JOURNAL OF EUROPEAN ECONOMY
Vol. 2 (№ 1). March 2003
Publication of Ternopil Academy of National Economy

Roland EISEN

GLOBALIZATION AND THE NEW ECONOMY: SOME GENERAL THOUGHTS

Abstract

A flimsy view of historical background of globalization development is covered in the paper. The author denotes new characteristic features of a globalization, and discusses interactions between a globalization and a new economy.

Key words:

adjustment of prices, bank system deregulation, business «take-off», capital flow, capital market, commodity market, conflict between labor and capital, country of well-being, credit market, currency market, digital economy, education, financial crises, financial mediators, globalization, economic growth rate, information and communication technology, industrial revolution, international trade, knowledge-intensive work, knowledge society, labor force, labor market, new economy, new product, new services, population, population migration, three sectors of macroeconomic structure, economic law of one price, unemployment.

I. Setting the Stage

A little more than a decade ago, globalization was a foreign word known only to some experts. Nowadays, globalization is a catchword in every mouth whose economical, societal and political relevance is accepted. But there are two sides of the coin: on the one side, globalization is the hideous picture (visible

Eisen Roland, Prof., Dr., Chair of Economic and Labor Market Policy, Institute of Economics, Faculty of Economics and Business Administration, Johann Wolfgang Goethe University, Frankfurt am Main.

in the public protest demonstrations in Seattle and Geneva), on the other side, it is the bright future of all countries.

However, despite its general usage, there is still debate about its meaning. For some, globalization means the enormous increase in international trade and capital flows; for some, it is a buzz-word to describe the overall availability of information and the development of world-wide production networks connected with information and communication technology (ICT); and for some, it describes the equalization of life styles in the «global village».

Viewed from an economist's perspective, globalization can be described as the process of increasing the degree of integration of the world economy. This process proceeds in three directions:

- through international trade;
- through international factor movements, particularly in capital;
- through the international diffusion of technology, ICT in particular.

However, globalization is not a new phenomenon. Therefore, firstly, «globalization» is put in the broader context of «economic history» (a theme taken up by Peter Hampe). Secondly, new features of globalization process are worked out and explained here as the third «industrial» revolution. And thirdly, the interconnection between globalization and the new economy with respect to factor markets will be discussed. A short summary will conclude.

II. The historical background: A flimsy view

There is an interesting debate ongoing in the literature [see e.g. Hirst and Thompson (1992), Perraton et al. (1998) and Baldwin/Martin (1999)] in how far the new development in the degree of integration of the world economy has a precedent. Mainly the discussion is about the first industrial revolution of the 19th century. Driven by new inventions (steam engine, steel fabrication, combustion engine, etc.), this industrial revolution increased home production, but also foreign trade, capital flows and mass migration. Starting with UK, the industrial state was developing.

Table 1 shows the increase in production which quadrupled from 1876/80 to 1913, and in trade volume which more than tripled in this period. The volume of trade increased from $16.74 billion in 1899 to $28.20 billion in 1913 (in 1955 prices), an increase of 70 percent (see Table 2). Table 3 shows that not all countries experienced the same development. While the total value of merchandise exports (FOB at current prices and exchange rates) almost quadrupled from 1870 through 1913, the figures for the USA and Germany almost quintupled,

while the figures for Japan, Belgium, Canada, Finland and the Netherlands grew even much higher.

Net migration is shown in Table 5: while UK, Italy and Germany were the largest sources of emigration, most of the people went to the USA (see column 1 for 1870–1913)[1].

This economic-technological «take-off» was accompanied by the development of a new phenomenon such as unemployment, which Karl Marx, one of the most prominent critics of the evolving capitalism, called «industrial reserve army». However, relatively quickly, the industrialized nations developed new institutions to cope with the «social side effects»: beginning with some paternalistic institutions put forward by «industrial leaders», trade unions and social policy programs were put into operations. At the end of the 19th and the beginning of the 20th century, the European model of the social state was being formed.

And now for the 1990s, experts discuss the second (or even third) industrial revolution[2], based on inventions and innovations in the information and communication technology. The ongoing structural change will eventually end the industrial (and post-industrial) era and lead to the new knowledge society, as the (first) industrial revolution has ended the agrarian society [3].

A schematical picture follows the 3-sector-hypothesis as developed by Fourastié, Fisher and Clark[4]: The long run development of economies can be described by a continual shift of production and employment from the primary sector (agrarian sector) to the secondary sector (mining, manufacturing industry), and to the tertiary sector (private and public services, trade, transport and communication, financial services). This «double» transformation process is shown in Figure 1: first the transition from the agrarian society to the modern industrial society (crossing of the lines I and II); second, the transition to the post-industrial or service society (crossing of the lines II and III). Two hypotheses were put forward to explain these transition processes: on the one hand, there are demand factors such as different income elasticities of necessaries and non-necessaries; on the other hand, there are supply factors such as different productivity growth rates or differences in technological progress in the sectors. Hence, the hypothesis of transformation of the industrial society or post-industrial society into information or knowledge society stresses the importance of certain subsectors within the tertiary sector.

---

[1] The net migration after World War II changed radically for Germany and France!

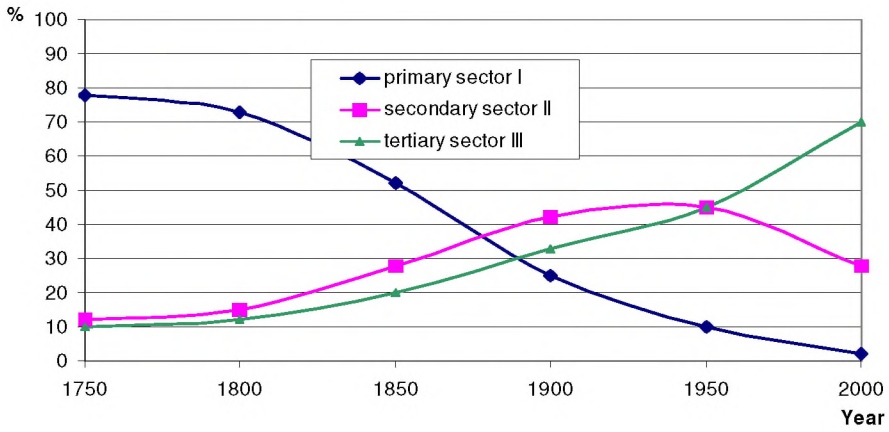
[2] Sometimes the 1950s and 1960s which show a remarkable development in almost all figures (cf. Tables 1 through 5) are considered as if the second industrial revolution took place.

