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## Services: A New Source of Value

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*The division of the economy into three sectors – primary production, industry (mainly manufacturing), and services – has become obsolete, i.e., the dividing lines between them have become blurred and partly disappeared completely. Manufacturing and services complement each other. Many successful multinational companies are deeply engaged in combining goods and services in their operations and market offerings. Digitalization is changing the traditional understanding of services: many services can be stored and transferred as goods. Consequently digital services are growing faster than any other segment of world trade.*

### New global division of labor: from sectors to tasks

In developed countries, services account for three-quarters of GDP, and the majority of new jobs are created in services. The figures are based on statistics that traditionally divide the economy into three sectors: primary production, industry (mainly manufacturing), and services. This breakdown does not, however, take into account the changes taking place within the sectors. In particular, manufacturing has been undergoing a major transformation, where the share of services in production and exports has grown: manufacturing has become *servitized* (Figure 1). Thus, in developed countries the share of services in total employment, measured in terms of job tasks, is conservatively estimated at more than 80%.

High-income countries typically exhibit three structural characteristics related to services:

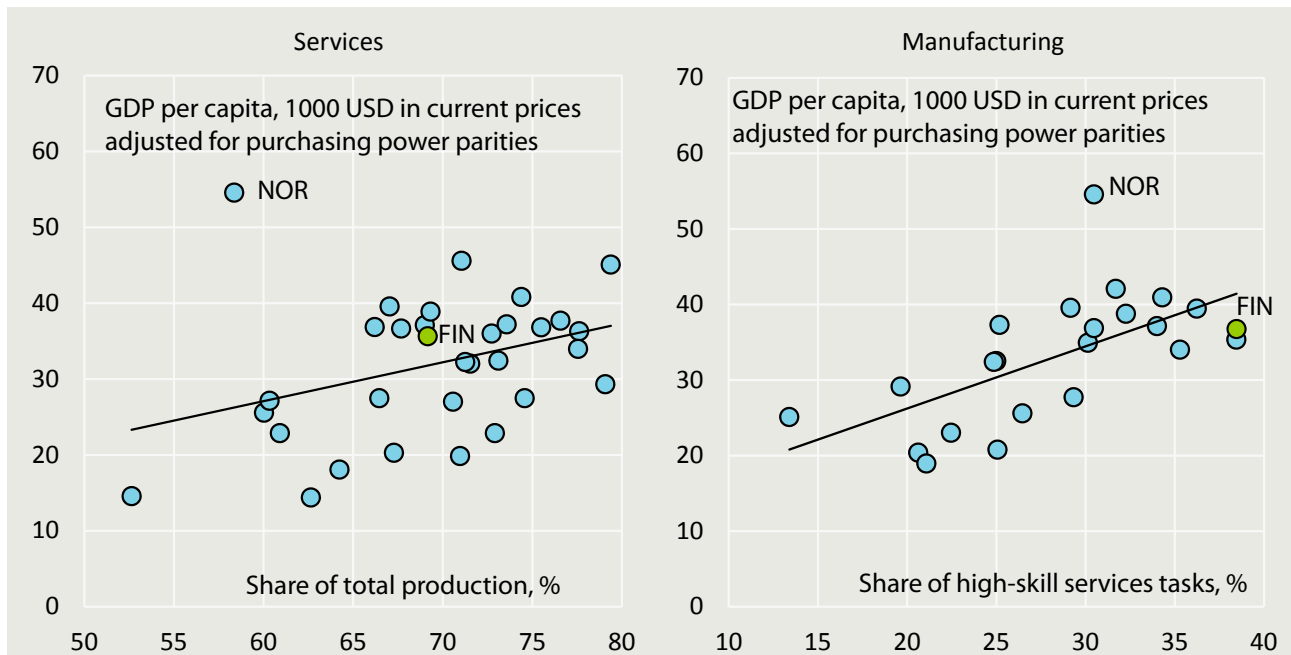
- the service sector's share of total production is high,
- the share of knowledge-intensive business services in the service sector is large,
- the share of high-skill service tasks in service and manufacturing jobs is high.

Finland is precisely such a country. In terms of services' share of GDP, it is somewhat below the average for OECD countries, but the share of jobs performing high-skill service tasks is among the highest in Europe. This is also true for manufacturing: the Finnish export industry is service-intensive.

