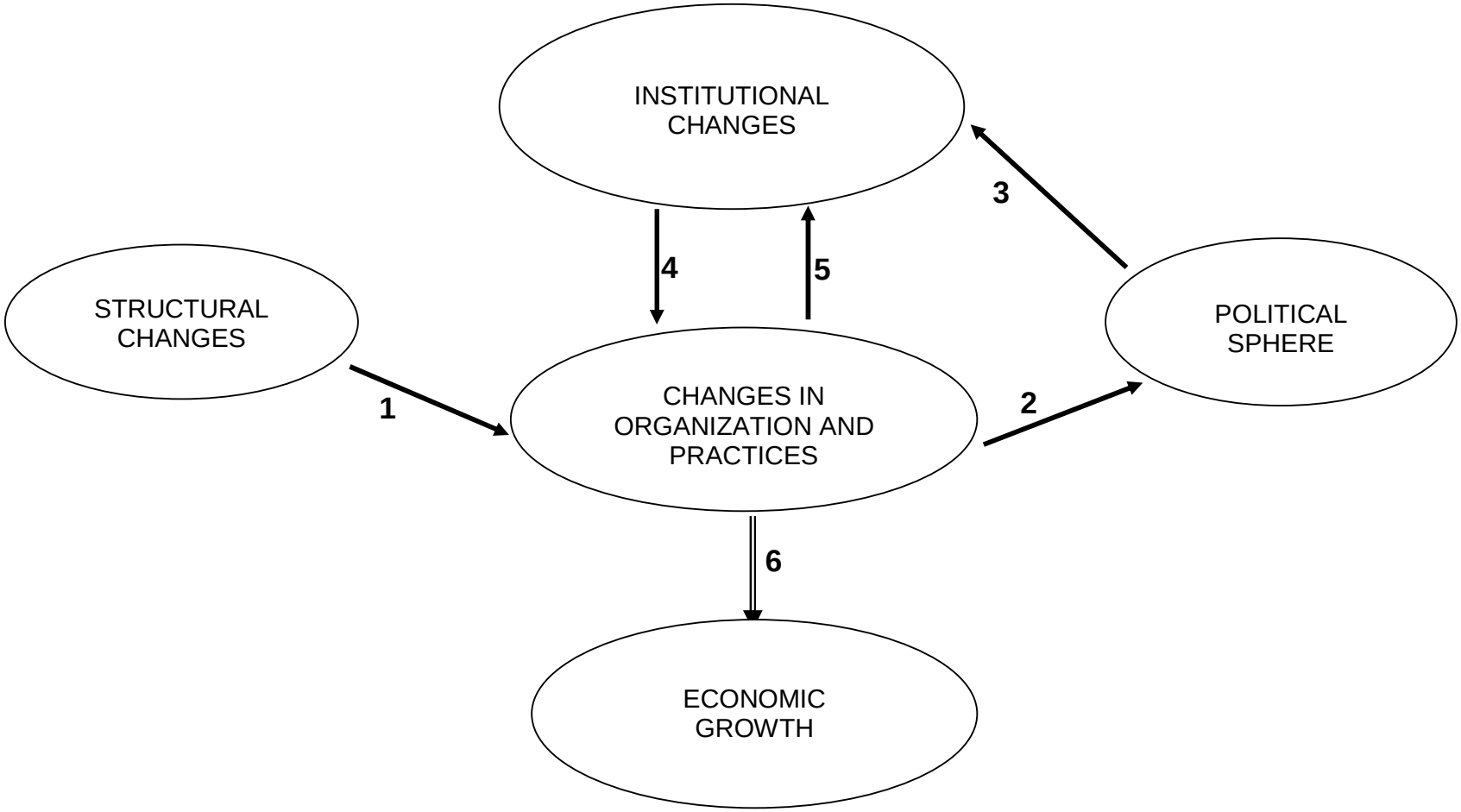

TABLE 1
Increases in Productivity

	1		2	3	4	5
	79-89	89-99	1999 GDP per capita	1999 GDP per hour	1999 ICT/GDP	1999 ICT man./GDP
Australia	1.0	2.2	78	84	6.0	0.2
Austria	1.2	1.2	74	-	-	-
Belgium	2.2	1.7	76	110	7.0	0.4
Canada	0.9	1.1	80	84	8.2	2.0
Denmark	0.7	1.8	79	93	8.0	1.8
Finland	2.6	2.5	72	82	13.0	6.8
France	2.2	1.3	69	97	9.6	2.0
Germany	1.5	-	72	94	6.8	1.8
Ireland	3.6	3.1	79	96	13.7	6.6
Italy	2.0	1.7	67	106	6.8	1.6
Japan	2.6	1.1	74	74	8.0	4.4
Korea	4.8	4.6	48	-	11.8	8.0
Netherlands	-0.3	0.6	76	109	8.2	2.0
Norway	1.9	2.3	82	108	8.0	1.6
Portugal	1.9	1.9	50	53	8.0	1.7
Spain	2.6	1.4	56	76	8.0	1.0
Sweden	1.4	2.5	70	84	11.6	3.2
Switzerland	0.3	0.5	85	91	-	-
United Kingdom	1.9	1.7	65	87	10.6	2.4
United States	1.2	1.7	100	100	10.6	2.7

Notes:
Column 1: Average annual growth of GDP per person employed, OECD (2000a).
Column 2: GDP per capita (United States =100), OECD (2001a) p201.
Column 3: GDP per hour worked (United States = 100), OECD (2001a) p201.
Columns 4 and 5: share of ICT (manufacturing) value added in the corporate sector, 1999, OECD (2001a) p87.

Table 2: Structural Change Indicators