[3] See Miegel (2001), p. 203.

[4] See also Albert et al. (1999), pp. 206 sqq.

Figure 1:

3-sector-hypothesis (schematic)



This development is also not so new, see e.g. *Silicon Valley*[5]. Nevertheless, caused by digitalisation the conditions of production and storage, as well as dissemination and usage of knowledge have changed in fundamental ways. Furthermore, via the «General Public License» (GPL) open secured code of working systems - as e.g. Linux or Free BSD - give rise to new forms of collaborative work which have almost no resemblance to traditional models of cooperation. The success story of Linux puts the question, whether and when these forms of work will take over other fields of information production.

This is also true for dissemination of information [digitalization]: via the Internet the costs of transmission and dissemination of information go to nought[6]! Robert Metcalf, father of the standard Ethernet, has described the cumulative effect of the information storage by the formula: the value of the net increases with the square of the number of users.

[5] See also Schelsky (1954).
[6] See Moglen (1999).

III. The new players

This new technological development is clearly visible in the structural changes of the economy - away from the secondary sector or production sector towards the tertiary or services sector and now information (ICT) sector. This does not mean that the production of goods will become unimportant. The transition to the knowledge society proceeds gradually or evolutionary, i.e. many people will be employed in the traditional production units, and many products will be produced in the traditional way. The change is in the intellectual claims of the activities: around the production of commodities «knowledge intensive» production-oriented services develop such services as design, logistics, control, marketing, counselling, etc[7].

One consequence of this knowledge economy is that the human being will eventually move to the centre. However, this information revolution leads also to an increased acting capacity of individuals or small groups. But this is not a zero sum game: while the acting place of individuals and small groups (or networks) is increasing, the influence of the state and its control possibilities has not diminished.

However, to produce knowledge or to use it, certain conditions have to be met, e.g., a highly complex and capital-intensive infrastructure is necessary. This, in turn, explains that certain forms of knowledge do not have an unconditional value or constant chances of action; their results or effects depend on active elaboration, interpretation, and practical realization of this potential[8].

The changes in the production sphere, increasing importance of foreign exchange, finance and capital markets are characteristic features of the economy of a knowledge society. This can be seen from Tables 1 through 5: while there was virtually no change between 1929 and 1950, there was a burst in 1950s and 1970s.

Although ICT is not new, the take-off started in the US in post–1995: its growth rate, its rate of productivity growth, as well as the unemployment rate look far more better than in «Europe» – compared to the figures between 1964–1973 or 1973–1987 (see Table 7). That is why now the USA is considered a benchmark-model, and there are three reasons for this development (see Funk, 2000):

- the New Economy hypothesis of a technological revolution, which is combined with a 'new golden state' of high productivity growth;
- the Old Economy hypothesis of traditional Keynesians, that it is the powerful macroeconomic demand policy;

[7] See e.g. Krämer (1998).
[8] See Stehr (2001).

- the Old Economy hypothesis of mainstream economists, which holds that it is the result of combined unexpected positive shocks and for this a transitory phenomenon of restructuring.

However, from these three, the New Economy hypotheses is the most popular one[9]. Even when there is no general agreed definition of the New Economy, let us begin by characterizing the new economy firms as those firms whose primary line of business is the development or application of information or knowledge, in contrast to old economy firms whose main line of business is production of a physical asset or service. The technological revolution behind the «new digital economy» and the great expansion of IC services have increased the production potential or the supply side considerably.

The diffusion of ICT can be measured by penetration of Internet connections, PCs or mobile subscriptions. These data serve as a valuable proxy for the quantitative diffusion of technology in an economy and the increased network externalities. However, the available data (cf. OECD (2000)) refer to households and thus do not reflect the employment of ICT on the business level where the efficiency-enhancing effects and network externalities should be felt primarily. Nevertheless, since Internet penetration in the household sector in many cases complementary to that of the business sector, the following picture can serve as a good illustration. As Figure 2 shows, the USA and Switzerland are clearly the leaders in this statistics, followed by several Nordic countries. Some big European countries like France and Germany are close to the EU average.

Europe as a whole is evidently lagging behind the USA with respect to ICT expenditure, PCs and internet penetration on the micro-level. Therefore, the macroeconomic effects of the New Economy in Europe should – as a consequence – also diverge substantially from those in the USA. As the macroeconomic figures (of growth rates and labor productivity) show, the high spending on ICT brings the US economy on a higher growth path (cf. Table 8a and 8b). Therefore, a «new golden age» can be expected with higher growth, lower inflation rates, increasing employment and sustained labor productivity growth (see Table 7). The (new) stability oriented monetary policy as well as the fiscal discipline (with increasing budget surpluses) hold interest rates down. These in turn allow huge capital investments, enhancing productivity and lowering inflation pressure. This leads to high efficiency of capital and favours growth (see Council of Economic Advisors 2000, p. 281).

Figure 2a:

[9] Therefore, the other two explanations will not be dwelled on. Only two short remarks: on the one hand, the traditional Keynesian feared that the speculative bubble is full of risks, so there is a possibility of harsh landing, which is now showing up in sharp decreases of share prices. On the other hand, there is the critical argument of Roach (2000) that a great part of higher productivity is due to non-measured increases in labor input in the service sector («unpaid overtime work»).