Industry accounts for the majority of the Finnish service exports, and services are increasingly an integral part of manufacturing products. Many traditional industrial companies have transformed their core activities into service businesses: only a fraction of their Finnish subsidiaries' activities entail actual manufacturing.

This is a consequence of the new global division of labor. The companies divide their production and value chains into smaller and smaller parts. Services can be spun off from the value chain as separate activities that are located around the world according to their own comparative advantages. Developed countries and regions specialize in this division of labor more and more as service producers. The change has occurred over the last couple of decades as depicted in Figure 2.

**Figure 1** Growth and servitization of aggregate economy and manufacturing correlated Standard of living relative to services' share of GDP (left) and to the share of high-skill tasks in manufacturing



Sources: Eurostat, Employment by occupation [lfsa\_eisn2] and SBS and OECD National Accounts. 2008–2010 averages.

The production value chain can be divided into three stages: pre-production services, production and assembly phase, as well as the provision of after-sales services. As a rough generalization, companies in developed countries specialize to an increasing extent in the beginning and end of the value chain, both of whose shares of value added have increased in the past couple of decades: the smile of the value chain has gotten “toothier”.

The change in the global division of labor has been reflected in the notable shifts in the labor market of all developed countries. The labor markets have become polarized. The curve depicting the change in task structures (Figure 2, middle) is U-shaped: the share of high-skill tasks has increased, the share of medium-skill tasks has decreased, and the share of low-skill tasks has remained unchanged or increased slightly.

Figure 2 is a stylized version of Maliranta (2013). The U-shape of the curve for Finland stems from the fact that the share of high-skill (service) tasks has grown considerably in the 2000s, while routine office tasks have decreased. On the other hand, the change in low-skill tasks has been relatively small. This is a question of the joint impact of globalization and technological development. ICT has been

a supplement for high skill tasks but a substitute for routine tasks. Routine tasks have shifted to lower-cost countries. On the other hand, many tasks requiring personal interaction are not transferable – that is why the curve turns upwards also on the right-hand side.

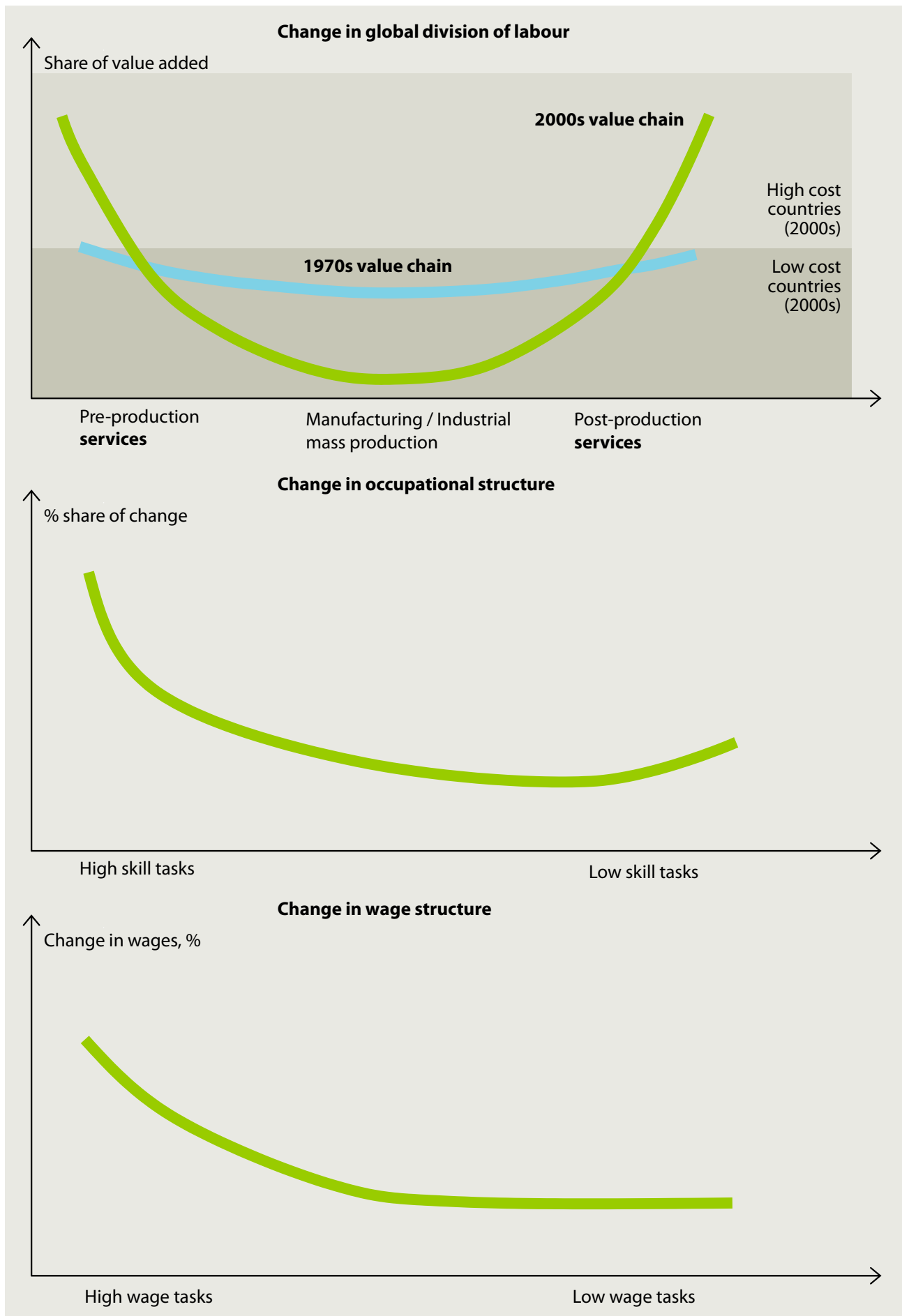
Polarization is therefore reflected in the change in the global division of labor as well as in the job task structure of the domestic labor market.

