SERVICE SECTOR PRODUCTIVITY

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with assistance from
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PREFACE

This report is an end product of a year-long project by the McKinsey Global Institute on economic productivity in the leading economies of the world.

We focused on productivity because it is the most fundamental measure of economic performance. Productivity is the ratio between the output of goods and services and the inputs of resources used to produce them. On the national level, productivity is an important indicator of the economic strength of a nation. For any level of employment, the higher the productivity, the higher the living standards. Increased productivity is the engine driving economic growth that provides society with additional goods and services for consumption and investment, including public and social services.

We placed particular emphasis on the service sector because it has been ignored historically relative to manufacturing and because productivity in the service sector has also been exceedingly difficult to measure. Yet, services make up the dominant share of all fully-developed economies.

We are grateful to Tom Schelling, formerly at Harvard and now at The University of Maryland, for the original suggestion for a project on the current strength of the U.S. economy in comparison with performance elsewhere. This idea led to a wide ranging project that has revealed opportunities for productivity improvements in all countries studied. Tom helped us define the scope of the project and arrange for assistance from his colleagues in the economics community.

The point of departure of the project was the observation that the OECD results for GDP per capita at purchasing power parity showed that other countries had not fully caught up with the U.S. since 1945. This result was a surprise. Our objective has been to find out why this is the case. The fact that service industries now comprise over half of all fully-developed economies led us to the hypothesis that performance in the service industries would provide a substantial part of the explanation. Thus, the focus of this project has been the analysis of the service sector. However, during the course of the project, we became aware of the recent work by Bart van Ark and Dirk Pilat at The University of Groningen, The Netherlands on manufacturing productivity. The combination of their results with ours allowed us to draw a reasonably complete picture of productivity performance across the board for the countries studied.

The conduct of this project is part of the execution of the McKinsey Global Institute mission to help business leaders: (1) understand global developments, (2) improve the performance of their corporations, and (3) work for better national and international policies. The working team for this project has consisted of a core group of four McKinsey consultants transferred from their home offices to the Global Institute. These consultants and their areas of specialization were: Andreas

Siemen (Düsseldorf) – airlines, retail banking, and telecommunications; Michael Balay (Washington) – general merchandise retailing and restaurants; Koji Sakate (Tokyo) – airlines and telecommunications; and John Britti (Washington) – telecommunications. The core working team was assisted by the Eisenhower Center, Columbia University, especially on the airlines and restaurant case studies.

We were fortunate to have an Advisory Committee for this project chaired by Bob Solow, MIT, and consisting in addition of Martin Baily, The Brookings Institution and The University of Maryland; Francis Bator, Harvard University; and Ted Hall, McKinsey. Francis Bator provided the synthesis that led to the overall storyline of this report. Martin Baily joined the core working team for the final third of the project and took the lead in the drafting of Chapter 1 of the final report. In addition, Bob Solow took the lead in the drafting of Chapter 4, and Ted Hall provided extensive comments throughout the effort.

Throughout the conduct of this project we benefited from the unique worldwide perspective and knowledge of McKinsey consultants on economic performance in the service industries investigated in our case studies. McKinsey sector leaders involved included: banking – Hermann Bierer (Düsseldorf), Lowell Bryan (New York), Heino Fassbender (Frankfurt), and Alan Morgan, George Feiger, and Adair Turner all of McKinsey's London office; telecommunications – Clem Doherty (Sydney), Michael Patsalos-Fox (London), Wolfgang Schirra (Düsseldorf), and Dave Wenner (Atlanta); airlines – Thomas Bull-Larsen (Zürich), Fred Miller (Minneapolis), Carel Paauwe (Amsterdam), and Michael Patsalos-Fox (London); general merchandise retailing – Herman De Bode (Brussels) and Nancy Karch (Chicago). In addition, Fred Gluck, Managing Director, McKinsey & Company, Inc., Joel Bleeke (Chicago), and Michael Jung (Vienna) joined our meetings with the project Advisory Committee.

Finally, we would like to recognize the contributions of McKinsey consulting teams worldwide who provided us invaluable information on the structure, dynamics and performance of virtually every sector in the economy while at the same time preserving the confidentiality of information about specific McKinsey clients.

Bill Lewis
Director of the McKinsey Global Institute
October 1992

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INTRODUCTION AND SUMMARY

In 1990, the aggregate OECD data show that GDP per capita in the United States was 16 percent greater than in West Germany, 22 percent greater than in Japan, 23 percent greater than in France, and 37 percent greater than in the U.K. when measured in units of equal purchasing power (Exhibit i-1). These are surprising facts, and not only because they contradict the commonly held view that the U.S. has fallen behind. In a world where technology and capital are fully mobile among advanced market economies, and where workers are equally healthy and well educated, we would have expected to find that full convergence had occurred. Certainly, in 1945 the U.S. GDP per capita was very much higher than in Europe and Japan. However, 47 years is a long time and rebuilding and matching best practice is easier than pushing out the frontier.

We have attempted to understand why full convergence in GDP per capita appears not to have occurred. Part of the answer is straightforward. In the U.S. the two-worker family is becoming increasingly common, and therefore, the number of people employed as a fraction of total population is higher than in Germany and France. Thus, the difference between the U.S. on the one hand and France and Germany on the other is substantially smaller if we look at output not per capita but per employed person. In fact, if we look at the most recent evidence using GDP per hour worked, both France and Germany appear to have a higher level of labor productivity than the U.S. Using hours worked, however, increases the differences in labor productivity in comparison with Japan.

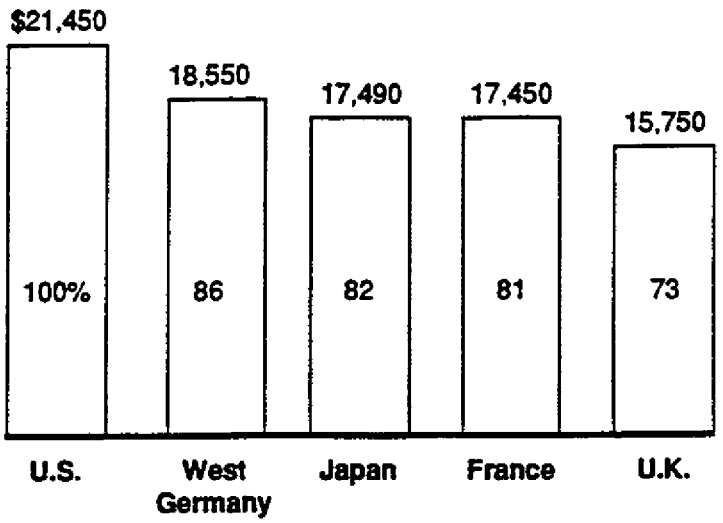
Looking at all the various measures of labor of productivity, as we do in Chapter 1, suggests large remaining differences among the productivities of the leading economies. These substantial differences leave us uncomfortably uncertain. Are these large differences real and, if so, where do the differences come from? The answer is important, but not because economic performance determines the winner in a zero sum contest in which the winner's gain is the loser's loss. It is important because if substantial differences do exist, then significant opportunities for improving productivity also exist. Since the higher level of productivity is being realized somewhere, it should be achievable elsewhere, at least in advanced market economies.

As we said earlier, none of the existing aggregate measures of labor productivity is entirely satisfactory. Ideally, the best measure of the efficiency with which labor is deployed is the 1990 GDP per hour worked. However, in practice that measure is troublesome with respect to both output and input. Any measure using total hours worked is suspect simply because hours worked are not collected on a comparable basis across these economies. Second, the 1990 benchmark used by the OECD appears to be inconsistent with the 1985 benchmark extrapolated to 1990 using the national growth rate figures. This inconsistency remains unresolved. Last, and perhaps most important, any total GDP figure includes large components of output

Exhibit i - 1

GDP PER CAPITA – 1990

U.S. dollars, currencies converted at 1990
OECD Purchasing Power Parities (PPP*)



* Bilateral Fisher – PPP with U.S. as a basis used

Source: OECD National Accounts Vol. 1, 1992; Eurostat

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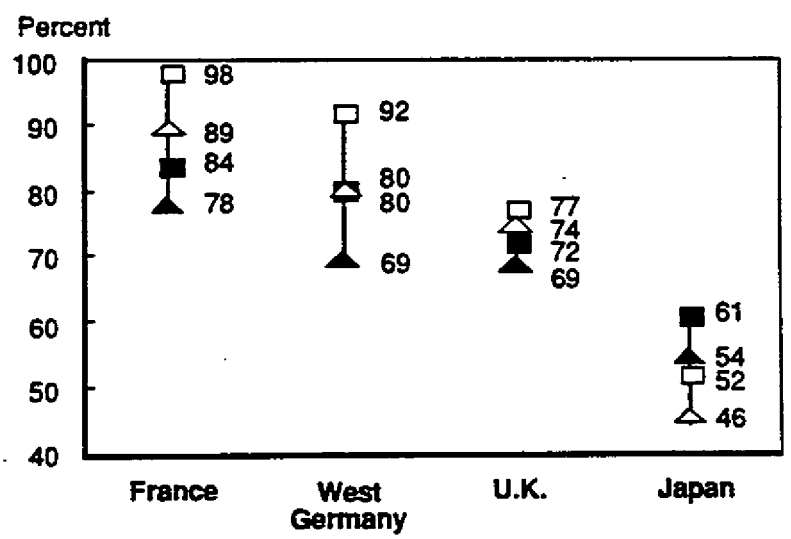
Exhibit i - 2

LABOR PRODUCTIVITY IN MARKET ECONOMY* USING DIFFERENT PPP BENCHMARKS AND LABOR INPUT CONCEPTS – 1988



ESTIM

1990 PPP benchmark, l worked

1985 PPP benchmark, l worked

1990 PPP benchmark, l employment

1985 PPP benchmark, l employment

* Market economy excludes government, health services, education, real estate and nonprofit organizat

Source: OECD; Eurostat; BLS; BEA; McKinsey estimate

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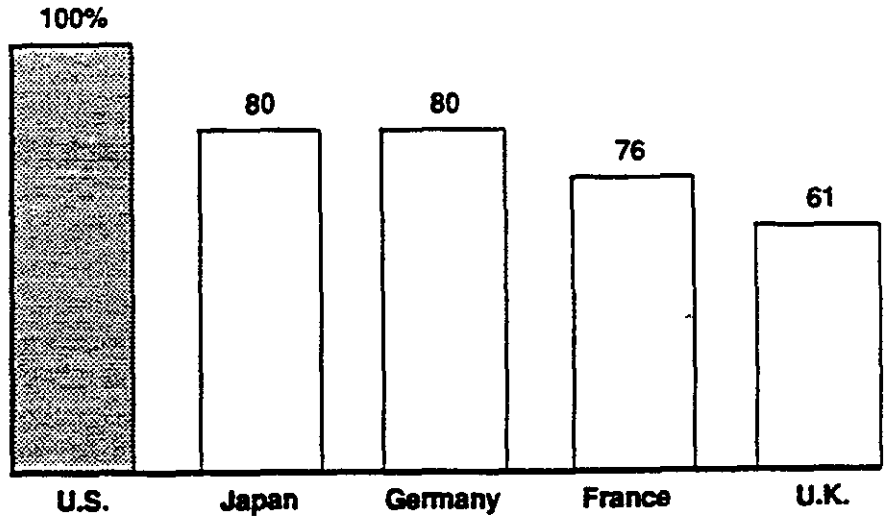
Exhibit i - 3

MANUFACTURING PRODUCTIVITY – 1989

Gross valued added at manufacturing branch PPP per hour worked



Source: Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOP) Project, Groningen, NL

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whose value is simply unmeasurable. These are the parts of the GDP that are not subject to any significant market test (e.g., government, education, and health). For these components, the real change in output is often taken by statisticians to be identical to the real change in input. Alternatively, arbitrary assumptions are made about value. For all these reasons, we have concluded that productivity measures at the total GDP level include too much uncertainty that is unresolvable.

To get a better grip on the facts, we did three things.

- First, we focused on the market part of GDP excluding from our comparisons the outputs and inputs associated with government, education, health, and, for reasons explained elsewhere, real estate. We looked at both output per worker and output per hour worked for this market part of the economy (Exhibit i-2). The resulting measures suggest that full convergence has not occurred and that substantial differences in average labor productivity still exist among these countries.

- Second, we carefully reviewed the most recent evidence for the manufacturing sector, the most studied part of the market economy (Exhibit i-3). The results for manufacturing also suggest that differences exist.

- Third, we took a detailed, bottom-up look at the market part of the service sector. The service sector is by far the most difficult area for measuring output. For this work we have relied heavily on McKinsey's data base to do five case studies of service industries as reported in Chapter 2. We followed a case study approach because the available data do not allow the comparison of the total service sector output of, say, France and Germany. For the industry studies, the McKinsey information allowed us to make many adjustments to achieve consistency. We completed case studies for airlines, retail banking, restaurants, general merchandise retailing and telecommunications. If we were going to find evidence that contradicted the differences suggested at the aggregate level, we would expect to find them in services. We found no such evidence.

All our results taken together persuade us then that there remain substantial differences in labor productivity in the market sectors of these economies.