ICT expenditure per capita (Euro)

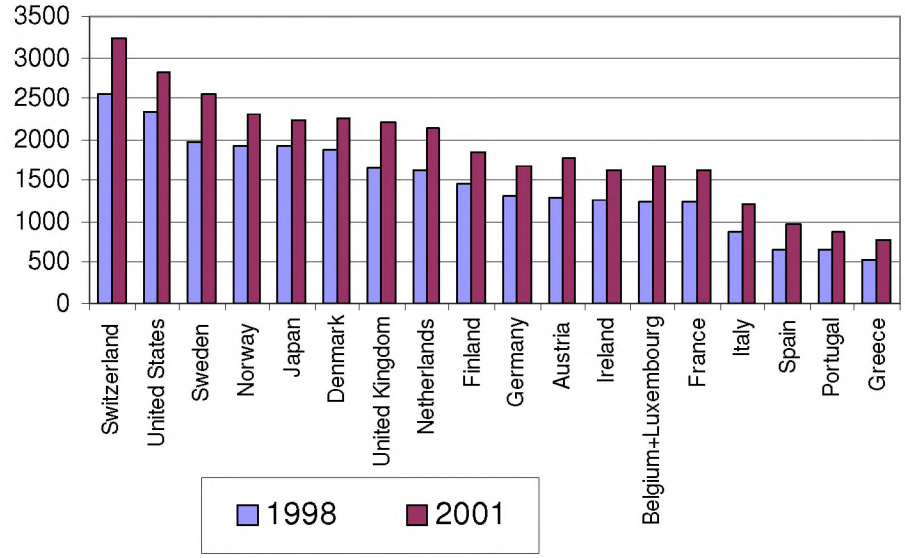
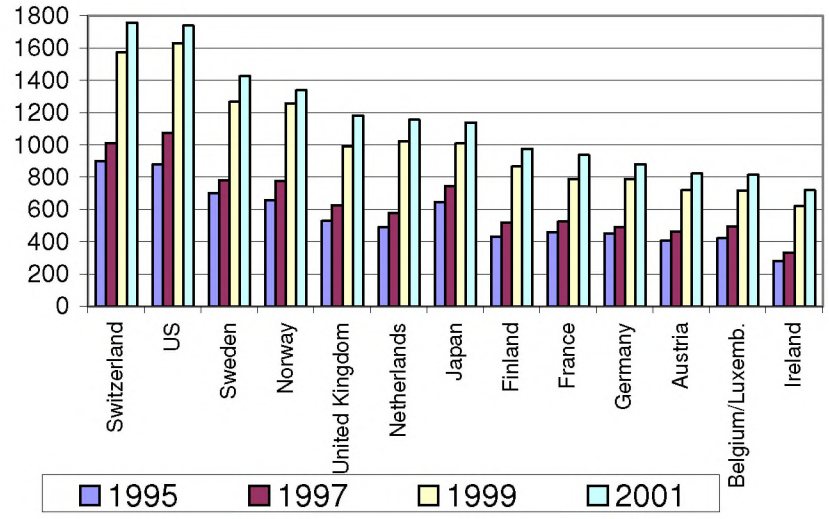


Figure 2b:

IT expenditure per capita (Euro)



Source: EITO (2002).

This supply-side circle was secured on the demand side by raising share prices resulting from the increased rates of return of IC investments. Higher share prices increased the wealth of private households and led to higher expenditures. On this way, the demand was created for the new production capacity allowing increasing growth rates. Given this sustainable phenomenon, higher profit expectations were justified[10].

IV. Interaction between Globalization and IC Technology

The uniting idea behind most of explanations of productivity and growth increases in the US economy is the high degree of allocative functionability or flexibility of capital, goods and labor markets. In a certain sense it is true that both developments – clearly visible also in the difference of the New Economy-effect in Europe (cf. Table 8 a/b) – are linked together: the «freeing» of the credit and capital markets from a lot of regulations everywhere in the world and technological developments in recent years have both contributed to the increasing degree of internationalisation[11].

The demolition of the «iron curtain» and the economic situation in most developing countries have greatly increased the availability of «cheap labor». So, along with goods and services, the migration of labor can lead to the so called «equalization of factor prices» thus bringing new pressures for the established European social security systems. And hence, the question may be raised whether the «third industrial» revolution also leads to radical changes in the traditional welfare state.

These developments and their concomitant problems will be delt with in the following sections.

IV.1. Credit and Capital Markets

Since the annulment of the Bretton Woods system of fixed exchange rates (or of quasi-fixed rates) after the US started the flexible exchange rate of the dollar in 1972, the volatility of exchange rates has greatly increased. However, not so much the end of the Bretton Woods system in 1972 than rather the Plaza agreement of autumn 1985 about the international exchange rate system can be – seen from today – regarded as the symbolic «blast-off» of the capital markets' globalization. Combined with the demolition of massive capital and foreign exchange controls an enormous increase started off in transactions on the world capital and foreign exchange markets. This has made necessary new measures

[10] Meanwhile this picture has changed radically: all statistics of financial markets show dramatic decrease since the end of 2000.

[11] Felderer (2001) describes this as the hypothesis of the lower flexibility of Europe.

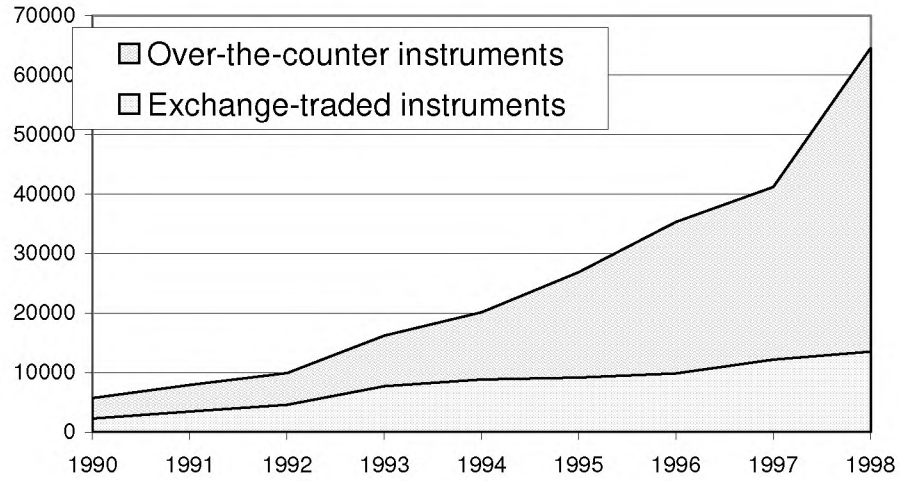
to control the risks in foreign trade as well as in international capital flows. In a certain sense this necessitated that banks and/or other financial intermediaries got more space to develop new products, services and contracts. Therefore, the deregulation of the banking system was inevitable. However, this deregulation not only allowed banks and other financial intermediaries to develop new products and services, but also brought about new risks, because old de-regulation authorities were unable to see where these developments might lead.