It is evident also in the salary development of many developed countries. Wage differentiation in the wake of changes in the occupational structure has been less pronounced in Finland and the other Nordic countries than in the U.S., but the trend has been similar in direction. The steepest rise in wages in relative terms has occurred precisely in high-skill tasks (Asplund, *et al.*, 2011).

### Manufacturing or services?

One of our basic messages is that separating manufacturing from services is unnecessary and from an economic policy point of view often harmful. It stems from a lack of insight into the operative logic of the new global economy. Instead of drawing a dividing line, it is useful to consider how manufacturing and services complement each other and the manner in

**Figure 2 Value chain smile is growing: Finnish labor market becoming more polarized**  
 Value added shares and changes in labor and wage structures



Source: Authors' estimates. Top figure is based on Baldwin & Evenett (2012), middle Maliranta (2013) and bottom Asplund *et al.* (2011).

which the goods and services as well as intangible dimensions can be integrated into competitive products.

A global network economy cannot function without an advanced telecommunications and logistics system. Knowledge-intensive business services, in turn, have been one of the fastest growing economic sectors already for a few decades. Research shows that a well-functioning and competitive market in services will increase the productivity of the economy in other sectors using services as intermediate products in their own production.

Exports that are successful on the global markets are more and more often a combination of manufacturing products and services. Service export statistics show that service export growth has been boosted by the engineering industry more than any other industry in Finland. In general, manufacturing-related services are by far the largest segment of service exports.

The dividing line between manufacturing and services is disappearing on both an aggregate economic level as well as within companies. Perhaps the most prominent international example is IBM, which a few decades ago was one of the world's leading *manufacturing* companies. Despite its name, IBM (*International Business Machines*) today is not large-scale manufacturer of machinery or manufacturing products. Instead, it is one of the largest providers of IT *services*. The change has occurred gradually. The assembly of machinery previously manufactured by IBM has shifted to Asia, and the company has become a service provider. A similar process of change has occurred or is in progress in many other companies.

### Digital and digitally-supported services are changing world trade

According to official statistics, services account for only a fifth of world trade, but their share of the total production in developed countries is three-quarters.

The share of services in world trade is significantly underestimated, however, because of measurement problems. Trade in goods is measured in terms of gross value, while trade in services is calculated on a value added basis. Gross- vs value-based measurement prob-

lems have become more serious in recent decades, since global companies have diversified their value chains worldwide. The same product is exported as components and semi-finished products from country to country several times before reaching end-users. The value of world trade inflated every time these intermediate inputs cross borders.