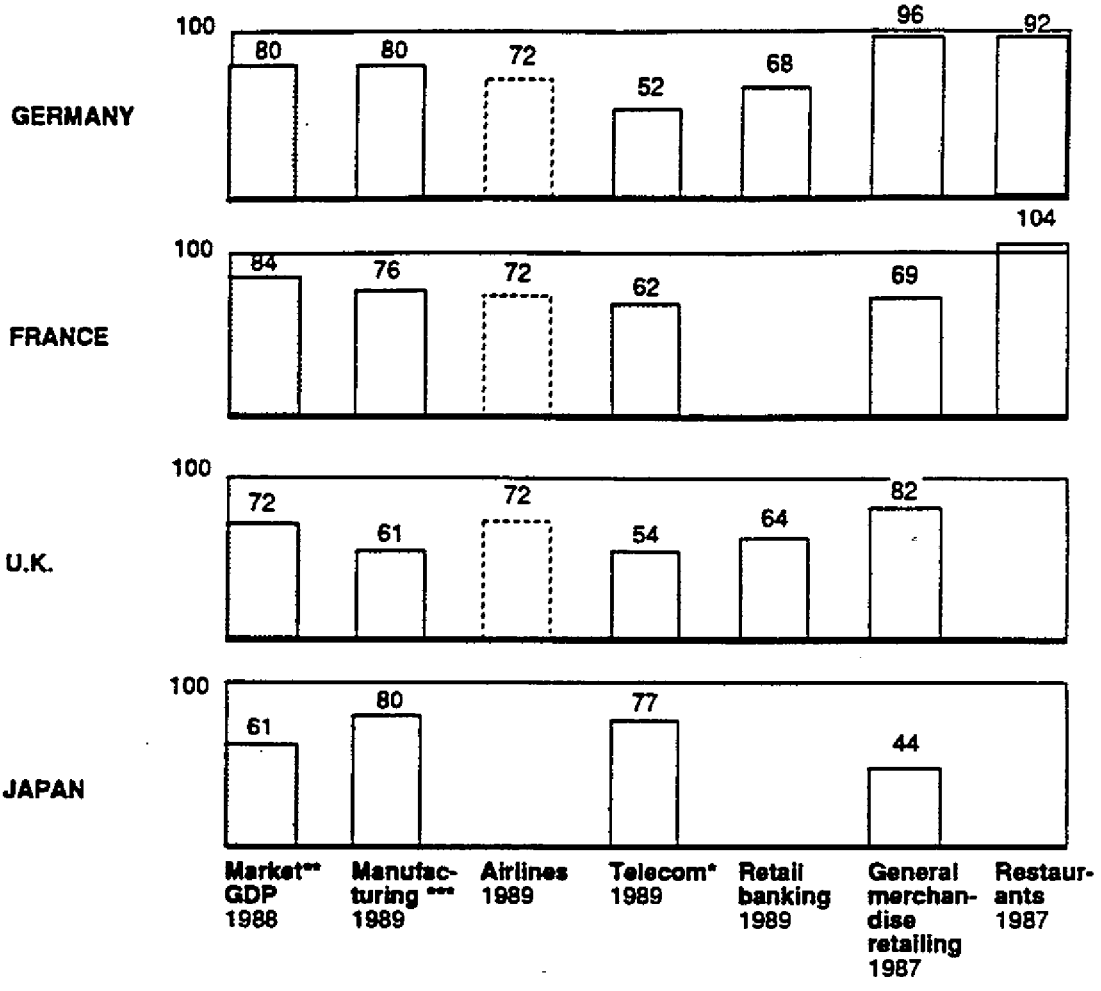
In Chapter 1 of this report we describe in more detail our review of the aggregate productivity and manufacturing productivity results. Then in Chapter 2 we provide the results of our case studies in the service sector. A summary of our productivity results is given in Exhibit i-4.

In Chapter 3 we provide a synthesis of our speculative investigation into the reasons for productivity differences found in the service industry case studies. A summary of the results of that analysis along with the implications for policy, as discussed in Chapter 4, concludes this introduction and summary.

Exhibit i - 4

LABOR PRODUCTIVITY COMPARISON*

U.S. = 100



* Total factor productivity shown for telecommunications

** GDP excluding government, education, health, and real estate

*** Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOP) Project, Groningen, NL

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SPECULATIVE CAUSES OF PRODUCTIVITY DIFFERENCES

Labor productivity is a function of the available technology, scale economies and diseconomies, labor skill, capital intensity, output mix and how workers are combined with the other inputs to produce output. We call this last category the organization of labor. Many of the above intersecting determinants of productivity, notably the last, are the result of choices made by management.

By elimination we conclude that in three of our cases the organization of labor is crucial. In contrast to organization of labor, differences in capital intensity and scale of operations played a surprisingly small role in explaining the productivity gaps. And differences in the mix of services provided by each industry have only limited explanatory power.

A summary of the causes for labor productivity differences for each of the case studies is given in Exhibit i-5. We believe the most important of these differences reflect how managers respond to the environment. Competitive intensity powerfully influences management behavior. Thus, in evaluating the reason for the higher U.S. productivity levels shown for the service industry case studies, we find the effect of competition on management behavior to be the likely principal cause. Competitive pressures on companies operating in the U.S. are greater than in the other countries.

Lower competitive intensity in these five service industries in Europe and Japan is mainly the result of regulation and policy, notable in the airline and telecommunications industries where state ownership prevails. Thus, we conclude that differences in labor productivity in these cases are ultimately caused by differences in economic policy and regulation, especially as these affect freedom of entry and pricing.

IMPLICATIONS FOR POLICY

The previous analysis suggests to us there are unexploited opportunities for productivity improvement in the service sector of Europe, Japan and the U.S. We believe that consumer demand and competition will put increasing pressures on management to achieve higher levels of productivity.

However, we found that the major reason these opportunities have not been captured is government policy and regulation. Government policy is meant to serve many ends and inherently involves many trade offs among objectives. Economic productivity is clearly not the only government objective, and government policy reflects trade offs between productivity and goals such as protecting the environment, insuring public safety, certifying product content, and, very importantly, protecting existing jobs. Different countries place different weights on achieving these various objectives and therefore have different policies and regulations that affect productivity.

Exhibit i - 5

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES

● Important
○ Secondary
X

	Airlines	Telecom	Retail banking	General merchandising	Restauran
External factors					
– Market conditions					
• Demand factors	X	●*	○	●	X
• Relative input prices/ factor availability	X	○	X	X	X
– Policy and regulation					
• Competition rules and concentration rules	●	●	●	●	X
• Government ownership	●	●	X	X	X
• Labor rules and unionism	○	○	X	X	○
Management behavior	●	●	●	●	○
Production process					
– Output mix, variety, quality	○	X	○	●	○
– Economies of scale	○	X	○	○	○
– Capital (intensity and vintage)	X	○*	●	○	X
– Skill of labor	X	X	X	X	X
– Organization of labor	●	●	●	X	X
Labor productivity					

* Affects only capital productivity and total factor productivity

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PRODUCTIVITY AND THE MEASUREMENT OF OUTPUT

Productivity reflects the efficiency with which resources are used to produce output of value in the market. It is measured by computing the ratio of an index of output to an index of inputs. For example, average labor productivity is the ratio of the output produced in a country or an industry to the number of workers employed to produce it. Difficulties of productivity measurement arise both for output and for inputs and these mean in practice that there is no single productivity measure that can be applied in all cases. The demands of the available data and the way in which the productivity measure is to be used will determine the specific approach to be taken. We will use more than one productivity measure in this report.

A natural way to measure output is to use physical units of a single commodity, such as the number of passenger miles carried as the output of an airline. Unfortunately this approach is not always possible and there are often complications even where there is a natural physical output measure. For example, productivity based on passenger miles may have to be adjusted because of the impact of differences in the average length of flights.

In many cases output is not homogeneous; the GDP of a country is made up of many thousands of different goods and services. One way to deal with the diversity of outputs is to construct an index of "real output" or "constant dollar" output based upon the dollar value of the different outputs produced. To study the movement of output over time, the value of output in each year is adjusted for the effects of inflation. To compare output across countries, as is done in this report, purchasing power parity exchange rates are used (see the box facing page 2). Working with the value of output means that the different individual goods and services are combined into an overall index of output using market prices. Each unit of a good or service is given a weight in total output depending on the price paid for it in the marketplace. The price of any good or service reflects the valuation placed on it at the margin by both consumers and producers. "At the margin" simply means that the price reflects the value to the buyer of having one more unit of the good or service.

The GDP of a country is the market value of the final goods and services produced. ("Final" means that they are not resold within the accounting period.) GDP can be seen as a value added concept of output. It avoids double counting of the value of all of the intermediate goods and services that are produced along the way. The GDP of a country reflects the market value of output produced by means of the labor and property services available within the country. The GDP also measures the labor and property incomes earned in the course of producing it.

Value added is an output concept that can be used also for individual industries or producers. Value added in a given industry is the market value of its output minus the purchases of goods and services used in production. Value added therefore reflects the market value contributed by that producer and the income of the input factors he uses (capital and labor). We use value added in case studies of industries which have no physical output measure and in which value added provides an appropriate output concept. For example, we use value added for the retailing industry, in which the value added by a store is the amount that it receives for goods sold, less the amount the store paid for those goods. High value added stores provide a larger retailing service to their customers than do low value added stores, in the form of such things as better service or greater selection.

In the case of airlines, retail banking and telecommunications, we relied on functional productivity to cope with output diversity. Functional productivity analysis breaks the business system of an industry down into its major components and measures the output and input of each component. In the case of the airline industry, for instance, we were able to construct separate measures of productivity for the maintenance function and for the ground personnel.

CHAPTER 1: COUNTRY AND SECTOR PRODUCTIVITY

In this chapter, we examine productivity in the U.S., Japan, and three European economies (West Germany, France, and the U.K.) at the end of the 1980s, using 1989 as our primary year for comparison. Somewhat surprisingly, we find that the U.S. economy still has a higher level of productivity.

We begin our comparative productivity analysis on the country level and examine productivity differences among the market sectors of the economies. Then we look more closely at the sector level. We did not attempt our own international comparisons of productivity in manufacturing. However, we report on the results of a detailed new study of productivity in manufacturing in the U.S., Germany and Japan by Dirk Pilat and Bart van Ark, economists at the University of Groningen in The Netherlands. Finally, we discuss the importance of service sector productivity and explore the links between productivity and profitability.

PRODUCTIVITY AMONG COUNTRIES

At the national level, we used Gross Domestic Product (GDP) per person employed as the measure of overall national productivity (see the box on the facing page for a discussion of productivity and output measurement). Each member country of the OECD provides estimates of annual GDP and employment in each country. To compare GDP across countries, the OECD converts the national currencies into a common currency, generally selecting U.S. dollars.

Approach to Productivity Measurement

Though our findings are in rough agreement with results on national productivity that have been presented before, we have modified prior work in two important ways concerning currency conversion rates and labor input data. In addition, we present new evidence on national productivity by removing the non-market sectors from the national GDP calculations, and compare productivity in the market sectors of the main industrial economies.

- ¶ Currency conversion rates. A major difficulty in comparing productivity among countries is finding suitable currency exchange rates for converting, for example, France's GDP denominated in Francs into a GDP denominated in U.S. dollars. The Organization for Economic Co-operation and Development (OECD) publishes periodic Purchasing Power Parity benchmarks with which comparisons of national output can be made. We made our comparisons using the recently released 1990 benchmark. The results of this benchmark, however, are not fully consistent with the prior OECD benchmark released in 1985. The appropriate rate at which to convert the currencies into dollars therefore

PURCHASING POWER PARITY

One way to compare GDPs in different countries is simply to convert the national currencies at market exchange rates. To compare the GDPs of Germany and the U.S. in 1990, for example, the average exchange rate for 1990 between the dollar and the German DM could be used to convert German GDP in DM to German GDP in dollars. If this procedure is used, however, comparisons of per capita income vary erratically from year to year. In 1985, when the dollar was very high, U.S. per capita income was in turn much higher than that of the other industrial countries. By 1987, the dollar tumbled and European countries and Japan looked richer than the U.S. These large fluctuations in per capita incomes bore no relation to relative living standards, which changed very little between 1985 and 1987. This is why Purchasing Power Parity (PPP) conversions are preferable.

To understand PPP, suppose someone spent $10,000 on a selection of different goods and services in the U.S. Then he or she flew to Germany and bought the same goods and services in Germany. If the cost were DM20,000, then the PPP exchange rate would be 2 DM to 1 dollar. This is the basic idea behind the PPP exchange rates that are prepared and published by the OECD in co-operation with the Statistical Office of the European Community (EUROSTAT). However, there are some obvious complications that have to be dealt with in practice. How is the "market basket" of goods and services determined? A compromise basket must be used to provide a fair representation of the goods and services that are produced in all of the different OECD countries and the relative importance of the different goods and services must be changed over time.

"Benchmark" comparisons have been made every five years (in 1980, 1985 and 1990) and slightly different market baskets used for each benchmark year. Using different benchmark results can change the productivity comparisons, by up to 19 percent. The estimate of the relative productivity of the U.S. economy compared to Europe was reduced when the benchmark was updated to 1990 by from 7 to 19 percent.

PPP exchange rates are often very different from market exchange rates, even though they might have been expected to be the same. After all, if someone can buy a basket of goods in the U.S., take the goods to Europe and sell them, then change the money into dollars and end up with more dollars than the goods cost, then that person could in principle make a profit by exploiting the discrepancy between PPP rates and market rates. This suggests that international trade should force market exchange rates to equal PPP rates.

One reason this does not happen is that exchange rates reflect not only flows of traded goods, but also reflect capital flows. The reason that the U.S. dollar was so high in 1985 was that high interest rates attracted a huge inflow of capital that drove the dollar up as foreign investors purchased dollars to invest in the U.S. A second reason for the divergence between market exchange rates and PPP rates is that many countries have large value added, sales or excise taxes. A twenty percent difference in price for the same good in two different countries can simply reflect the fact that one of the countries has a twenty percent value added tax and the other does not. A final reason for the disparity between exchange rates and PPP rates is that not all items are traded. Services, in particular, are not usually traded. Germans cannot use U.S. banks, so the price of banking services can be very different in the two countries. Even with manufactured goods, there are tariffs, transportation costs and other restrictions on trade that prevent a full price equalization. Such distortions of market exchange rates reinforce the usefulness of using PPP exchange rates for comparisons of productivity.

remains somewhat uncertain, which we take into account. (For an explanation of purchasing power parities, see the box facing page 2.)

¶ Labor input. There are also difficulties involved in comparing labor inputs. Different countries collect their labor input information in ways that are not fully consistent, making it hard to accurately account for part-time workers and the number of annual hours worked in an economy. Depending on which choices are made about output and employment, the answers for relative productivities can vary. We therefore present our central estimates within a range of answers, so that the reader can appreciate the uncertainty in the measures.

¶ Non-market sectors. GDP includes the market segments of the economy plus the government, education, health and other non-profit sectors where productivity measurement is not meaningful. Real estate is partly a market sector, but its output, rents and imputed rents, bears no relationship to the labor input from sales and leasing agents. After we remove these non-market sectors and real estate, we are left with a comparison of productivities in the market sectors.