Since the seventies of the last century, the amount of capital flowing through the international capital markets hugely increased (cf. Figure 3).

One consequence of this was that not only the flows of capital increased but also the risks. This showed up very clearly in the banking and currency crises in the last quarter of the 20th century. While regional financial crises have become more frequent, the domestic impact of global financial developments has also grown. The foreign exchange crises have spilled into stock markets and sometimes led to deep recessions. So, one can put the question «to what extent is the positive potential of the international capital market outweighed by a potentially disruptive role»? For a tentative answer see Obstfeld (1998, p. 22).

Figure 3:

Markets for selected financial derivative instruments.
Notional amounts outstanding at year-end (in billions of US dollars).



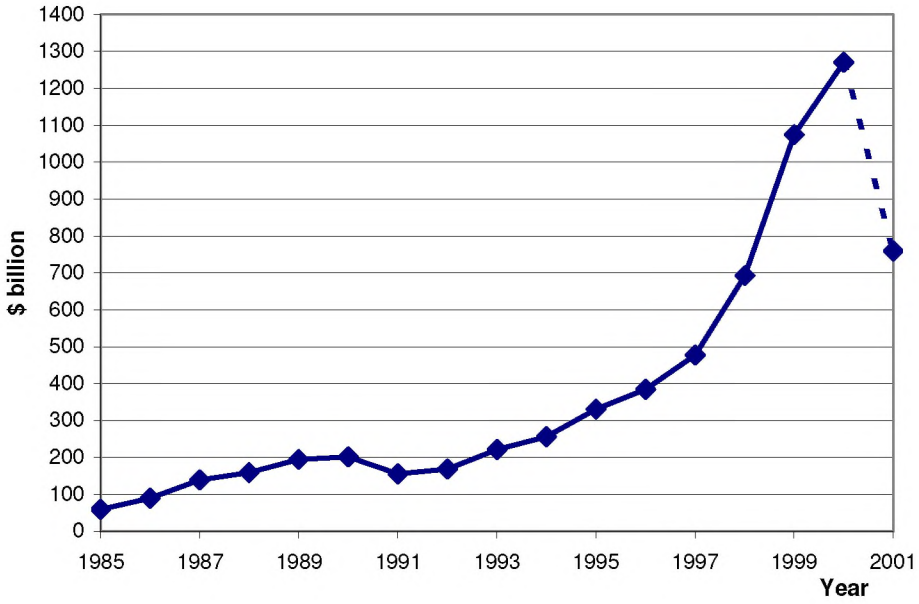
Source: BIS (1996, 1999).

The capital flows are considered as the «productive core of the globalizing world economy» (UNCTAD, 1998, p. 1): while the world trade in goods and services increased between 1990 and 1997 annually by 6.5% (and in 1970s even less), the foreign direct investments increased between 1986 and 1990 by 27.1% annually, between 1991 and 1995 by 15.1% annually (UNCTAD, 1998, p. 2) and between 1995 and 2000 by 30.9 % annually. This is shown in Figure 4[12].

However, this interesting development is put into perspective by noting that FDI-outflows amount only between some 6 to 7% of gross domestic investment.

Figure 4:

Foreign Direct Investments 1985–2001 (billions of dollars)



2001: estimated
Source: UNCTAD (2001): Press Releases, 2. 8. 2001, www.unctad.org/en/press/pr0119en.htm and UNCTAD (1999): Press Release, 22. 6. 1999, http://www.unctad.org/en/press/pr2810en.htm.

[12] However, Figure 4 reveals that in 2001 the capital flow was only half of the volume one year before! This is mainly due to the capital market crash and the decrease in mergers and acquisitions!

A special characteristic connected with the New Economy was a wave of newly established enterprises. There are a lot of interesting individual stories; however, most of them show that the capital for these firms did not come from established or traditional creditors (i.e. banks) but from so called private equity and venture capital associations. But while US venture funds made astonishing profits in 1999, in the fourth quarter of 2000 they realized losses which were growing in 2001. However, after the crash and bankruptcies in 2001, the New Market has gained new hopes. The 'New Economy' is an international phenomenon – as well as the boom and the crash! In Germany the Neuer Markt (the auction place for shares of new economy firms) was introduced by the Deutsche Börse on March 10, 1997, and quickly grew from 2 to 343 firms. Since about mid 2000, market forces have steadily inched the Neuer Markt downward leaving the Mid-September index (Nemax) at nearly 700 points – far from the opening value of 1000 and the maximum value of 8,559.32 points on March 10, 2000[13].

IV.2. Labor Markets

Globalization can, in principle, also be reflected in migration – as it was in the early process of internationalization of economies at the end of the 19th century (cf. Tables 5 a, b). However, this is not the case today.

According to the 3-sector hypothesis, the service industries are labor intensive, so there was the «great hope of the 20th century» that the service industries will absorb all labor released in the primary and secondary industries. In the 1980s and 1990s, growth of the New Economy has become an increasingly important concern, not only because of scientific inventions and innovations[14] associated with new economy firms and industries, but also because of their role as a source of employment. Again, the US economy can serve as a bench-mark (cf. the unemployment figures in Table 7).

However, the labor market (in most industrialized countries and elsewhere) is characterized by three different and distinct developments superimposing the New Economy effects: firstly, there is the population trend; secondly, there is a clearly visible educational trend; and thirdly, globalization leads to a reallocation of labor. Let me touch shortly upon these three trends.

---

[13] In the year 2001 the Nemax 50 lost 60 % of its value. End of August 2002 the Nemax 50 moved around 500.