The majority of service exports, on the other hand, are reported only once on a value added basis. If total world trade were recorded on a value added basis, the share of services would be at least 50% according to WTO estimates. Even this figure is likely to underestimate the share of services appreciably, because it is possible to take into account only partially the internal trade of multi-national corporations. According to numerous estimates, the trade of multi-national companies account for as much as 80% of total world trade. A significant part of this trade is in services. Trade in the form of R&D, logistics, management, and financial services is carried out internally between sub-

#### Box 2 New role of services in the economy

University of California Berkeley Professor *John Zysman* has in recent years spoken and written a lot on change in the digital economy and the impact of ICT on economic organizations, productivity, and economic policy. The five co-authors of a report on changes in the service economy sum up the situation as follows:

*“A fundamental transformation of services is underway, driven by developments in information and communications technology (ICT) tools, the uses to which they are being put, and the networks on which they run. Services were once considered a sinkhole of the economy, immune to significant technological or organizational productivity increases. Now, they are widely recognized as a source of productivity growth and dynamism in the economy that is changing the structure of employment, the division of labor, and the character of work and its location. Yet, the actual character of this transformation is often obscured by the increase in jobs labeled as services and by a focus on the digital technologies that, certainly, are facilitating this transformation. This transformation, central to the growth of productivity and competition in the economy, poses basic policy and business choices.”*

Source: Zysman *et al.* (2010).

**Box 1 Main findings****Global division of labor is changing – developing countries increasingly specializing in services**

Multinational enterprises' value chains are increasingly dispersed geographically. They locate the sourcing of tangible and intangible inputs in accordance with their own comparative advantages. In this world regional or national specialization does not necessarily follow the breakdown by sector or industry, but rather it takes place by *functions* or *tasks*. As a rough generalization, developed countries specialize more and more in services, the shares of which have increased in the global value chains.

Rising incomes will spawn greater demand for services. Services account for already three-quarters of GDP in the highest-income countries. This share will continue to grow, albeit at a slower pace.

*Services go digital: old notions no longer valid*

An increasing number of services – data processing, education, wholesale and retail trade, travel agencies, entertainment – are undergoing digitalization. The old notion of services, that are consumed at the same time when they are produced and cannot be stored/moved, is no longer valid. Many services can now be consumed anytime, anywhere. They also accumulate and foster creation and exploitation of intellectual capital – in developed countries this form of capital is already more than half of the total capital stock, which also includes tangible capital. As a result of digitalization of services, their international trade is also growing fast – much faster than trade in goods. The distribution channel for digital services is a global network that facilitates growth at a fast – sometime even breakneck – pace. Digital innovations, such as social media, have diffused more rapidly than anything else in the history of mankind.

*Dividing line between industry and services is fading*

Services and manufacturing should not be separated from each other. They complement each other. The dividing line between manufacturing and services has become blurred and partly disappeared. A large part of electronics and appliances industry products are exported as combinations of goods and service. Half of the manufacturing work force is employed in *service tasks*. Manufacturing companies are increasingly using outsourced services as intermediate inputs. Efficient services provision augments the productivity of manufacturing and other sectors. The leading manufacturing companies are also Finland's main

*service* exporters. Services are therefore a key competitive tool in the global markets, in which developing countries will increase the supply of traditional industrial products.

*A wide range of services*

Services are often considered to be one sector, and they are deemed to be characterized by low-wage and low-skill requirements. In fact, services come in wide varieties. In Finland, more than half of the service employees work in demanding expert and management tasks – services should instead be considered to be a *high-skill* sector.

*Labor market polarization*

The service sector still has plenty of low-skill tasks. The structure of employment has changed in the 2000s so that high-skill tasks have significantly increased, medium-skill tasks have decreased and the number of low-level tasks has remained almost unchanged. The labor market has become polarized. The curve depicting the changes in the structure of employment is U-shaped.

The service sector's share of growth is often thought to dampen the productivity growth of the total economy, since productivity-enhancing technology cannot be applied in services in the same way as in industry (so-called Baumol's disease). This is the case for many personal services. The digitalization of services, and the consequently greater opportunities to engage in foreign trade, spawns almost infinitely larger economies of scale and thus potential for rapid productivity growth. The development of information and communication technology has enabled the dispersion of functions and the use of specialization: services are outsourced to companies that are specialized and at least potentially more efficient at carrying out these tasks.

*Weak statistical foundations for studying services*

Although services are by far the largest sector of the economy, statistics on services are compiled with significantly less accuracy than, for example, on manufacturing. There are gaps especially in the foreign trade statistics. The differences in the statistics across economic sectors can easily lead to a different view in terms of detail and, for example, the fact that there is much less empirical research on services than on manufacturing. The difference of the knowledge base is also reflected in economic policy.

sidiaries of multinational enterprises located around the world.