The "market" segments of advanced economies encompass services, manufacturing, agriculture, construction, mining, and public utilities. It would be helpful to have productivity comparisons for all of the sectors of each market economy, but given the limits on time and resources, we believed it most important to concentrate on manufacturing and services. As the largest sectors, in terms of GDP and employment, manufacturing and services naturally attracted our attention because of their overall impact on productivity. In addition, the relative levels of productivity across the advanced economies are not yet well known or understood. By contrast, employment in the agricultural sector is comparatively small, and productivity differences between countries are well known. As for other sectors, we judged it too difficult to compare construction productivity across countries in a meaningful way; mining is relatively unimportant for Japan and most Western European countries; and although public utilities may be a natural subject for future study, our investigations in that sector are limited to the telecommunications industry.

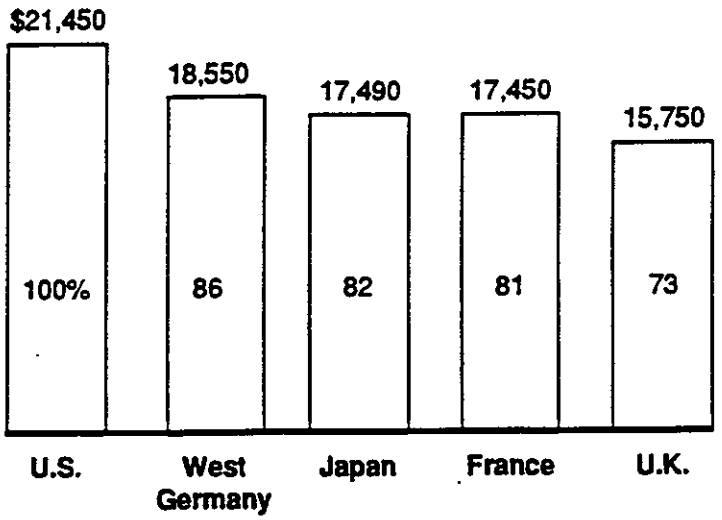
Overall Productivity Levels

Exhibit 1-1 shows the GDP per capita of five of the main industrial countries for 1990. We see that the U.S. has the highest per capita income of the group, with West Germany, Japan and France 14 to 19 percent lower, and the U.K. about 25 percent lower than the U.S. Exhibit 1-2 shows how per capita income has evolved since 1980. Somewhat surprisingly, we see no trend towards the European economies converging to the U.S. level. There has been some convergence by Japan, but at a rather slow rate.

Exhibit 1 - 1

GDP PER CAPITA – 1990

U.S. dollars, currencies converted at 1990
OECD Purchasing Power Parities (PPP*)



* Bilateral Fisher – PPP with U.S. as a basis used

Source: OECD National Accounts Vol. 1, 1992; Eurostat

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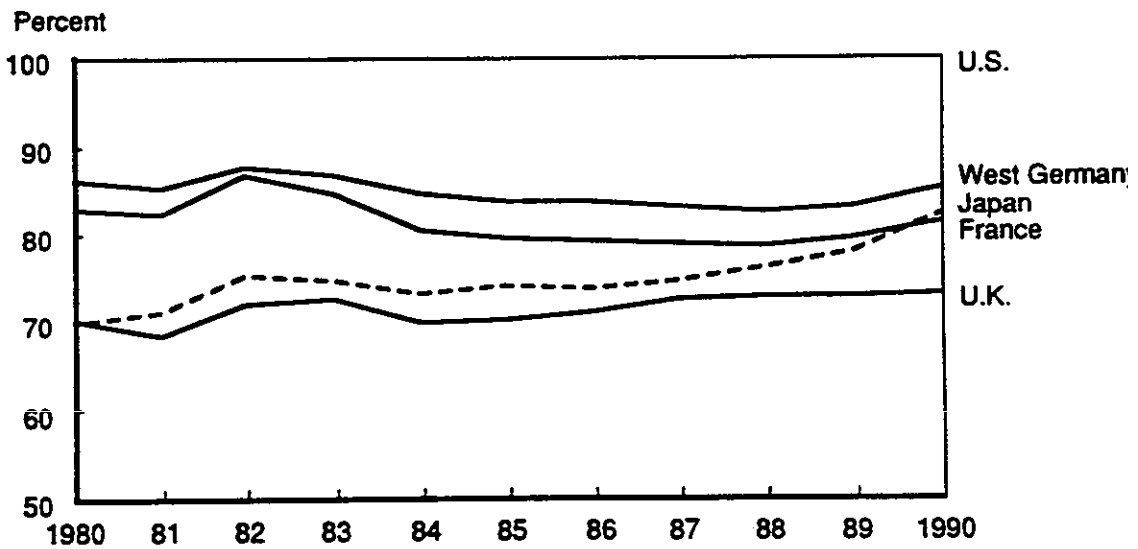
Exhibit 1 - 2

GDP PER CAPITA – 1980-90

Currencies converted at 1990 OECD PPP



Source: OECD National Accounts Vol. 1, 1992

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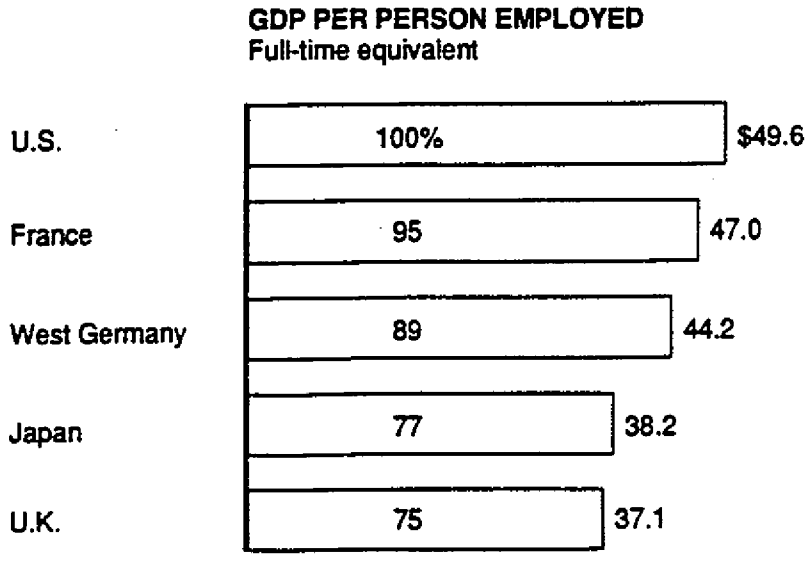
Exhibit 1 - 3

PER CAPITA INCOME AND LABOR PRODUCTIVITY – 1990

U.S. $ Thousands, currencies converted at 1990 OECD PPP



* Part-time employees counted as 0.5 full-time employee

Source: OECD National Accounts Vol. 1, 1992; Eurostat; OECD Quarterly Labor Force Statistic 1/91; OECD Employment Outlook 1991

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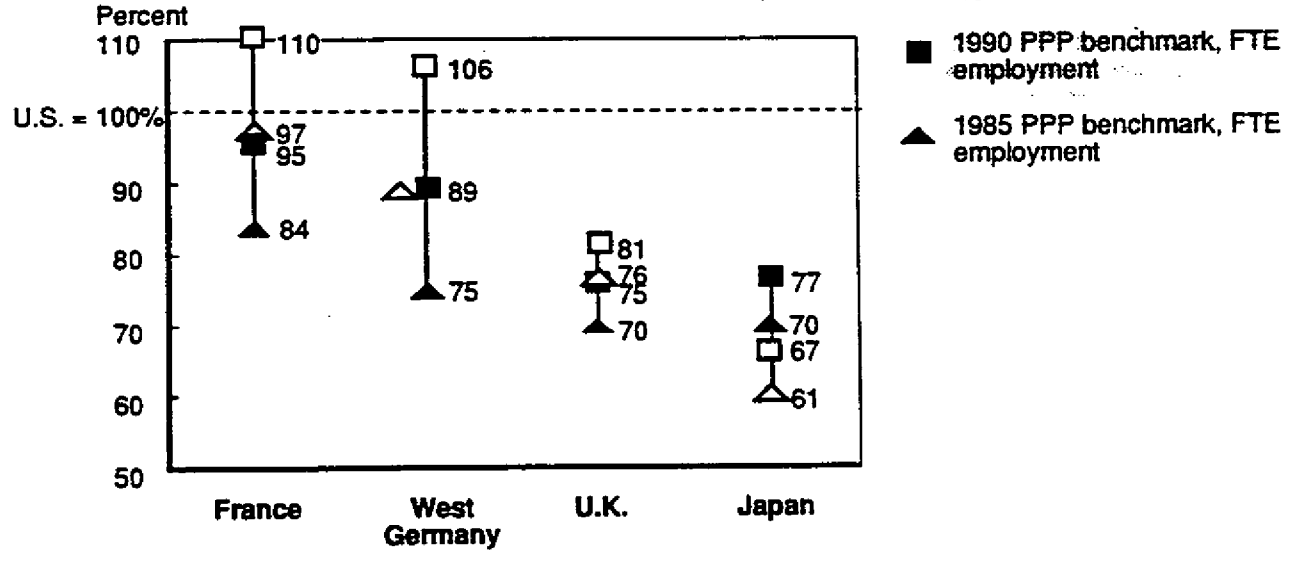
Exhibit 1 - 4

LABOR PRODUCTIVITY USING DIFFERENT PPP BENCHMARKS AND LABOR INPUT CONCEPTS – 1990



Source: OECD National Accounts Vol. 1, 1992; Eurostat; OECD Quarterly Labor Force Statistics1/91; OECD Employment Outlook 1991; BLS; McKinsey estimate

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PRODUCTIVITY AND THE MEASUREMENT OF INPUTS

Output per employee is a widely used measure of productivity and we use this as our primary indicator. As we note in the text, one problem with using employment as the labor input measure is that not all employees work the same number of hours. In particular, there are many more part time employees in the U.S. labor market than is the case in other countries. Restaurants and retailing are two of the industries included in our case studies and they rely heavily on part-time employment. If two teenagers work 20 hours a week each as waiters doing the same job that is done by one full time employee, then it is more accurate to count the labor inputs as being the same in the two cases. For this reason, we adjust our count of employment by treating part-time employees as 50 percent of full-time employees.

There are other refinements of the labor input that can be made. Even among full time employees, there are differences that result from the average work week and from the amount of paid vacation. U.S. and Japanese employees work more hours per year on a full time job than do European employees. Because of the difficulties of finding reliable data we have not tried to construct a measure of the hours worked per employee for our productivity analysis. However we do present information about the probable difference this adjustment would make for comparisons of cross country GDP per employee (see Exhibit 4).

Another issue in labor input measurement is whether to incorporate skill differences directly. Sometimes in productivity analysis a skilled or educated worker is counted as being equivalent to more than one unskilled worker. We have not followed this approach, preferring to see skill differences as a possible cause of productivity differences. This is the same approach that we follow with other inputs into the production process.

Average labor productivity is common in the literature of productivity analysis, because labor is the primary factor in value added in most industries and for GDP as a whole. The compensation of labor represents about two-thirds of GDP. Labor is immobile relative to capital and is associated with geography. It is the key factor in choice of production sites. But not all productivity analysis focuses on labor productivity. An alternative measure of productivity is called total factor productivity (also called multifactor productivity). This is computed as the ratio of output to an index of both capital and labor inputs rather than just labor alone. Its advantage is that it allows explicitly for the contribution of capital to the production of output, with capital made up of the stock of machinery and structures and, in some cases, the stock of R&D capital and human skill capital are accounted for also. Its disadvantage is that it is much harder to compute than average labor productivity. Finding consistent data on capital and its contribution to output for several countries is tricky. We have calculated specific estimates of total factor productivity for the telecommunications case study, using the stocks of equipment and structures, because these are so important in this industry. But we have not done so for other case studies or for the GDP comparisons.

Although we chose to use labor productivity rather than total factor productivity for most of our analyses, this does not mean that we are ignoring the contributions of other inputs to production. We realize that labor productivity can increase because of increases in the amount of capital used by each worker or because of improvements in technology, or management organization or because of improvements in the skills of the work force. If, in a given industry, average labor productivity in one country is found to be higher than in another, we provide a general assessment of the extent to which differences in capital or other inputs have contributed to the difference. This can be done even without formal estimates of total factor productivity. We use average labor productivity as our productivity measure, but we recognize the contributions of other inputs as causal factors in our discussion of the results.

Per capita income is an important index of living standards. Since consumption is a larger portion of GDP in the U.S., it follows that average consumption is substantially higher in the U.S. But per capita income is not a good measure of productivity. A primary reason for the differences in per capita income comes from the fact that more people work for pay in the U.S. than is the case in some of the other countries. The two-earner family has become commonplace in the U.S., while remaining less common in Europe. Exhibit 1-3 shows the average labor productivity measured in GDP per person employed. The 100 percent level represents U.S. productivity. The chart shows that France's productivity level appears only slightly lower. The productivity difference between the U.S. and Germany amounts to about 10 percentage points. Aggregate productivity in Japan and in the U.K. appears to be more than 20 percent lower than the U.S. level.

We believe that the data presented in Exhibit 1-3 reflect the best overall estimates of productivity at the national level for this group of countries. But there are adjustments that can be made to the data that give somewhat different pictures.

The data for GDP per person employed contain one adjustment for differences in average working time per person. Employees that are explicitly part-time are counted as only one-half of an employee. The employment figure is called "full-time equivalent" employment. But there is a further adjustment that can be made to take account of the fact that the length of the standard work week and vacations, vary by country. U.S. workers generally have less vacation time than do European workers, while Japanese workers supply more hours per year than do U.S. workers. We decided that the available data on annual hours worked per employee were not sufficiently reliable to permit a meaningful computation on GDP per hour, but based on available data, we expect that such an adjustment would further increase measured differences between Japan and the U.S. and reduce the difference between Europe and the U.S. (See Exhibit 1-4 and the box on facing page for further discussion of measuring labor and other inputs).