[14] Even when Gordon (2000, p. 50) very critically remarks that «the productivity revival (of 1995 to 1999) appears to have occured primarily within the production of computer hardware, peripherals, and telecommunication equipment with substantial spillover to the 12 percent of the economy involved in manufacturing durable goods. However, in the remaining 88 percent of the economy, the New Economy's effects on productivity growth are surprisingly absent. Moreover, it is quite plausible that the greatest benefits of computers lie a decade or more in the past, not in the future».

The population trend is by and in itself characterized by divergent developments. In almost all countries we can see that the population is growing older, i.e. more and ever more people live longer. While the problem of an ever increasing population in developing and transition countries seems to be under control, now there is an increase of the proportion of older people (above 60 years) in the coming decades (cf. Table A.2 in World Bank (1994)): Today only 10 percent of the world population are over sixty years old, in 2050 it will be 20 percent. This trend brings problems for old and new social security systems because pensions have to be paid ever longer if retirement age is not risen in accordance with the length of life expectancy.

However, there is a distinct difference in birth rates (net birth rates) in different societies. While highly industrialized countries show diminishing birth rates[15], developing countries still show increasing or stabilized high birth rates. Together with the fall of the «iron curtain» this means that there is an oversupply of labor on the world market. This in turn leads to pressures on the (real) wage rate – in industrialized as well as in developing or in transition nations. Therefore, the relevant type of labor in the future will be the «scientific labor» or «knowledge labor». The trend is clearly visible in Table 9 where a comparison is made between average years of formal educational experience in 1913 and 1989[16].

With respect to the third trend on the labor market, globalization opens up not only the capital markets. Via international trade in capital, goods and services, the economic law of one price – or the «equalization of factor prices» – can work less restricted than before. So even when migration is – until now also because of strict immigration policies[17] – not so much of a problem, trade can bring forth this development.

Only applied to industrialized countries, there are three strands where globalization can lead to some dangers: first, because of the intensifying foreign trade and high capital mobility, labor in industrialized countries is in direct competition with labor in developing or transforming countries. The role of «simple labor» (or labor with a small proportion of human capital) in industrialized countries will be more and more substituted by high-technology machinery. The wage rate of simple labor will relatively decrease. «Simple labor» will be employed in countries where wages and social standards are low. A direct consequence may be that there will develop a conflict between «labor» and «capital»: the wage rate will be driven down while the earnings capacity of capital grows. Sometimes it is argued that the division will not be between capital and labor, but rather between «simple labor» and «educated labor» (see Eisen, 2001a).

---

[15] Or a reproduction rate not sufficient to keep the population size constant.

[16] Also OECD (1997, chap. 4) shows that the «supply of low-educated workers tended to fall», and «the evidence on employment-population ratios and unemployment rates suggests a deterioration in the labor-market position of low-educated workers in the majority of the countries» (p. 95).

[17] Compare this to the migration figures given in Table 5a and b.

Second, knowledge (information, expertise, intelligence, experience, etc.) has a high rate of obsolescence. That is «long life learning» (3L) is necessary, or as the «black queen» (in Lewis Carroll's «Through the Looking Glass», p. 216) has said, «Now here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that».

Third, if prices and relative wages are rigid – downwards in particular – then the structural shift in employment is more pronounced. This in turn leads to a higher change for the worse of the employment possibilities of «simple labor» in the industrialized countries. The «globalization shock» (cf. Krugman, 1995), combined with the technological progress in ICT, starts simultaneously a demand, employment and income reduction. And either «simple labor» accepts this reduction in the real wage position or there is higher unemployment of «simple labor» (see Eisen, 2001a).

IV.3. Interconnections

From economic theory we know that all things are interconnected, either via factor mobility or via trade in goods and services. To highlight the results, only some problems for highly-industrialized countries, in particular Germany, will be stressed. However, as much overwhelming evidence shows, these problems are ubiquitous.

One immediate result is a high unemployment rate. There are different theoretical explanations for this phenomenon from inflexible wage rates to inflexible markets. The high rate of unemployment, however, has two consequences for the social security (or insurance) system: on the one hand, because the income of the unemployed is less than their income when working, contributions to and hence receipts of social security are lower. This means that because of globalization the demand for social security increases in order to cope with the increased risks. On the other hand, the (unemployment) benefits must be paid out of a shrinking contribution base. In turn, this implies that there are diminishing possibilities of a nation state to fulfill the increased «insurance function». Furthermore, there is fear that globalization leads nation states to a «ruinous competition» in (reducing) taxes and (rising) subsidies. This in turn implies then undersupply of public goods and a shrinking base of regulatory power. This, taken together with the population and ageing trends, leads to a «social security crisis» – in particular a financial crisis – the solution of which may be found in a shift from a pay-as-you-go (PAYG) system to a capital-funded system, as well as a two-tier system: a tax-financed minimum pension and a capital-funded system with defined benefit characteristics.

There may be several advantages of these capital-funded systems. The first is that its rates of return seem independent of the population trend[18]. The second is that the rise in the capital intensity and technological change as well as the rise in education all need more capital, and this capital may come from private savings accompanied by individual pension accounts[19]. However, there are also several disadvantages (which in my opinion are overwhelming).

Furthermore, the wage-pressure increases when capital is migrating from industrialized countries to more favorable places. Therefore, globalization and the wage pressure not only increase the share of capital income but, because of high flexibility of capital, also give compensation to the «losers» via a higher taxation of the «winners».

V. Summary

Basic technological inventions in the transport and telecommunication sector, combined with political processes in the realm of de-regulation, have led to astonishing reduction of natural and artificial «distance costs». Although growing world trade and internationalization are «historical» phenomena, the dimension and speed of these processes are really new[20]. That is why the development of e-economy and globalization, or the advent of the «knowledge society», must be seen together, and, because of the consequences, can be described as the third «industrial» revolution.

While the second industrial revolution took place mainly between the two World Wars, shortly after the second, and was, therefore, mainly local (or confined within the national boundaries), the first and the third industrial revolution can be characterized by internationalization and globalization (even when the meaning of the second notion is still under dispute).