According to the official statistics, the share of services in international trade is increasing rapidly. This is mainly due to digitalization of services. Digital and many digitally-supported services – such as software, financial services, and music – can be produced, stored, and consumed independent of the time and place.

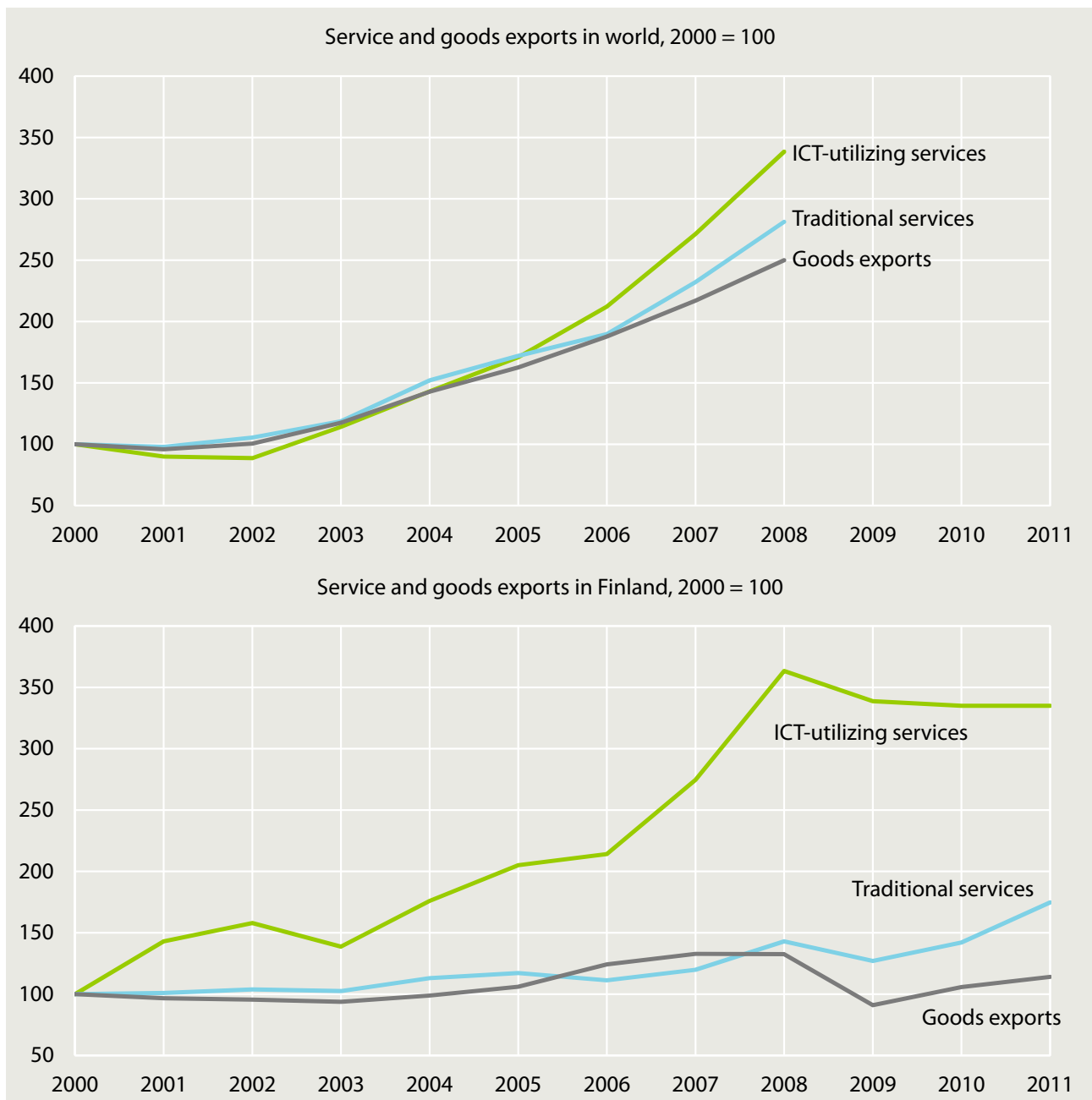
The lack of appropriate statistics makes it difficult to form an accurate picture of the situation. Besides the above fundamental issues in how

goods and services are measured, services are recorded on a considerably rougher level than manufacturing products.