In Exhibit 1-3 we used the OECD's newly released benchmark PPPs for 1990. The 1990 benchmark gives different results than those based on the 1985 benchmark. At this point it is not certain that the new benchmark is better than the established 1985 benchmark, but we followed the recommendation of the OECD to use the newer 1990 benchmark for our comparisons. Moreover, using the 1985 benchmark would have lowered the relative productivities of the European countries. We felt that using the 1990 benchmark would therefore be less likely to overstate U.S. productivity.

The fact that there are ways of adjusting measurements of national productivity that all have some validity means that there is uncertainty about what the national data really show. We provide, in Exhibit 1-4, a range of possible productivity estimates. By one method, national productivity is found to be higher in France and Germany than in the U.S. Clearly, there are limits to what can be learned from the aggregate data. In our view, using the estimates contained in

Exhibit 1 - 5a

GDP BY INDUSTRY – 1988

Billions, National currencies

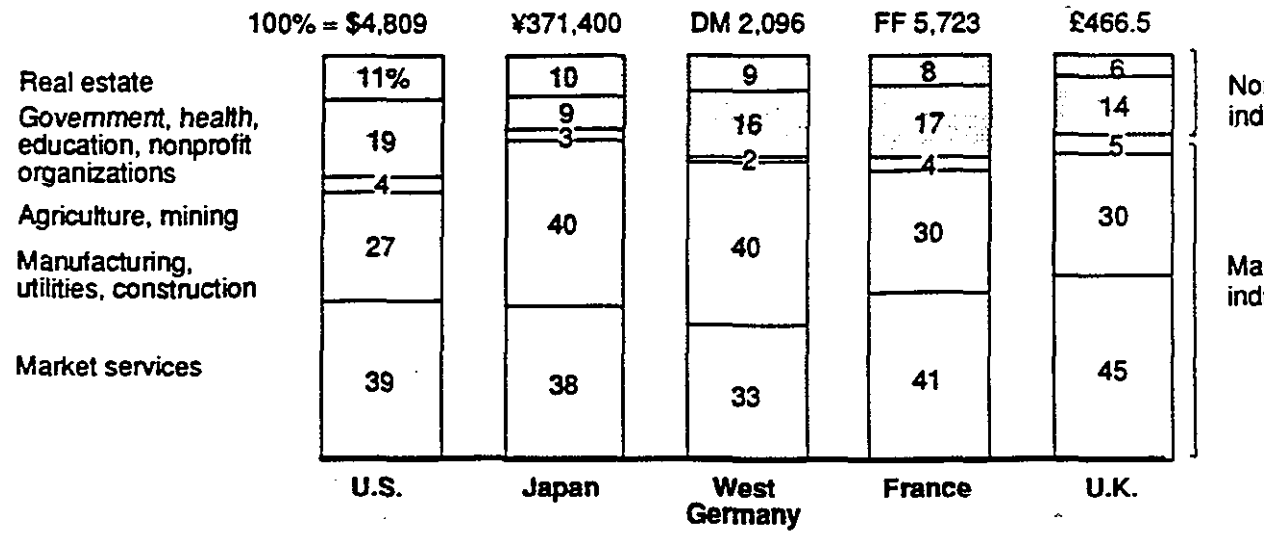
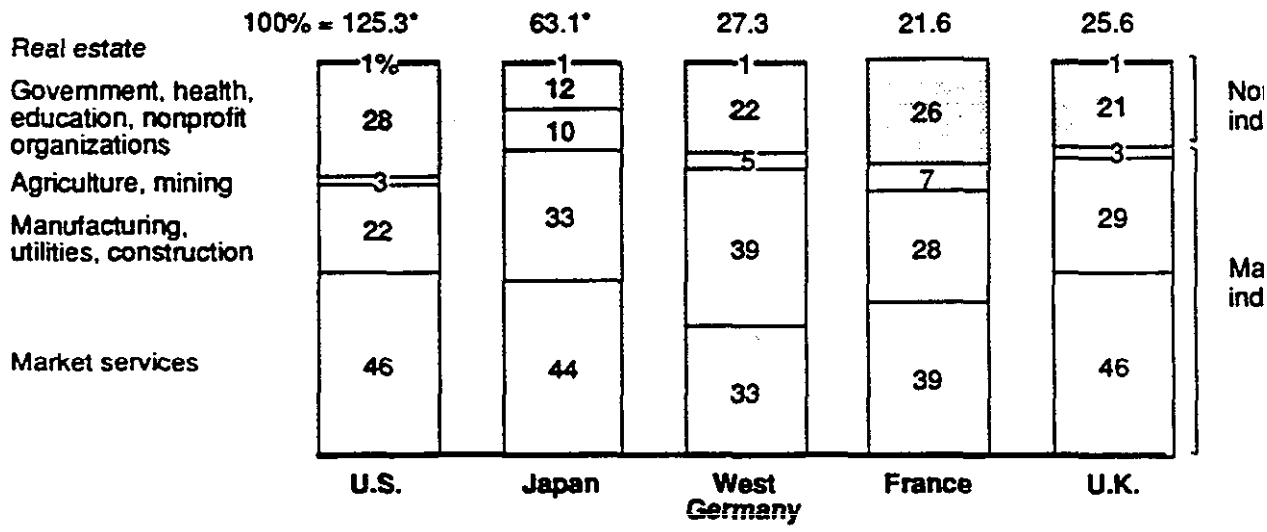


Exhibit 1 - 5b

EMPLOYMENT BY INDUSTRY – 1988

Millions



* Jobs rather than persons employed (double counting 4-7%)

Source: OECD National Accounts Vol. 1, 1992; Survey of Current Business 4/91; McKinsey analysis

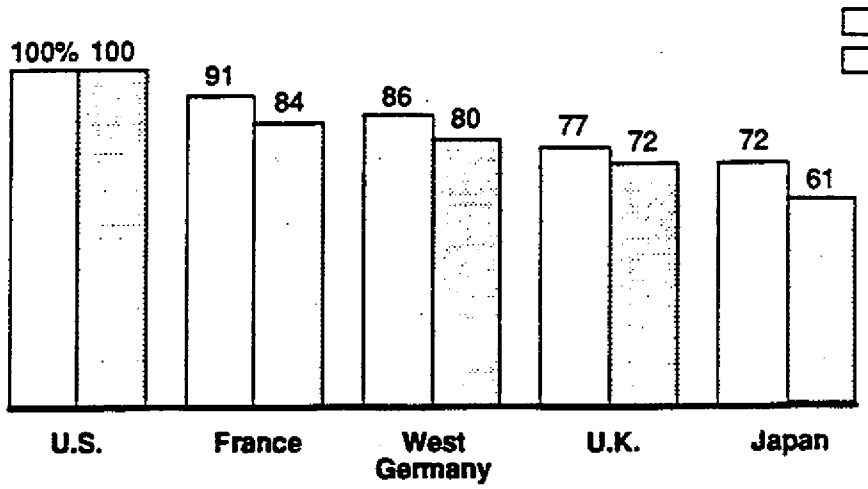
ZXE-119 378

Exhibit 1 - 6

GDP PER PERSON EMPLOYED FULL-TIME* FOR TOTAL AND MARKET** ECONOMY – 1988

ESTIM

Percent of U.S.



* Part-time employees counted as 0.5 full-time employees

** Market economy excludes government, health services, education, real estate and nonprofit organiz

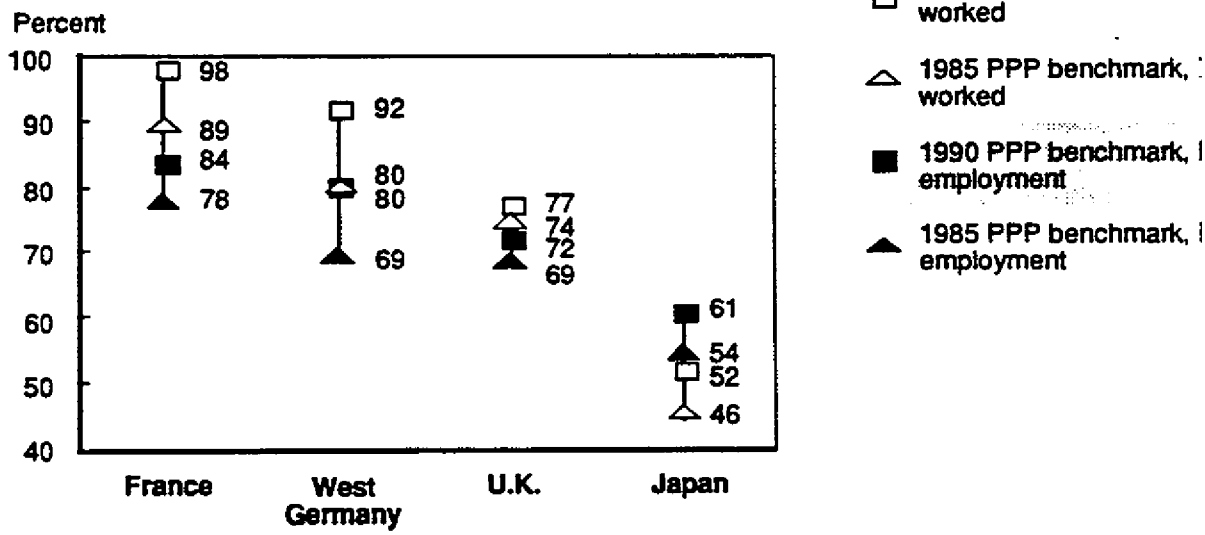
Source: OECD; Eurostat; BEA; McKinsey analysis

ZXE-119.381

Exhibit 1 - 7

LABOR PRODUCTIVITY IN MARKET ECONOMY* USING DIFFERENT PPP BENCHMARKS AND LABOR INPUT CONCEPTS – 1988

ESTIM



* Market economy excludes government, health services, education, real estate and nonprofit organiza

Source: OECD; Eurostat; BLS; BEA; McKinsey estimate

ZXE-119.386

Exhibit 1-3 is not misleading, because they generally lie close to the center of the band of uncertainty shown in Exhibit 1-4.

Market Sector Productivity Levels

We now move to the market sectors of the economies and examine differences in productivity. Exhibits 1-5a and 1-5b show the shares of employment and output in the market and non-market sectors in the five countries. When the non-market components are removed (Exhibit 1-6) we have the estimates of relative productivities for the three European economies and Japan relative to the U.S. for the market sectors. The comparison is for 1988, based again on 1990 PPP benchmark and full-time equivalent employment. In all cases, the estimated relative productivities are lower for the market sectors than for the overall economies, with Japan showing the largest difference. Exhibit 1-7 shows the range of alternative estimates of relative productivity, but it seems reasonable to conclude that in terms of productivity in market sectors, the U.S. shows higher productivity than the European countries and Japan.

The low relative level of productivity in Japan (61 percent of the U.S. level) is a surprise in view of Japan's success in international trade. The European countries (even the U.K.) also have a substantially higher average productivity than Japan. How can this be, given that the Japanese economic juggernaut seems to be continuing to gain market share abroad (e.g., in autos) and even dislocating whole industries (e.g., the U.S.-located consumer electronics industry)? The main answer is that productivity varies a great deal across industries in Japan. The elite manufacturing firms do dominate in world markets, but these firms make up only a small fraction of the Japanese economy. In many manufacturing industries and in many non-manufacturing industries, Japanese efficiency and productivity are low. Another answer is, of course, that the Japanese work very hard. Part of their economic success comes from the high level of labor force participation and the long hours worked by each worker.

Another surprise is that France comes in with such high productivities. One does not usually think of France as being more productive than Germany. One answer to this puzzle is the opposite of the Japanese puzzle. French employees work fewer hours than U.S. employees and many fewer hours than the Japanese (but not fewer hours than German employees).

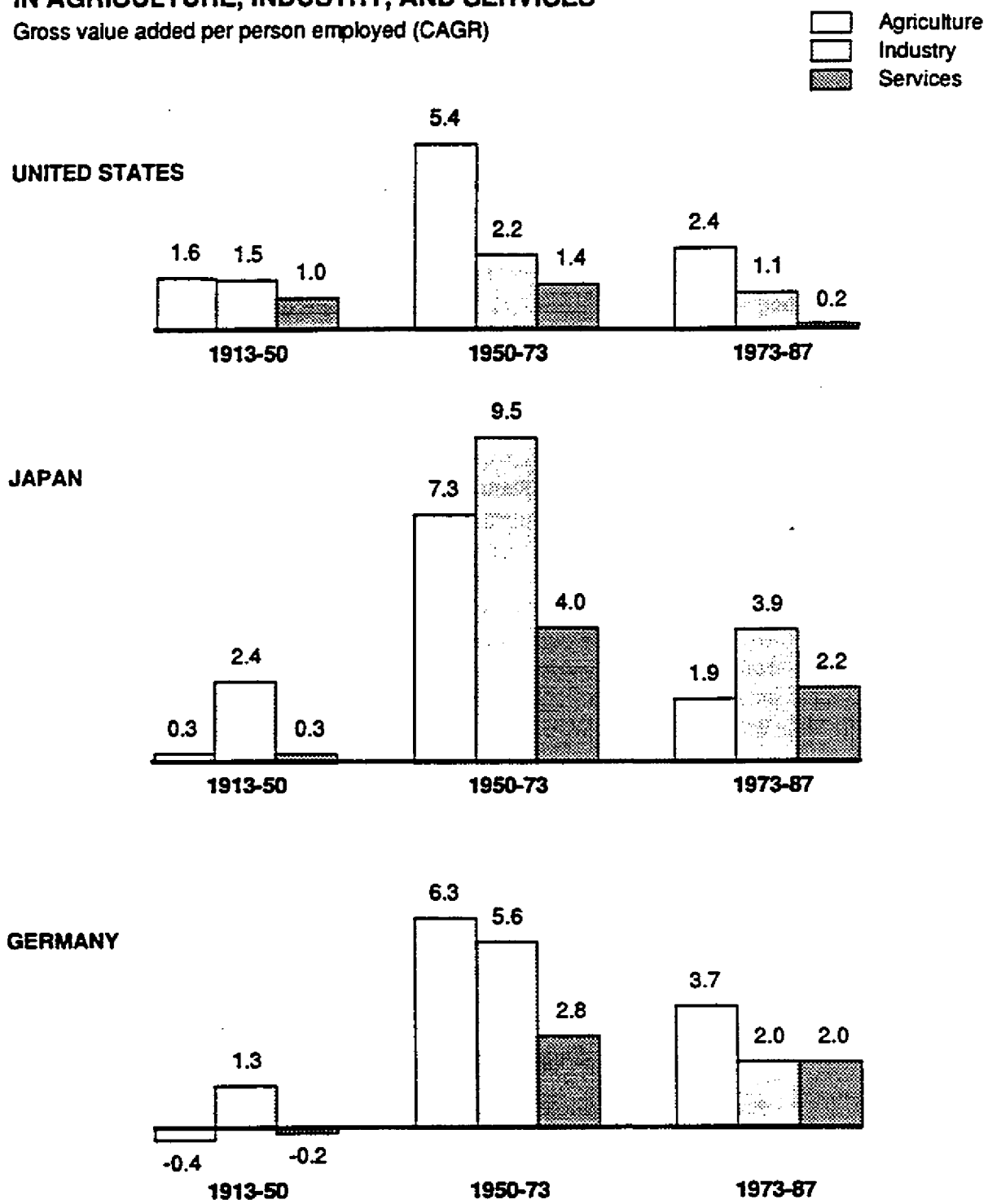
National Productivity Growth Comparisons