Both globalization and e-economy have led to an enormous boom combined with income growth in all countries. Furthermore, globalization and the almost limitless capital mobility (also reflected in the high growth rates of FDI) have led to an increase in ICT transfers. In turn, this rapid diffusion of ICT, as well as the adoption of new forms of work organization, increases the demand for skilled relative to «simple labor». Globalization and e-economy have led, on the other hand, to great financial crises all over the world (mostly, because the new players in the de-regulated environment where unable to realize and then to cope with the new risks) and to a crash of the New Economy. Nevertheless, despite financial disasters and their negative

---

[18] This is not true for the ageing component of this trend, and it seems also not true for the birth-rate development. In some new research, an «age wave» in returns of financial assets is postulated, cf. e.g. Poterba (1998).

[19] That does not in itself imply that because of these individual pension accounts (IPAs) the savings rate is higher. It means only that in a PAYG system the contributions are not accumulated as in an IPA system which then seeks assets to invest its money (see Eisen, 2001b).

[20] For a historical comparison see also Baldwin/Martin (1999).

consequences, real advantages will remain: the New Economy is dead – long live the New Economy!

References:

1. Albert, Mathias et al. (1999), *Die Neue Weltwirtschaft, Entstofflichung und Entgrenzung der Ökonomie* (The New World Economy), Frankfurt a. M. (ed. Suhrkamp, N.F. 983).
2. Baldwin, Richard E. and Philippe Martin (1999), Two Waves of Globalization: Superficial Similarities, Fundamental Differences, *NBER Working Paper 6904.*
3. BIS – Bank for International Settlements (1999), *69th Annual Report*, Basel, Table VII.5.
4. BIS – Bank for International Settlements (1996), *66th Annual Report*, Basel, Table VIII.6.
5. Carroll, Lewis (1962), *Through the Looking Glass*, (Combined Volume), Hardmondsworth/Middlesex: Penguin Books.
6. Council of Economic Advisers (2000), *The Annual Report*, Febr., Washington (internet: http://www.access.gpo.gov/eop).
7. Eisen, Roland (2001a), Globalisierung, Arbeitslosigkeit und die Reform des Sozialstaates: Prolegomena zu einer Theorie der Sozialreform (Globalization, Unemployment and the Reform of the Social State), in: Irene Becker, Notburga Ott, Gabriele Rolf (Hrsg.), *Soziale Sicherung in einer dynamischen Gesellschaft,* Frankfurt/New York: Campus Verlag, p. 63–86.
8. Eisen, Roland (2001b), Das 3-Schichten-Modell: Grundprobleme einer Reform der sozialen Sicherung (The 3-Pillar-System: Basic Problems of Reforms of Social Security), Vortrag, Wolfsburg 2001, erscheint.
9. Felderer, Bernhard (2001), Warum unterscheiden sich die langfristigen Wachstums- und Produktivitätstrends Europas und der USA? (Why are the long-run growth and productivity trends in Europe and the USA different?) in: *ifo-Schnelldienst* 54 (No.1, Jan.), 15–23.
10. Gordon, Robert (2000), Does the 'New Economy' Measure up to the Great Invention of the Past?, in: *Journal of Economic Perspectives* 14 (No. 4, Fall), 49–74.
11. Gordon, Robert J. (2003), *Macroeconomics*, 9th edition, Boston et al.: Addison-Wesley.
12. Hirst, Paul and Grahame Thompson (1992), The Problem of 'Globalization': International Economic Relations, National Economic Management and the Formation of Trading Blocs, in: *Economy and Society* 21/4, pp.

13. Krämer, Hagen (1998), Zur Tertiarisierung der deutschen Volkswirtschaft, in: Klaus Mangold (ed.), *Die Welt der Dienstleistung, Perspektiven für Arbeit und Gesellschaft im 21. Jahrhundert,* Wiesbaden, 171–216.

14. Krugman, Paul (1995), Growing World Trade: Causes and Consequences, in: *Brookings Papers on Economic Activity*, Washington, 327–377.

15. Kuznets, Simon (1966), *Modern Economic Growth*, New Haven and London: Yale UP.

16. Maddison, Angus (1991), *Dynamic Forces in Capitalist Development*, A Long Run Comparative View, Oxford/New York: Oxford UP.

17. Maizels, Alfred (1970), *Growth and Trade*, NIESR Students' Edition, Cambridge: UP.

18. Miegel, Meinhart (2001), Von der Arbeitskraft zum Wissen. Merkmale einer gesellschaftlichen

19. Revolution (From Labor Force to Knowledge) in: *Merkur* 55 (Heft 3), p. 203.

20. Moglen, Eben (1999), Anarchism Triumphant: Free Software and the Death of Copyright, in: *First Monday* 4 (1999), 8

    [http://www.firstmonday.dk/issuess/issue4–8/moglen/index].

21. Obstfeld, Maurice (1998), The Global Capital Market: Benefactor or Menace?, in: *Journal of Economic Perspectives* 12 (No. 4), 9–30.

22. OECD (2000), *A New Economy,* The Changing Role of Innovation and Information Technology in Growth, Paris.

23. Perraton, Jonathan; Goldblatt, David; Held, David and Anthony McGrew (1998), *Global Flows, Global Transformations: Concepts, Evidence and Arguments*, Cambridge:

24. Poterba, James M. (1998), Population Age Structure and Asset Returns: An Empirical Investigation, *NBER Working Paper* 6774.

25. Roach, S. (2000), Productivity Rise? The Arithmetic Doesn't Add Up, in: *International Herald Tribune*, Febr. 15, p. 6.

26. Schelsky, Helmut (1954), Zukunftsaspekte der industriellen Gesellschaft (Future aspects of the industrial society), in: *Merkur* 8, 13–28.

27. Stehr, Nico (2001), *The Fragility of Modern Societies, Knowledge and Risk in the Information Age*, London: Sage.

28. World Bank (1994), *Averting the Old Age Crisis*, Policies to Protect the Old and to Promote Growth, A World Bank Policy Research Report, Oxford et al.: OUP.