Figure 3 depicts the development of the world's and Finland's goods and service exports in the 2000s. Export of services is divided into two parts: ICT-utilizing ("digital services") and other services.

Digitalization is changing the structure of world trade. Exports of ICT-utilizing services in the 2000s have increased much faster than other exports. In Finland, as presumably in the

**Figure 3 ICT-utilizing (digital) services growing faster than other trade**  
Development of global (top) and Finnish service and goods exports in 2000s



developed countries in general, the difference was significantly larger than in world trade on average. The digital revolution in services is just now getting under way. The Internet has created a global distribution channel for services that were previously traded internationally only on a limited scale. It is therefore likely that world trade is subject to an entirely new dynamic: global trade of digital services will grow rapidly for decades to come.

### Myth of service economy

Our image of the functioning of the economy continues to be shaped by the so-called three-sector model: an economy consisting of primary production, industry (mainly manufacturing), and services. It is still commonly thought that prosperity is spawned by material production, *i.e.*, first and foremost via industrial production. Services, on the other hand, were (at least previously) seen in economic statistics and in economic policy as a kind of economic residual.

The role of services in a modern economy is, however, different. Digitalization has changed the nature of the services significantly: All digitizable services can, in principle, be stored and used at the time desired – now or in the future. They are also subject to economies of scale beyond most manufacturing activities. A growing share of services may be compared to investment goods, industrial machinery and equipment. In this way services will increase the capital stock indirectly.

Arguably most important investments in a modern economy are accumulated via a stream of service expenditures: spending on education, research, development, designs, and brand creation are undeniably investments. They are intended to facilitate accrual of revenue in the future and increase the stock of intangible capital. Intangible capital is in most developed economies already larger than tangible forms of capital, even if it is still not fully included in the National Accounts (although by the EU and the U.S. are about to make considerable changes in this regard).

Many of the myths of the service economy stem from misunderstanding of the functioning of the economy and economic growth. Economic growth is based on innovation as well as

deepening specialization and comparative advantage. For example, laundry services, washing the shirts of others, reflect deepening specialization, which in turn often nurtures related innovation. If someone specializes in laundry services, someone else can specialize in tasks where they have their own comparative advantage. The value added produced by laundry businesses is as just as valuable as that generated by other activities.

### Burden or source of growth? – Baumol's disease can be cured

*Baumol's disease* means that growth of the share of services in the economy will inevitably lead to slower economic growth, because technology cannot be exploited in service production in the same way as in industry and therefore productivity growth is slower. A significant part of the services are, however, a potential source of productivity growth rather than a barrier.

The impact of services takes two forms. First, digitization enables significant economies of scale: once the digital service has been produced, the marginal costs of replication and distribution are very low. The share of these kinds of services in the economy tends to grow. Second, when the services previously produced in industry are outsourced to firms specializing in these services, there will be benefits reaped from specialization and economies of scale that will boost productivity.

Nowadays Baumol's disease is related mainly to the production of *public services* and its rising costs. The rise in costs in line with the productivity growth of the business sector will be passed on to the public sector, even though productivity will increase there more slowly. Thus, the unit costs of public service production are rising faster than in the rest of the economy.

When we talk about Baumol's disease, we tend to treat services as a single sector. The point, however, is that there are very different kinds of services. The extremes are perhaps, on the one hand, the personal well-being services provided by one person for another and, on the other hand, mass-produced business services – such as information technology services and capital-intensive transportation services. Often the former cannot produce two products

that are exactly identical, while the latter enjoy huge economies of scale.

### Golden opportunity: Finland at forefront of digital service economy

The Finnish economy is, once again, in the midst of major structural change. The key trends are the weakening of traditionally strong export sectors and losses of international market shares. ICT equipment manufacturing has declined surprisingly quickly. At the same time, however, production of IT services and software has increased. Employment growth in these areas has compensated for loss of technology production jobs at least in the early stages of this restructuring.

The Finnish labor market is nevertheless undergoing an unprecedented change: a large number of highly educated persons are seeking new positions. The change in the global economy is creating a great opportunity to specialize in digital services and to apply digital technology to the traditional areas of strength, *e.g.*, in the forest-related sectors. Promoting this development is one of the most important tasks of economic policy. It is important to see that services and manufacturing production *complement* each other and **not** to draw a dividing line between them.

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