One reason for the common perception that the U.S. economy is in relative decline is that the standard data show slower productivity growth in the U.S. economy than for its main competitors. Exhibit 1-8 shows data prepared by Angus

Exhibit 1 -8

SECTORAL LABOR PRODUCTIVITY GROWTH 1913-1987 IN AGRICULTURE, INDUSTRY, AND SERVICES*

Gross value added per person employed (CAGR)



* Industry includes mining, construction, manufacturing, and utilities; services include government

Source: Maddison 1991

ZDE-119 490

Maddison[1] on labor productivity growth rates for the main sectors of the economies of the U.S., Japan, and Germany for various periods from 1913 to 1987. The industrial sector includes manufacturing, mining, utilities, and construction and the service sector includes government, health care and housing as well as market services. Maddison uses the GDP data from the national accounts of the three countries and these are subject to error as indicators of productivity growth. Maddison's data show the following:

- ¶ A productivity growth slowdown after 1973 was common to all three economies
- ¶ Productivity has grown more slowly in the U.S. than in the other countries since 1950
- ¶ Productivity growth in services was slower than in the other sectors of the economy, especially after 1973.

Since the level of productivity in Germany and Japan was a good deal lower than that in the U.S. in 1950, it is not surprising that their growth rates were higher than the U.S. rate since then. Still, these data, which show much slower productivity growth in the U.S. economy over a 40-year period, have caused some observers to suggest that the U.S. economy has either been overtaken or will be overtaken soon.

There are reasons to have doubts about the validity of productivity growth figures as measured. Measuring productivity growth in many service industries is especially difficult, because of the problem of separating real output growth from inflation. Taken as a whole, we believe that the weight of the evidence from the national data indicates that the productivity of the U.S. market sector remains the highest among the major industrial countries.

Before we can be confident that we have a deep understanding of relative productivities, however, we must look more closely at specific industries.

PRODUCTIVITY AMONG MANUFACTURING SECTORS

Production in three countries – the United States, Germany and Japan – dominates worldwide manufacturing and international trade in manufactured goods. In recent years, the U.S. and Germany have switched back and forth as the leading exporters. In 1988, the three countries together accounted for 54 percent of

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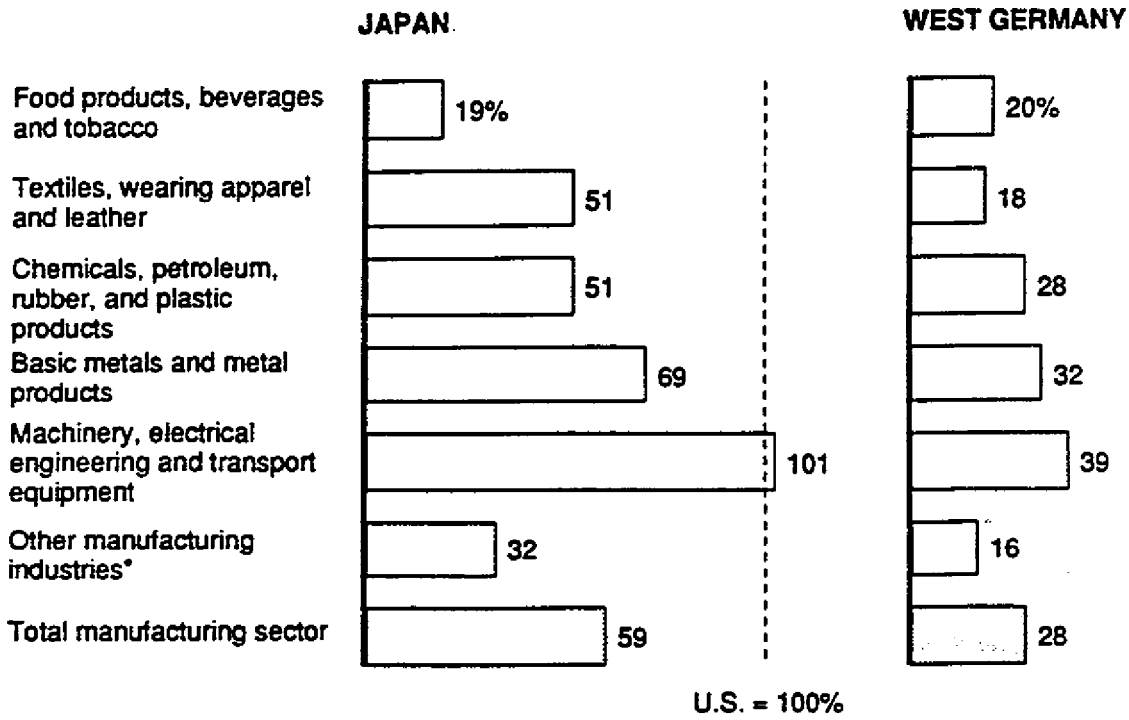
1 Angus Maddison, Dynamic Forces in Capitalist Development (Oxford, New York, 1991).

Exhibit 1 - 9

RELATIVE SIZE OF MANUFACTURING BRANCHES – 1987

Gross value added at U.S. prices



* Wood and paper products, furniture and fixtures, nonmetallic mineral products, other

Source: Van Ark; Pilat, Groningen, NL

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manufactured production and 35 percent of trade in goods manufactured in capitalist countries. Clearly, productivity in the manufacturing sectors of these three countries is important to understand. There have been several international studies made[2] on this topic and, fortunately, some insightful new work is available.

In a study completed in March 1992 for the International Comparisons of Output and Productivity (ICOP) Project, Bart van Ark and Dirk Pilat, economists at the University of Groningen, compared productivity levels in Germany, Japan and the U.S. for manufacturing as a whole and for sub-groups of industries in manufacturing.[3] Their work was part of the larger project on international comparisons being carried out at Groningen under the leadership of Angus Maddison. Pilat and van Ark constructed a time-series for value added by industry for each country, for hours worked and for capital input, which allowed them to compute both average labor productivity (value added per hour) and total factor productivity.

Their study represents a major improvement over prior work in two respects. First, they worked with censuses of manufacturers in all three countries to obtain consistent output and input figures. Many other studies have used output data from one source, and labor input data from another potentially inconsistent source. Second, they constructed their own PPP exchange rates specifically for the manufacturing industries, and compared prices of comparable items in each country in the base year of 1987.

Findings on Productivity Levels

Pilat and van Ark state that the output of the U.S. manufacturing sector as a whole in 1987 was larger than the output of either Germany or Japan (Exhibit 1-9). The output of the German sector is 28 percent of the U.S. output, while the Japanese output is 59 percent of the U.S. output. The relative outputs vary a good deal by industry within the manufacturing sectors, however. Exhibit 1-9 shows that Japan's machinery industry was larger than the U.S.-located industry, whereas all of the manufacturing industries in Germany have substantially smaller value added than

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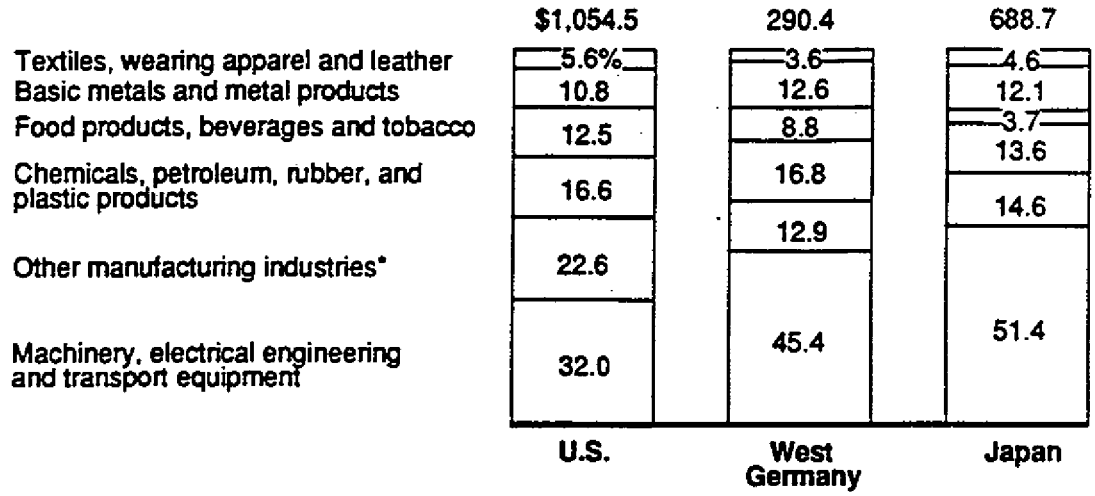
2 S. J. Prais Productivity and Industrial Structure, National Institute of Economic and Social Research, Cambridge, U.K., 1981; A.D. Smith, D.M.W.N. Hitchens, and S.W. Davies, International Industrial Productivity, Cambridge University Press, Cambridge, U.K. 1982; Peter Hooper and Kathryn A. Larin, "International Comparisons of Labor Costs in Manufacturing," Review of Income and Wealth, Series 35, Number 4, December 1989, pp.335-55.

3 Dirk Pilat and Bart van Ark, "Productivity Leadership in Manufacturing, Germany, Japan and the United States, 1973-1989," Mimeographed, University of Groningen, March 1992.

Exhibit 1 - 10a

MANUFACTURING SECTOR OUTPUT BY MAJOR BRANCHES – 1987

Gross value added in $ U.S.
$ Billions



* Wood and paper products, furniture and fixtures, nonmetallic mineral products, other

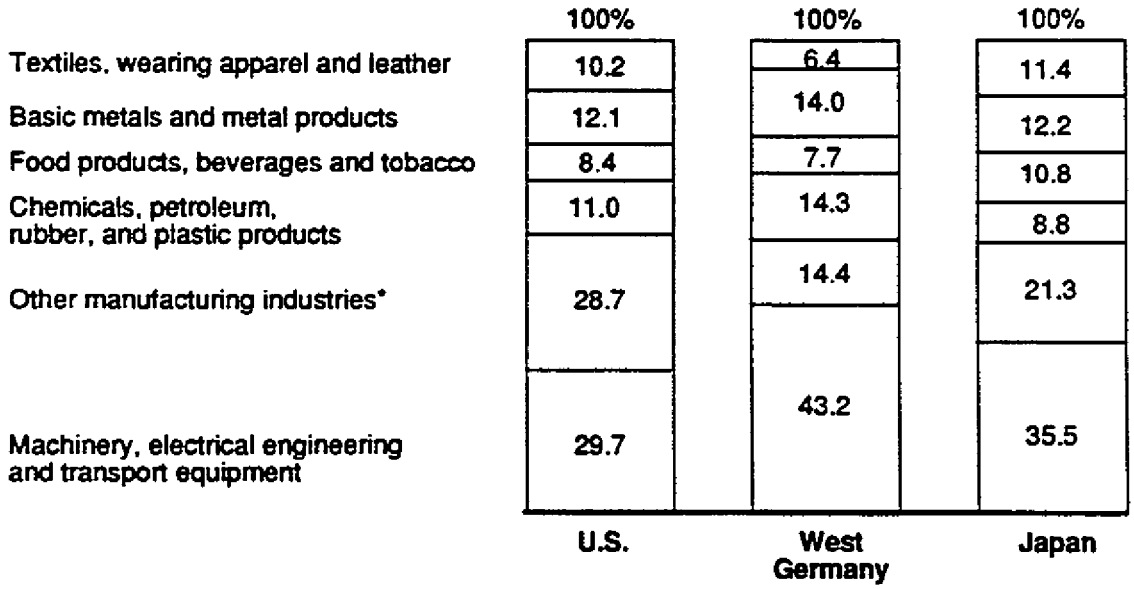
Source: Van Ark; Pilat, Groningen, NL

ZOE-119 376

Exhibit 1 - 10b

MANUFACTURING SECTOR INPUT BY MAJOR BRANCHES - 1987

Hours worked
Percent



* Wood and paper products, furniture and fixtures, nonmetallic mineral products, other