29. UNCTAD (1998), *World Investment Report*, UN Conference on Trade and Development, New York and Geneva.

Table 1:

World trends in population, production and trade, 1876–1959
Index numbers, 1913 = 100

	Population[a]	Production		Trade Volume	
		Manufactures	Primary produce	Manufactures	Primary produce
1876–80	79	25	...	31	31
1896–1900	90	54	76[b]	54	62
1911–13	99	95	93	94	97
1926–30	111	141	123	113	123
1931–33	117	110	120	81	116
1934–35	120	133	125	84	114
1936–38	124	158	135	100	125
1948–50	145	238	156	132	116
1951–53	151	297	176	178	133
1954–56	158	341	191	216	156
1957–59	166	381	203	251	182

[a]From 1948, the indices exclude the Soviet countries.
[b]1900.
Source: A. Maizels (1970), Table 4.1, p. 80.

Table 2:

Trade of industrial countries in manufactures and primary products, 1899–1959
$billion at 1955 prices

	Manufactures		Primary products		Total intratrade	Total exports to rest of world	Total
	Intra-trade	Exports to rest of world	Intra-trade	Exports to rest of world			
1899	5.04	4.50	5.99	1.21	11.03	5.71	16.74
1913	8.52	8.43	8.42	2.85	16.94	11.28	28.20
1929	11.05	12.37	9.00	3.32	20.05	15.70	35.75
1937	7.82	11.60	7.78	2.57	15.60	14.18	29.78
1950	9.98	14.30	8.15	3.73	18.14	18.03	36.17
1955	15.99	17.91	10.36	4.99	26.35	22.90	49.25
1957	19.24	20.97	12.32	5.48	31.56	26.46	58.01
1959	22.34	20.51	12.51	6.10	34.85	26.61	61.46
Change in period							
1899–1913	+3.48	+3.93	+2.43	+1.64	+5.91	+5.57	+11.46
1913–29	+2.53	+3.94	+0.58	+0.47	+3.11	+4.42	+7.55
1929–37	–3.23	–0.77	–1.22	–0.75	–4.45	–1.52	–5.97
1937–50	+2.16	+2.70	+0.37	+1.16	+2.54	+3.85	+6.39
1950–59	+12.36	+6.21	+4.36	+2.37	+16.71	+8.58	+25.29
1929–59	+11.29	+8.14	+3.51	+2.78	+14.80	+10.91	+25.71

Sources: A. Maizel (1970), Table 4.4, p. 89.

Table 3:

Value and ratio of merchandise exports f.o.b. at current prices and exchange rates ($million)

	1870	1913		1950		1973		1987	
		value	ratio	value	ratio	value	ratio	value	ratio
Australia	88	382	18.3	1,668	22.0	9,559	13.7	26,516	13.5
Austria	160	561	8.2	326	12.6	5,283	19.0	27,168	23.2
Belgium	133	717	50.9	1,652	20.3	22,455	49.9	83,098	59.8
Canada	58	421	15.1	3,020	17.5	26,437	20.9	98,168	23.9
Denmark	(40)	171	26.9	665	21.3	6,248	21.9	25,675	25.4
Finland	9	78	25.2	390	16.6	3,836	20.5	20,037	22.5
France	541	1,328	13.9	3,082	10.6	36,635	14.4	148,382	16.4
Germany	424	2,454	17.5	1,993	8.5	67,563	19.7	294,364	26.4
Italy	208	485	12.0	1,206	7.0	22,223	13.4	116,363	15.4
Japan	15	315	12.3	825	4.7	37,017	8.9	231,286	9.7
Netherlands	51	413	38.2	1,413	26.9	23,496	37.3	92,854	43.6
Norway	22	105	22.7	390	18.2	4,725	24.4	21,490	25.7
Sweden	41	219	20.8	1,103	17.8	12,201	23.5	44,506	27.6
Switzerland	(61)	266	31.4	894	20.0	9,528	23.2	45,515	26.6
UK	971	2,555	20.9	6,325	14.4	29,637	16.4	131,258	19.3
USA	403	2,380	6.1	10,282	3.6	71,404	8.0	254,484	5.7
Total Arithm. Average	3,225	12,850	21.2	35,234	15.1	388,247	20.9	1,661,164	24.1

Source: Maddison (1991), Table F.5, p. 324.

Table 4:

Rates of growth of real GDP, of real GDP per head, of population (average annual compound growth rates)

	Rates of growth of real GDP			Growth rates of real GDP per head of population			Rates of population growth	
	1820–70	1870–1913	1973–89	1820–70	1870–1913	1973–89	1820–1913	1973–89
Australia	10.1	3.5	3.1	1.9	0.9	1.7	3.1	1.4
Austria	1.4	2.4	2.4	0.6	1.5	2.4	0.9	0.0
Belgium	2.2	2.0	2.1	1.4	1.0	2.0	0.8	0.1
Canada	n.a.	4.1	3.6	n.a.	2.3	2.5	1.7	1.1
Denmark	1.9	2.7	1.7	0.9	1.6	1.6	1.0	0.1
Finland	1.6	2.7	3.1	0.8	1.4	2.7	1.0	0.4
France	1.2	1.5	2.3	0.8	1.3	1.8	0.3	0.5
Germany	1.6	2.8	2.1	0.7	1.6	2.1	1.1	0.0
Italy	1.2	1.9	2.9	0.4	1.3	2.6	0.7	0.3
Japan	0.3	2.3	3.9	0.1	1.4	3.1	0.6	0.8

Netherlands	1.8	2.3	2.0	0.9	1.0	1.4	1.0	0.6
Norway	1.8	2.1	4.0	0.7	1.3	3.6	1.0	0.4
Sweden	1.6	2.2	2.0	0.7	1.5	1.8	0.8	0.2
Switzerland	n.a.	2.1	1.3	n.a.	1.2	1.0	0.8	0.2
UK	2.0	1.9	2.0	1.2	1.0	1.8	0.9	0.1
USA	4.5	3.9	2.7	1.5	1.8	1.6	2.3	1.0
Arithmetic Average	2.4	2.5	2.6	0.9	1.4	2.1	1.1	0.5
Total	–	–	–	–	–	–	1.0	0.6

Sources: Maddison (1991), Table 3.2 for GDP, Table 3.1 for GDP per Head, Table 3.7 for population.