Education, internationalization and diffusion of ICT in the late 1990s.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Australia	43	-	-	24.4	10.8	2.1	8.85	75.0	30.9	469
Austria	26	-	-	63.4	39.8	14.3	4.82	57.6	7.2	257
Belgium	43	40	45	51.1	41.7	23.6	5.88	39.7	7.9	315
Canada	21	-	-	57.4	21.0	3.6	8.52	127.2	30.4	361
Denmark	20	50	59	34.7	31.2	9.1	6.94	72.5	26.0	414
Finland	28	42	53	70.3	23.6	7.2	5.88	159.1	68.1	360
France	38	42	47	49.1	46.6	21.5	5.96	19.2	5.3	222
Germany	19	41	43	52.9	46.9	18.7	5.27	31.7	10.3	297
Ireland	49	-	-	41.1	31.6	8.2	6.48	31.1	13.0	405
Italy	56	30	34	46.6	37.5	14.5	4.72	32.6	3.7	192
Greece	50	30	31	30.9	10.2	3.2	5.51	13.0	2.8	60
Japan	19	-	-	44.8	26.9	4.5	7.06	32.5	8.4	287
Korea	34	-	-	46.4	12.9	2.1	4.42	10.8	2.1	182
Netherlands	35	52	48	46.9	40.7	18.4	7.13	81.6	2&.9	360
Norway	15	-	-	31.7	15.4	5.8	6.93	116.5	40.9	447
Portugal	79	32	42	37.4	24.4	10.8	5.31	13.4	3.1	93
Spain	65	40	51	41.1	36.3	17.8	4.03	15.7	4.0	119
Sweden	23	43	52	65.5	34.7	10.0	9.28	106.3	35.0	451
Switzerland	18	-	-	50.6	44.4	10.6	7.48	63.5	20.7	462
United Kingdom	18	41	42	47.1	46.6	17.1	9.35	52.5	15.7	303
Eur. Union	39	40	43	-	-	-	-	37.4	10.2	-
United States	13	-	-	54.4	42.3	10.7	8.87	234.2	56.5	511