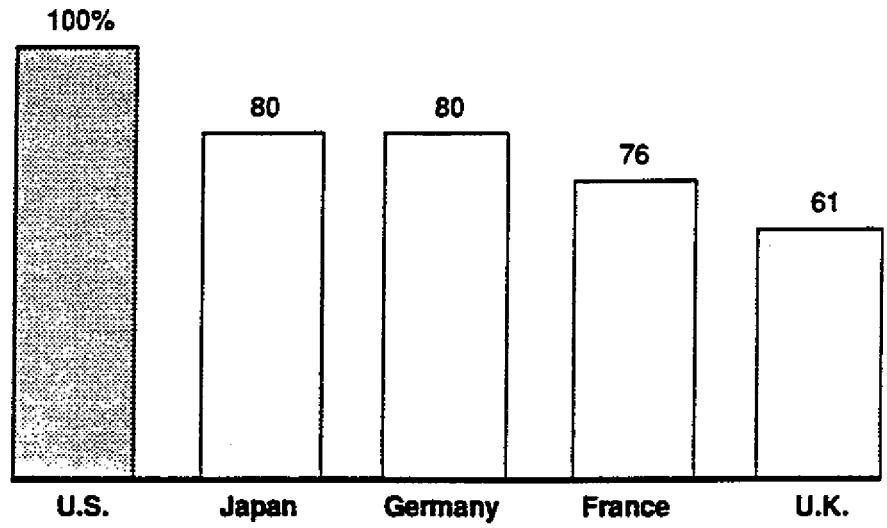
Source: Van Ark; Pilat, Groningen, NL

ZOE-119 500

Exhibit 1 - 11

MANUFACTURING PRODUCTIVITY – 1989

Gross valued added at manufacturing branch PPP per hour worked



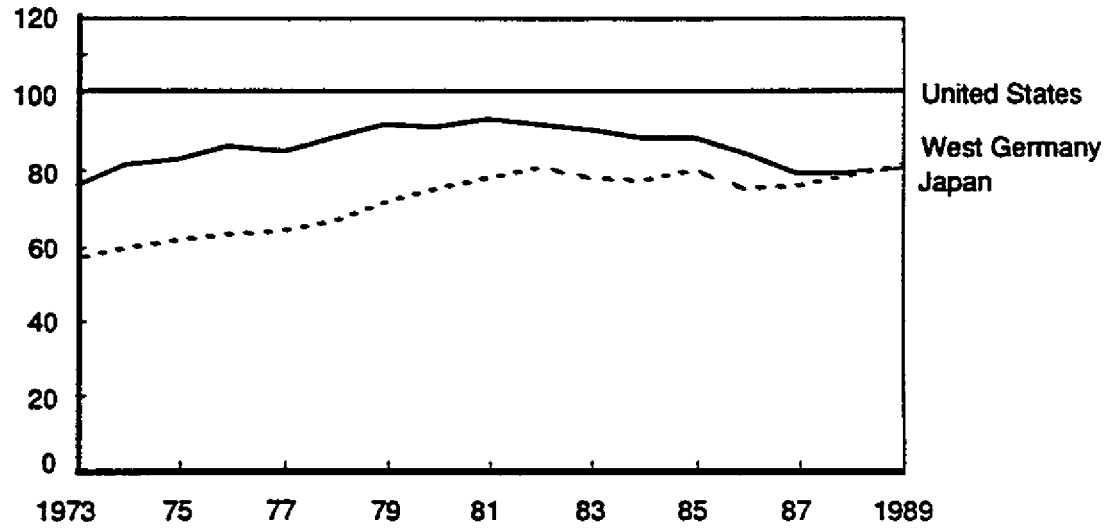
Source: Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOP) Project, Groningen, NL

ZXE-119 390

Exhibit 1 - 12

MANUFACTURING PRODUCTIVITY

Gross value added at manufacturing branch PPP per hour worked



Source: Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOP) Project, Groningen, NL

ZXE-119 394

Exhibit 1 - 13

those in the U.S. These differences in the relative sizes of the manufacturing industries in Germany and Japan translate into differences in the composition of manufacturing within each country. This is illustrated in Exhibit 1-10a-b, which shows that the output of the machinery sector comprises over half of the manufacturing industry in Japan, compared to only a third of the industry in the U.S.

Dividing value added by the hours worked in each industry allows direct comparisons of the levels of productivity in the 1987 base year across each country. This can be done for manufacturing as a whole and for each of the industries within manufacturing. The base year of 1987 was used to make the primary comparisons of productivity levels in the manufacturing sector. By combining these with existing national data on productivity growth rates, it is possible to determine the trends of relative productivity for these countries. Pilat and van Ark looked at the period from 1973 to 1989. The results show (Exhibit 1-11) that in 1989 Germany and Japan's productivity was 80 percent of the U.S. level. Hence, the difference between manufacturing in the U.S. and manufacturing in either country was about 20 percentage points in 1989.

Findings on Productivity Growth

The data for 1989 were the most recent available to Pilat and van Ark. Their finding that manufacturing production in the U.S. was at a substantially higher level at that time is important. Just as important, however, are the trends of relative productivity over time. On average, are facilities located in Germany and Japan approaching the U.S. level of productivity? And if so, will productivity levels converge, or will differences persist? In Exhibit 1-12 we can see, for example, that Germany is not converging to the U.S. level of productivity. By 1974, facilities in Germany had reached the same relative level of productivity compared to the U.S. as they had in 1989. In fact, German productivity in manufacturing reached its highest relative position during the early 1980s and has slipped since then.

Japan shows a fairly rapid pattern of convergence towards the U.S. level of productivity from 1973 until the early 1980s. Japanese productivity was only 56 percent of the U.S. level in 1973 and had risen to around 77 percent by 1981.[4] Since that time, the rate of convergence has been extremely slow. It is possible that Japan will continue to converge to the U.S. level of productivity or even overtake the U.S. However, it seems likely that the U.S. will retain a modest productivity lead for some years to come. At the growth rates experienced from 1979 to 1989, it

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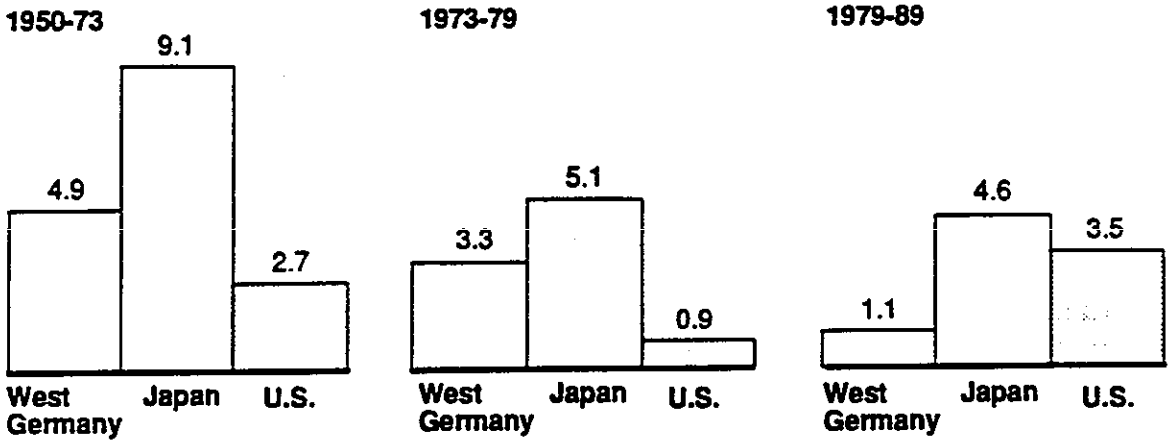
[4] Relative productivity in Japan rose to almost 80 percent by 1982, but that was a deep recession year for the U.S. and so the comparison for that year may be misleading.

Exhibit 1 - 13

GROWTH IN MANUFACTURING PRODUCTIVITY

Output per person employed
Compound average annual change



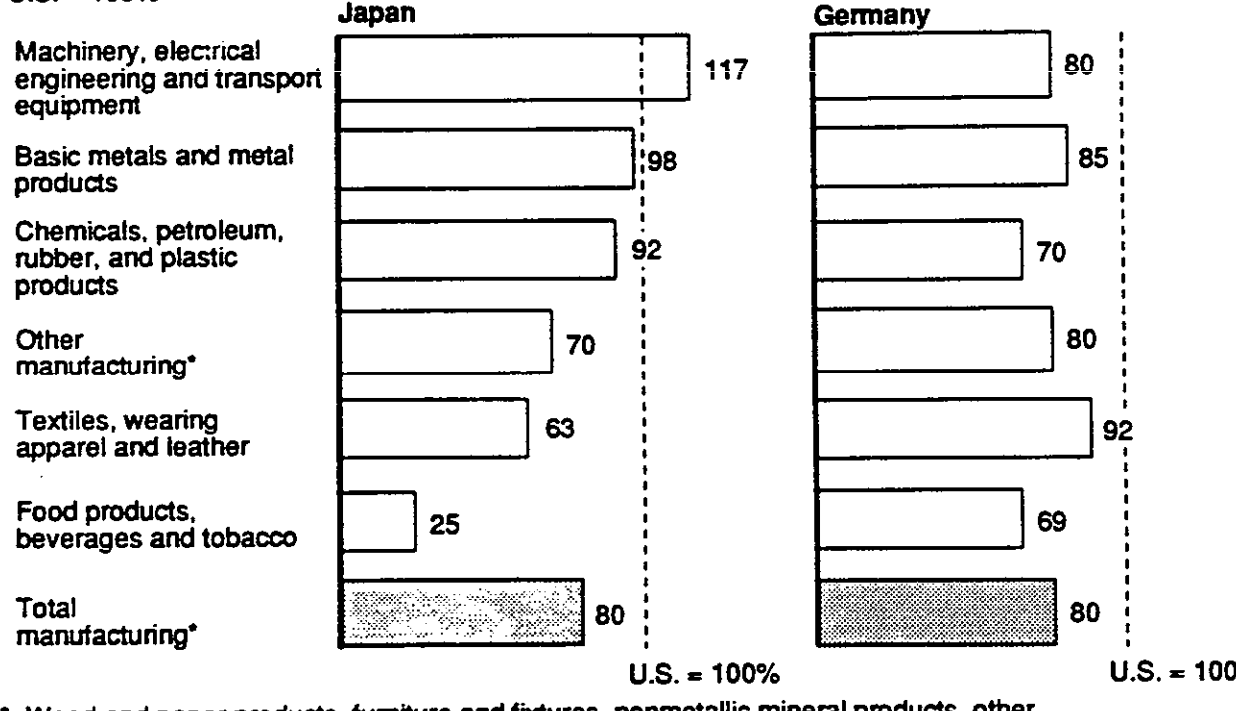
Source: Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOP) Project, Groningen, NL

ZXE-119 462

Exhibit 1 - 14

MANUFACTURING PRODUCTIVITY BY MAJOR BRANCHES - U.S. GERMANY AND JAPAN 1989

Value added at industry - PPP per hours worked
U.S. = 100%



* Wood and paper products, furniture and fixtures, nonmetallic mineral products, other

Source: Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOF Project, Groningen, NL

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will take 20 years for Japan to eliminate this overall difference in manufacturing productivity .

The extent to which Germany and Japan have converged to the U.S. level of productivity and then reached a plateau can also be seen from the relative productivity growth rates in Exhibit 1-13. Prior to 1979, the growth of productivity in U.S. manufacturing was much slower than that in Germany or Japan. Since 1979, growth has exceeded that of Germany and is much closer to the Japanese growth rate.

Productivity in Individual Manufacturing Industries

The higher level of productivity for U.S. production does not apply uniformly to the individual industries within manufacturing. Exhibit 1-14 demonstrates the relative productivity in 1989 for selected groupings of manufacturing industries. The level of productivity in several Japanese industries and some German industries is similar to or even higher than that in the U.S. It is notable that the industries where German and Japanese productivity is close to or above U.S. productivity are industries in which these countries have been strong in international trade. This helps us understand the puzzle of how some operations located in these countries can be such strong international competitors, while their manufacturing sectors as a whole have relatively low average productivity. The answer is that Japan and Germany are home to sheltered industries that have productivity very much below the U.S. level, in addition to companies who are well known and very competitive.

Total Factor Productivity

Dirk Pilat and Bart van Ark also examined the role of capital in determining the relative productivity levels in Germany, Japan and the U.S. They developed estimates of the capital stocks for the total manufacturing sector and computed the total factor productivity (TFP), which takes account specifically of the contribution of capital. This allowed them to determine the extent to which differences in capital per worker in the three countries could explain the differences in labor productivity which they found. Their answer for Germany was that almost none of the difference in labor productivity was explained by capital differences. There was only a trivial difference in the capital per hour of work between Germany and the U.S. in the late 1980s.

The pattern for Japan was different. They found that Japan was somewhat less capital intensive than either Germany or the U.S. in the aggregate, despite the fact that Japan has a higher rate of investment than does the U.S. Capital per hour worked in Japan was only about three quarters of the U.S. level in 1987. Pilat and van Ark estimate that this accounts for about 8 points of the 25 point productivity lead that the U.S. had in labor productivity as of 1987. Since Japanese producers continue to invest at a very high rate, we can expect the gap in capital intensity to

gradually diminish over the next several years. This can be expected to reduce the labor productivity gap between the two countries.[5]

Overall vs. Manufacturing Productivity

Earlier in this chapter, the data on national productivity suggested that the level of productivity in the U.S. is somewhat higher than in Germany and significantly higher than in Japan. How do the findings for the manufacturing sector compare with this? The difference between U.S. and Japanese productivities appears to be much narrower in manufacturing than in the overall economy. This is not surprising, since a large number of Japanese-based manufacturing companies have shown their international competitiveness. The most productive Japanese industries are at least as productive and often more productive than their U.S.-based counterparts. The 20 percent shortfall in overall productivity of manufacturing in Japan is largely the result of the industries that do not compete internationally. For example, there is very weak productivity in the Japanese food products, beverages, tobacco, textiles, apparel and leather industries.

The manufacturing productivity level in Germany is lower than the overall national productivity level and that presents a puzzle, as Germany, like Japan, has been a powerhouse in exports over the years. Part of the mystery may be that some German industries have a very strong reputation for high quality, allowing their products to be sold overseas even when they are not price competitive. The data we report may be understating German productivity if average German quality is higher than that of the U.S. products and this is not fully reflected in the price comparisons used to construct the data. In this case, German export strength may be vulnerable if the perception of relative quality changes. For example, Japanese luxury cars are cutting into the sales of high priced German models. Another possible explanation for strong German exports is that the pattern of German trade may be different; perhaps a large fraction of German exports go to European markets that are somewhat sheltered from competition with U.S. and Japanese producers.