Table 5a:

Net migration, 1870–1987 (`000)

Cumulative totals

	1870–1913	1914–49	1950–73	1974–87
Australia	702	700	2,067	1,086
Belgium	171	219	287	–8
Canada	861	228	2,126	840
France	890	–236	3,630	365
Germany	–2,598	–304[a]	7,070	1,042
Italy	–4,459	–1,771	–2,139	544
Japan	n.a.	197	–72	–129
Netherlands	–121	–29	47	–18
Norway	–589	–129	0	77
Sweden	–895	83	336	167
Switzerland	20	–90	755	6
UK	–6,415	–1,405[b]	–605	15
USA	15,820	6,221	8,257	7,839
Total	3,396	3,684	21,759	11,826

Table 5b:

Average annual flow

	1870–1913	1914–49	1950–73	1974–87
Australia	16	19	86	78
Belgium	4	6	12	1
Canada	20	6	88	60
France	20	–7	151	26
Germany	–59	–17[a]	295	74
Italy	–101	–49	–89	39
Japan	n. a.	5	–3	-9
Netherlands	–3	–1	2	–1
Norway	–13	–4	0	6
Sweden	–20	2	14	12

Switzerland	1	–3	31	0
UK	–146	–48[b]	–25	1
USA	360	173	344	560
Total	78	82	906	845

[a]1922–39 only. [b]excludes 1939–45.
Source: Maddison (1991), Table B.5, p. 240.

Table 6:

Foreign capital investment
(absolute figures in billions of $)

Gross Foreign Investment Outstanding	circa 1874	circa 1880	circa 1890	circa 1900	beg. 1914
UK	4.6	5.8	5.5	11.7	19.6
France	n.a.	3.0	4.0	5.6	9.0
Germany	n.a.	1.2	2.8	3.4	5.6
Total	6.0	10.0	16.3	20.7	34.2
Volume per year, 1913 prices		0.62	0.68	0.52	1.09
Total FJ, 1913 prices	4.9	8.6	15.4	20.6	35.3

Source: Kuznets (1966), Table 6.5, p. 322.

Table 7:

Comparison of economic performance between USA and Europe

%	1960–1973		1977–1987		1987–2001		1998		1999		2000	
	USA	Europe	USA	Europe	USA	Europe	USA	Europe	USA	Europe	USA	Europe
Unemployment rate	5.0	2.3	7.2	6.3	5.8	9.5	4.5	9.5	4.2	9.1	4.0	8.3
Inflation rate	3.8	4.7	6.9	9.7	3.4	3.5	1.5	1.8	2.3	1.1	2.4	1.3
Growth rate (GDP)							4.3	2.6	4.1	2.2	4.1	3.1
Labour productivity	2.6	5.2	1.1	2.9	1.8	2.0	2.8	1.5	2.6	1.2	3.3	2.3

Note: This comparison of economic performance relates to the four largest European countries (i.e. «Europe» here is Germany, France, United Kingdom, Italy) and the USA.
Sources: Gordon (2003),, p. 21 and A10–A13 and BMA (1999), Tab. 9.19.

Table 8a:

Sectoral developments in the United States

	Share in nominal value added		Growth in real value added		Growth in employment		Growth in labour productivity	
	1991 %	1998 %	1991–98 %	1995–98 %	1991–98 %	1995–98 %	1991–98 %	1995–98 %
ICT producing sectors, manufacturing	1.5	1.8	20.9	25.6	1.4	3.5	19.2	21.3
ICT producing sectors, services	4.0	4.8	6.3	7.8	3.9	5.3	2.3	2.4
ICT using sectors, manufacturing	3.4	3.0	2.4	2.9	–0.9	0.1	3.3	2.7
ICT using sectors, services	10.4	13.1	4.7	7.4	3.4	4.5	1.2	2.7
Manufacturing	17.4	16.4	4.5	4.1	0.3	0.6	4.2	3.5
Business services	48.3	52.7	4.8	6.6	2.6	2.9	2.2	3.7
Total economy	100	100	3.5	4.0	1.8	2.0	1.7	2.0

Source: ECB (2001), Monthly Bulletin, July, p. 43.

Table 8b:

Sectoral developments in the Euro area[1)]

	Share in nominal value added		Growth in real value added		Growth in employment		Growth in labour productivity	
	1991 %	1998 %	1991–98 %	1995–98 %	1991–98 %	1995–98 %	1991–98 %	1995–98 %
ICT producing sectors, manufacturing	0.9	0.7	6.5	11.5	–5.6	–2.3	12.9	14.2
ICT producing sectors, services	3.6	4.2	5.5	8.1	–0.5	0.1	6.1	7.9
ICT using sectors, manufacturing	4.5	3.9	0.8	1.6	–3.0	–1.1	3.9	2.7
ICT using sectors, services	11.3	12.0	2.4	3.2	2.2	2.9	0.2	0.3

Manufacturing	21.0	18.6	0.7	1.5	–2.5	–0.6	3.3	2.1
Business services	47.9	51.8	2.2	2.7	1.0	1.8	1.2	0.9
Total economy	100	100	1.5	1.9	–0.3	0.4	1.8	1.4

[1] Euro area estimate based on Germany, France, Italy and Finland, which together account for around 73% of euro area nominal gross value added.
Source: ECB, Monthly Bulletin, July 2001, p. 42.

Table 9:

Average years of formal educational experience of the population aged 15–64 in 1913 and 1989

		Total	Primary	Secondary	Higher
France	1913	6.18	4.31	1.77	0.10
	1989	11.61	5.00	5.29	1.32
Germany	1913	6.94	3.50	3.35	0.09
	1989	9.58	4.00	5.20	0.38
Japan	1913	5.10	4.50	0.56	0.04
	1989	11.66	6.00	4.95	0.71
Netherlands	1913	6.05	5.30	0.64	0.11
	1989	10.51	6.00	3.82	0.69
UK	1913	7.28	5.30	1.90	0.08
	1989	11.28	6.00	4.75	0.53
USA	1913	6.93	4.90	1.83	0.20
	1989	13.39	6.00	5.72	1.67

Note: These figures refer to full-time formal schooling and understate educational levels in Germany which has an extensive system of post-formal apprentice training combined with part-time education.
Sources: Maddison (1991), Table 3.8, p. 64.