Notes:
Column 1: Share of population ages 25-64 with less than senior matriculation. OECD (2001a) p173.
Column 2: Rate of education of men ages 20-24, 1999/2000. European Community; Eurostat.
Column 3: Rate of education of women ages 20-24, 1999/2000. European Community; Eurostat.
Column 4: Share of intermediate goods exported to 15 nations in the European Union, 1996. OECD (1999) p158.
Column 5: Intrabranch quality business as a percentage of business with EU countries, 1996. OECD (1999) p156.
Column 6: Intrabranch variety business as a percentage of business with EU countries, 1996. OECD (1999) p156.
Column 7: ICT expenditures as a percentage of GDP in 1999. UNESCO *World Development Indicators 2001.*
Column 8: Internet hosts per 1000 inhabitants in October 2000. OECD (2001a) p181.
Column 9: Internet hosts per 1000 inhabitants in July 1997. OECD (2001a) p181.
Column 10: Number of personal computers per 1000 inhabitants in 1999. UNESCO *World Development Indicators 2001.*

Table 3: Institutional Change Indicators
Degree of Business Regulation in 1998

	1	**2**	**3**	**4**	**5**	**6**
Australia	0.4	1.2	1.1	0.81	1.83	0.9
Austria	0.5	1.8	1.6	2.36	1.77	1.4
Belgium	0.6	2.7	2.6	2.01	3.78	1.9
Canada	2.2	1.0	0.8	1.19	1.42	1.5
Denmark	0.5	1.9	1.3	2.28	2.70	1.4
Finland	0.6	2.3	1.9	3.28	1.90	1.7
France	1.0	2.7	2.7	2.30	3.04	2.1
Germany	0.5	2.7	2.1	1.22	2.46	1.4
Ireland	0.4	1.1	1.2	1.32	0.46	0.8
Italy	0.5	3.3	2.7	4.44	3.26	2.3
Japan	1.0	1.8	2.3	0.70	2.05	1.5
Korea	1.7	2.7	3.1	2.47	2.16	2.4
Netherlands	0.5	1.8	1.4	2.57	1.90	1.4
Greece	1.3	2.7	1.7	3.39	4.50	2.2
Norway	2.2	2.2	1.3	3.72	2.51	2.2
Portugal	1.1	2.1	1.5	2.69	3.02	1.7
Spain	0.7	2.2	1.8	1.95	3.42	1.6
Sweden	0.8	1.7	1.8	2.25	0.55	1.4
Switzerland	1.3	2.2	2.2	2.34	1.75	1.8
United Kingdom	0.4	0.5	0.5	0.03	1.22	0.5
United States	0.9	1.1	1.3	0.84	0.87	1.0

Notes:
Column 1: degree of regulation of international business transactions.
Column 2: degree of regulation of domestic business transactions.
Column 3: degree of general partnership regulation.
Column 4: size of the public sector.
Column 5: degree of control of economic activities by the State.
Column 6 general degree of regulation of economic activities.
Source: Indicators taken from Nicoletti, Scarpetta and Boylaud (2000), compiled using consultants' scores from 0 (extremely liberal) to 4 (extremely strict regulation) for the various fields. The indicator in Column 2 is a combination of the indicators in columns 3, 4, and 5.

Table 4: Institutional change indicators (continued)
Degree of regulation in seven service activities in 1998

	1	**2**	**3**	**4**	**5**	**6**	**7**
Australia	0	0	2	2	2	0	0
Austria	6	4	2	2	2	-	6
Belgium	4	4	2	2	2	4	6
Canada	2	2	-	4	2	6	2
Denmark	4	-	2	2	2	4	6
Finland	4	2	2	2	2	0	6
France	6	-	-	4	-	6	6
Germany	2	4	2	2	2	2	0
Ireland	2	-	2	2	2	4	6
Italy	4	6	6	2	2	6	6
Japan	6	4	-	4	-	4	-
Korea	2	0	2	4	2	-	6
Netherlands	2	4	2	0	2	4	0
Greece	6	6	2	6	6	6	-
Norway	4	2	2	2	2	0	6
Portugal	4	2	2	6	6	4	-
Spain	4	4	6	2	2	4	6
Sweden	2	2	2	2	2	0	2
Switzerland	0	6	2	6	2	-	6
United Kingdom	4	0	2	2	2	0	2
United States	0	0	2	0	2	4	0