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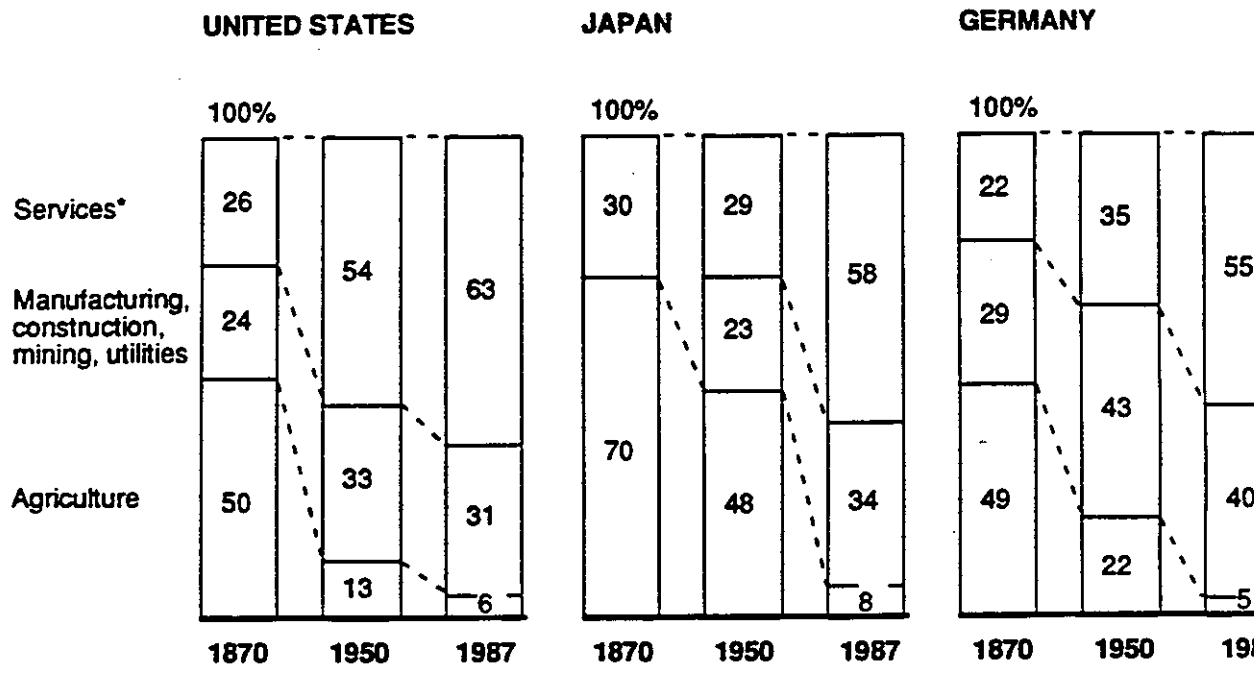
5 The Pilat and van Ark results on capital are a little hard to interpret because of differences among the countries in hours worked per worker per year. Based upon capital per worker, Germany is actually a little less capital intensive than the U.S. German workers work fewer hours per year, and so their ratio of capital to labor hours is the same. For Japan, capital per worker is about 85 percent of the U.S. level, rather than 76 percent for capital per hour. Japanese work substantially more hours. The question then is how this affects productivity. For example, when a Japanese factory operates on Saturday, it can use capital that would be sitting idle in the U.S.

Exhibit 1 - 15

STRUCTURE OF EMPLOYMENT IN 1870, 1950, AND 1987

Percent



* Including government

Source: Maddison 1991

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Exhibit 1 - 16a

VALUE ADDED IN MARKET SERVICES BY INDUSTRY – 1988

Billions, National currencies

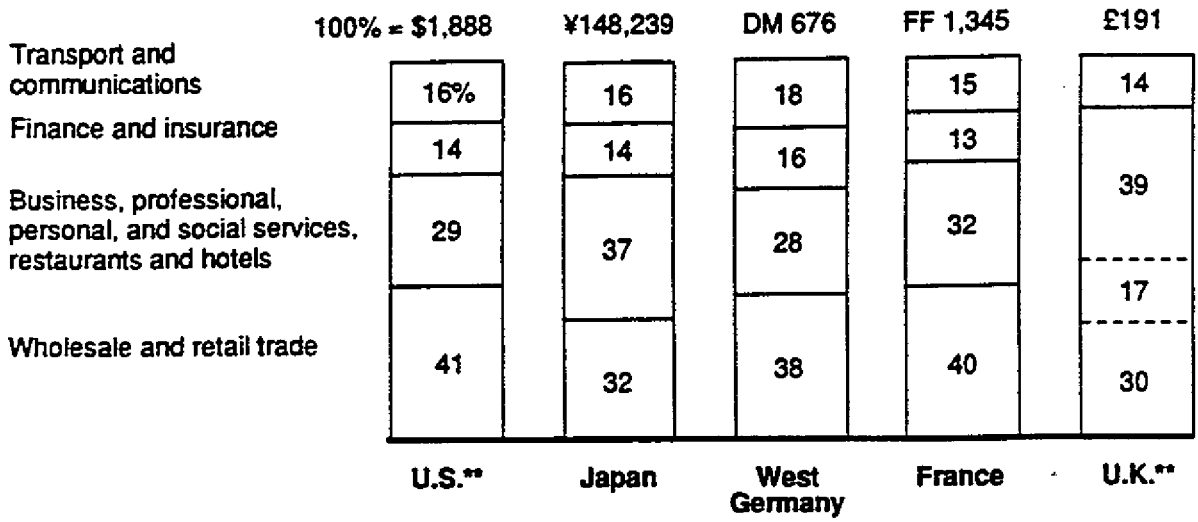
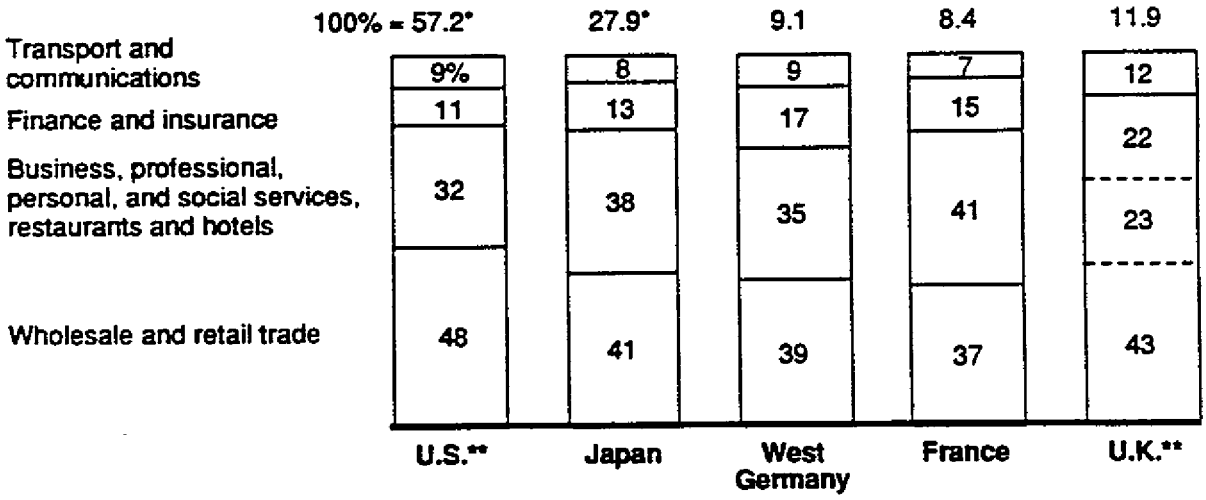


Exhibit 1 - 16b

EMPLOYMENT IN MARKET SERVICES BY INDUSTRY – 1988

Millions



* Jobs rather than persons employed (double counting)

** U.K. hotels and restaurants in wholesale and retail trade; business services in finance and insurance; U.S. restaurants in wholesale and retail trade

Source: OECD; BEA; National Statistics; McKinsey analysis

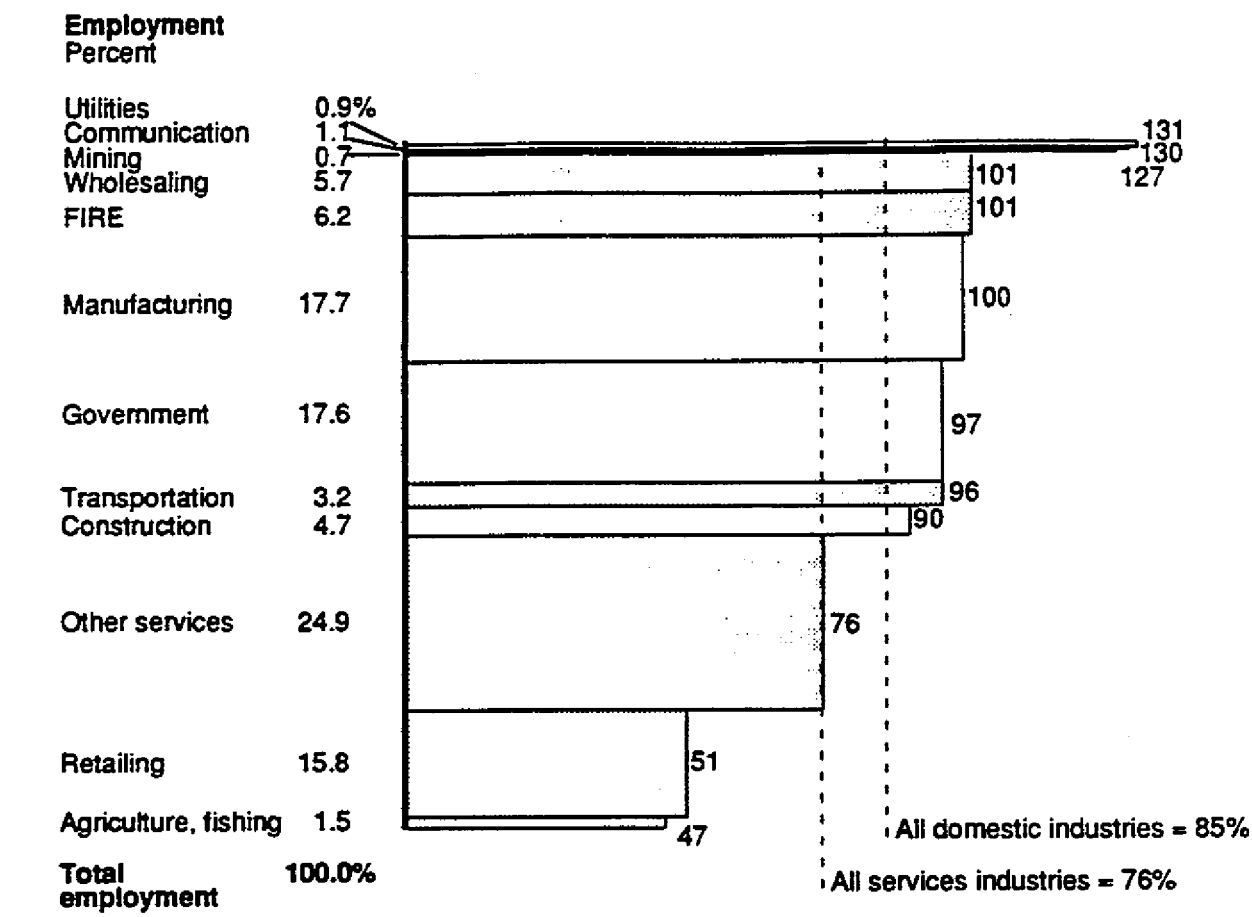
ZXE-119383

Exhibit 1 - 17

AVERAGE ANNUAL COMPENSATION PER FTE

U.S. 1990

Index manufacturing = 100%



Source: BEA

ZXE-119 492

PRODUCTIVITY AMONG SERVICE SECTORS

A clear picture of economic performance in the service sector cannot be obtained easily from official sources. Productivity data for the U.S. service industries prepared by the Bureau of Labor Statistics show that the U.S. service sector has experienced very slow productivity growth over the last several years. But these data are less than reliable.6 Our own case studies suggest that the U.S. service industry has been fairly dynamic and has led the way to improved U.S. productivity overall compared with Europe and Japan. While manufacturing is important to the economic health of a nation, so are services, in terms of employment, income, manufacturing cost position, and international trade.

- The share of employment in services is very large and is growing in all of the five countries we have studied. Exhibit 1-15 shows how the service shares of the U.S., Japan and Germany have grown steadily for more than a century. Employment in services accounts for more than 60 percent in the total in the U.S. and is fast approaching 60 percent in the other countries. In all five countries we studied, wholesale and retail trade and business and personal services make up the largest components of the market service sector (Exhibit 1-16a–b).

- Given the dominant size of the service sector in both employment and output, productivity in services must play a larger role in overall productivity than does manufacturing.

- Given that the majority of workers are now employed in services, the earnings of service sector employees are a prime determinant of the distribution of income. It is sometimes assumed that there are no service industries that provide well-paid jobs, but this is not correct. Exhibit 1-17 shows that many U.S. service industries pay a high level of compensation and some pay amounts equal to or above the average compensation in manufacturing. Service industry compensation as a whole is below average, and earnings in retailing and personal services are well below

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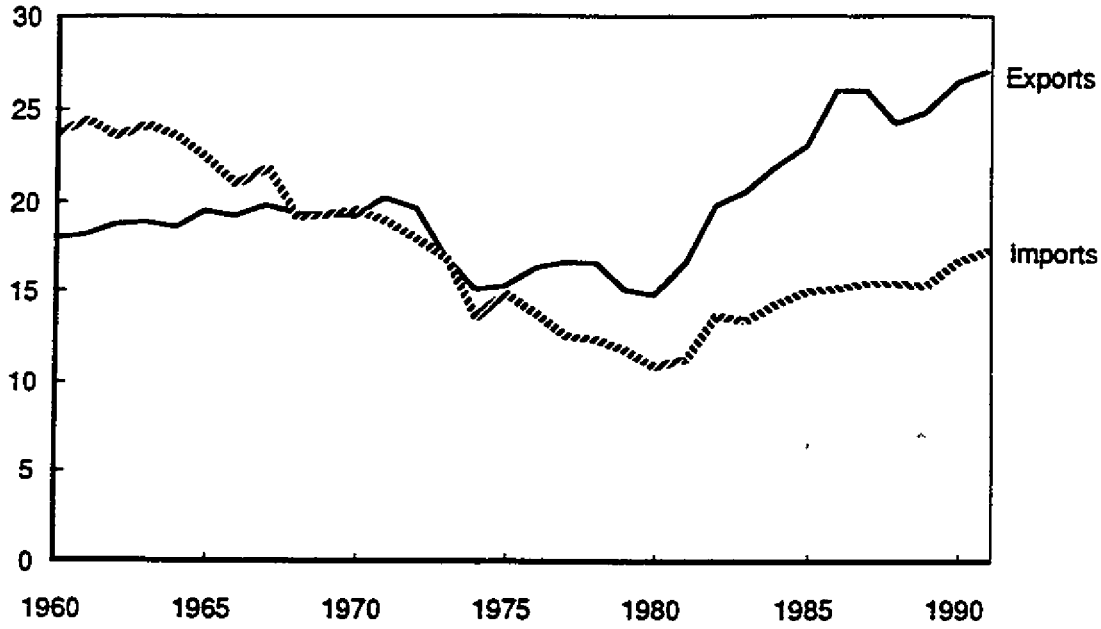
6 The Bureau of Labor Statistics (BLS) releases two productivity measures. One, for the service sector as a whole, is based on output data from the U.S. National Income and Product Accounts prepared by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. These data show very slow service sector productivity growth. But the BLS also prepares its own productivity data for selected service industries, which they judge to have reliable output data. These productivity figures are not necessarily consistent with those based on the BEA output, and often show more rapid productivity growth.