Notes: degree of liberalization: 0: extremely liberal; 2: liberal; 4: restrictive; 6: extremely restrictive
Column 1: retail business.
Column 2: truck freight.
Column 3: mobile telephones.
Column 4: air passenger transport.
Column 5: stationary telephones.
Column 6: electricity.
Column 7: railroad.
Source: Nicoletti (2001)

Table 5
Features of financial systems and degree of regulation of labour markets

	1	**2**	**3**	**4**
Australia	106	0.9	1.2	-
Austria	16	2.8	2.0	0.04
Belgium	75	1.6	2.6	0.27
Canada	126	0.9	0.3	0.27
Denmark	60	1.7	1.2	0.3
Finland	270	2.3	1.9	0.3
France	103	2.5	3.7	0.2
Germany	68	3.0	2.5	0.17
Ireland	46	1.7	0.3	0.5
Italy	62	3.0	3.6	0.18
Japan	105	3.0	2.3	-
Korea	76	-	2.3	-
Netherlands	177	3.2	1.5	0.45
Greece	163	2.6	4.5	0.03
Norway	42	2.9	2.8	0.15
Portugal	59	4.3	3.2	0.15
Spain	72	2.8	3.7	0.16
Sweden	156	3.0	1.8	0.55
Switzerland	268	1.3	1.2	0.16
United Kingdom	203	0.7	0.3	0.65
United States	182	0.1	0.3	0.63

Notes:
Column 1: Market capitalization as a percentage of GDP. *World Development Indicators 2001*, Table 5.3.
Column 2: Degree of protection of full-time employment according to Nicoletti, Scarpetta and Boylaud (2000, Table A3.11, page 84), summary indicator constructed from scores ranging from 0 to 6 of the relative restrictive nature of regulation.
Column 3: Degree of protection for temporary employment, same source as Column 2.
Column 4: Amount of venture capital as a percentage of GDP in 1999 (destination nation), OECD (2001a) p47.

Table 6

Productivity increases in Intermediation Services

	Business		Transport		Communi-cations		Finance		Bus. Services (b)	
	79-89	89-97	79-89	89-97	79-89	90-97	79-89	90-97	79-89	90-97
Australia	0.1(a)	1.0(a)	2.1	3.5-	7.5	8.6	-	-0.6	0.6	-
Canada	1.6	2.3	2.5	0.5	3.7	5.0	-0.4	1.7	2.3	0.1
Finland	2.6	0.7	2.3	3.8	5.8	7.0	3.9	6.1	-1.8	1.6
France	1.6	0.6	1.7	1.4	7.4	4.8	0.2	-1.8	-0.3	0.4
West Germany	1.2	0.7	2.0	2.0	4.9	7.2	-	1.6	2.8	-
Italy	0.5	1.5	1.3	2.6	4.6	10.9	-	0.0	2.5	-
Japan	4.4(a)	1.0(a)	-	4.1	0.5	-	-	2.3	1.8	-
Netherlands	3.0	0.5	3.5	2.5	3.7	3.1	0.3	-0.41	0.4	-1.3
Sweden	2.4	3.3	3.2	0.2	5.2	7.5	3.1	4.2	-2.9	2.5
United States	1.4	3.0	0.2	1.9-	3.9	2.7	-0.4	1.3	-1.8	-1.2

Notes: a) includes hotel and restaurant services

b) those business services that are not considered intermediation services in the traditional sense are included here, since they are lumped together in numerous statistical reports with financial services.

Source: OECD (2001) p22.