Exhibit 1 - 18

SHARE OF SERVICES IN U.S. EXPORTS AND IMPORTS – 1960-90

Percent



Source: BEA

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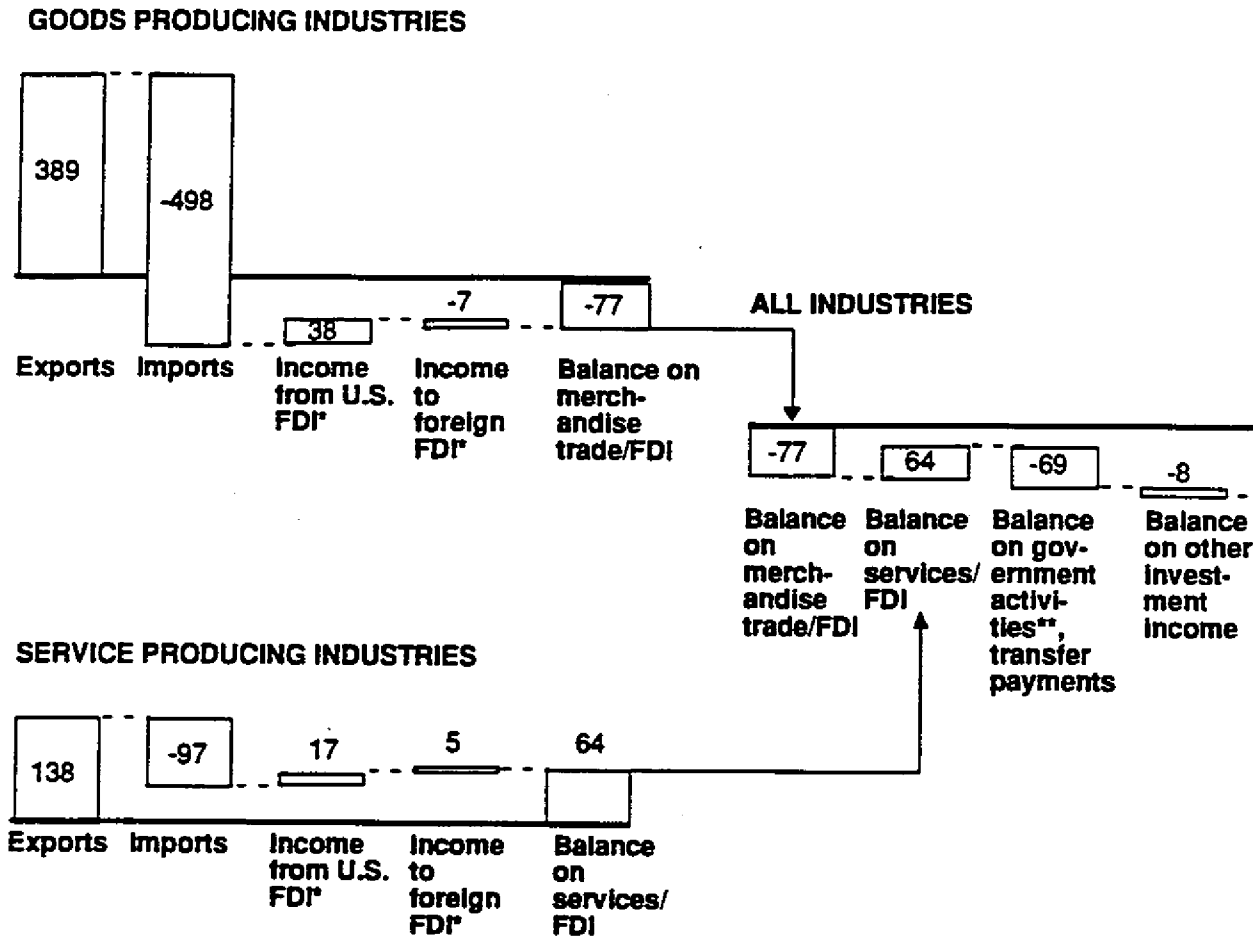
Exhibit 1 - 19

U.S. CURRENT ACCOUNT BY INDUSTRY 1990

$ Billion



* Foreign direct investment

** Including transfers under U.S. military agencies sales contracts (service export) and direct defense expenditures (service import)

Source: BEA, Survey of Current Business, 8/91, 6/92

ZDE-119 489

average, but rising service level productivity is a potential source of increases in living standards.

¶ The productivity of the service sector has a direct impact on the international competitive status of manufacturing firms. Manufacturing industries purchase inputs from the service sector and must be concerned about the price and quality of what they can buy. Based upon the relationships found in the 1987 input-output table for the U.S. economy, we estimate that about 23 percent of the value of sales of the industrial sector of the U.S. economy reflects inputs from the service sector. This means that a productivity disadvantage of, say, 20 percent in services would mean a 4.6 percent of sales cost disadvantage (20 percent of 23 percent). Such a disadvantage could sharply reduce or even eliminate the profits available to some manufacturing companies from international trade.

¶ The service sector has become an increasingly important element in world trade. For example, in the U.S.:

- The share of U.S. service exports in all of U.S. exports grew from 15 percent in 1975 to 26 percent by 1990 (Exhibit 1-18).

- The service sector added a $64 billion net foreign balance to the U.S. current account in 1990. This includes net income on foreign investment in service industries (Exhibit 1-19).

The importance of services to overall productivity, incomes and competitiveness indicates the value of comparing service sector productivity. There have been several prior attempts made to do this, especially in binary comparisons of the U.S. and Japan, but the results have been ambiguous. Dale W. Jorgenson and Masahiro Kuroda estimated total factor productivity in the U.S. and Japan in agriculture, mining, construction, the main manufacturing industries and the service sector, broken into five groups, plus government.[7] For the service industries, they found that in 1985, productivity levels in the U.S. were above those in Japan in finance, business and personal services, and utilities. Productivity in Japan was higher than that of the U.S. in transportation, communication, and trade.

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[7] Dale W. Jorgenson and Masahiro Kuroda, "Productivity and International Competitiveness in Japan and the United States, 1960-1985." In *Productivity Growth in Japan and the United States*. ed. Charles R. Hulten. NBER Studies in Income and Wealth, vol. 53. Chicago: University of Chicago Press, 1990.

However, a study by Dirk Pilat comparing Japan and the U.S. found that labor productivity was higher in all of the main service industries in the U.S. in 1987.[8] Pilat estimated, for example, that productivity in transport and communications in Japan was only 30 to 40 percent of that in the U.S. The Japan Productivity Center recently issued estimates of labor productivity for the major sectors of the economy for a number of OECD countries.[9] They reported that labor productivity in Japan in finance, insurance and real estate, business services, other services and government was slightly above the U.S. levels. Productivity in trade in Japan, they said, was 56 percent of the U.S. level. And in transportation and communication, Japanese productivity was 65 percent of the U.S. level.

The researchers that have developed these results are all first-rate and there are some obvious reasons why their findings would differ; labor productivity and total factor productivity are somewhat different concepts. Still, the wide diversity of conclusions does illustrate how difficult it is to compare productivity, starting with GDP and breaking it down into its components. For this reason, we decided to follow the case study approach in order to make further progress.

Productivity is not the only goal managers and their corporations pursue. In particular, we must distinguish between profitability and productivity as two related, but also very different goals.

PRODUCTIVITY AND PROFITABILITY

One of the important goals of business managers is to sustain and increase the long term profitability of their companies. By doing this, they are ensuring that the shareholders or private owners of a company are obtaining the maximum return on their investment in the company.

There is a direct link between productivity and profitability. Profits are the excess of sales revenue over costs, and increases in productivity allow companies to produce and sell more output without increasing inputs. Sales revenues rise and input costs are held down. Even if market conditions do not allow sales to increase, improvements in productivity allow companies to produce the same output with fewer inputs and so lower their input costs.

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8 Dirk Pilat "Levels of Real Output and Labour Productivity by Industry of Origin, a Comparison of Japan and the United States, 1975 and 1970-1987," Memorandum from the Institute of Economic Research, Faculty of Economics, University of Groningen, February 1991.

9 "International Comparison of Labor Productivity," Japan Productivity Center, September 1991..

In a competitive market environment, productivity growth is not just a source of increased profitability, it is a key to survival. Companies that cannot match the productivity increases of their rivals will likely find themselves losing market share.

Despite the basic relationship between profit and productivity, there are situations where the two goals conflict. A company may choose a corporate strategy that does not seek to maximize productivity because product quality is important and is not captured by the productivity measure. This is not always a problem. Some productivity comparisons do capture quality differences. A department store that offers a wide selection of merchandise and has skilled clerks who can give valuable advice will be able to maintain higher margins than a store without these advantages. This will show up as higher value added. But in other cases quality differences are not picked up, and in such situations it may make sense for a company to reduce its measured productivity and achieve higher quality products or services. Airlines, for example, might schedule their flights for the convenience of passengers, even though their schedules will not maximize measured productivity. In our case study of airlines, we find that the U.S. hub-and-spoke system actually lowers measured productivity. Nonetheless, its use has spread because it allows more choice and flexibility for passengers. Another example occurs where retailing output is measured in terms of throughput. Many stores offer a wider range of products even though it reduces productivity. In both of these cases, better productivity measures would capture the increase in customer convenience and include it in the industry's productivity.

Another example of the way in which profitability and productivity may conflict occurs when a company can acquire equivalent materials and components at lower cost, or better ones at the same cost. This will add to profit without any change in the level of production. A more complex example arises because "productivity" is always measured as output per unit of some input or inputs. Increasing productivity means economizing on those inputs. For that very reason, not every increase in productivity is worth achieving. Output per hour worked can almost always be increased by using more and more expensive machinery. But obviously not every increase in capital intensity is profitable. Output per acre can always be increased in agriculture by cultivating more intensely, but there is an optimal intensity of cultivation from the profit point of view, and it should not be exceeded even if doing so would increase the productivity of the land. Profitability always emerges from a comparison of revenues and costs. Increases in productivity – like anything else – should be pursued only so long as the net benefits exceed the incremental costs.

There are cases where there is a tradeoff between productivity in the short run and the longer run goal of maximizing the value of the company. Most notably, demand for goods and services falls in a recession and companies often cut back on employment and investment. But farsighted companies do not cut back fully in proportion to the cuts in output necessitated by the recession. Valued workers are retained and investment projects with long term payoffs are kept going.

This leads to a short run fall in productivity in recessions that is evident in aggregate data. The corporate manager is protecting the long term position of his company at the expense of short run profits and productivity.

These examples illustrate cases in which company managers choose to trade productivity for some other goal. This indicates that there are situations in which corporate profitability has been enhanced even though productivity has not been. And there are other situations in which profitability and productivity have to be carefully distinguished, particularly when companies operate in very different market environments. For example, the most productive bank in, say, the New York market will have an advantage over its local competitors that should translate into a profit advantage. The most productive bank in Germany will have an advantage over its German competitors and also a profit advantage. But there is no guarantee that the New York bank and the German bank will have comparable productivities. Given the different banking environments, it is quite possible for the German bank to have higher profits than the New York bank, but lower productivity. The key issue for banks, then, is whether the sources of productivity differences are mobile, e.g., a concept for clearing checks, or immobile, e.g., a well educated work force.

This last example illustrates that unless measurements are carefully made, productivity can give a misleading view of performance if markets are not competitive. In an extreme case, a single company with a monopoly could charge a very high price for its product or service. Depending on the way in which productivity is measured, this company could appear to have very high "productivity" even though it is not very productive in terms of the efficiency of its production methods. Even in cases in which there is not a complete monopoly, this same problem can arise. In protected industries with only a few competitors that do not compete aggressively, each company can appear to be highly productive because of high prices. To be meaningful, productivity comparisons must distinguish between high productivity and lack of competition.

Exhibit 2 - 1
CAUSES OF LABOR PRODUCTIVITY DIFFERENCES

External factors

– Market conditions

- Demand factors
- Relative input prices/ factor availability

– Policy and regulation

- Competition rules and concentration rules
- Government ownership
- Labor rules and unionism

Management behavior

Production process

– Output mix, variety, quality

– Economies of scale

– Capital (intensity and vintage)

– Skill of labor

– Organization of labor

Labor productivity

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CHAPTER 2: SERVICE SECTOR CASE STUDIES

In this chapter we discuss our case studies in the airline, retail banking, restaurants, general merchandise retailing, and telecommunications industries. In each case study we measured and compared the level of industry productivity among countries and we analyzed the causes of productivity differences. When measuring productivity, we used industry specific measures of output and input.

- ¶ Output: We measured functional productivity whenever possible (i.e., in the airline, retail banking, and telecommunications industries). Functional productivity analysis breaks the business activities of an industry down into the major functions and measures the output, input, and productivity of each function. In the cases of general merchandise retailing and restaurants, we used value added as our output measure. Value added is, in our judgment, the only measure that captures the dominant personal service aspect of these industries.

- ¶ Input: We measured labor productivity, using the number of employed persons, and converting to full-time equivalent employees whenever possible. We made an exception for the telecommunications case study, in which we took capital and total factor productivity explicitly into account.

To identify and explain the causes of the measured productivity differences, we developed a framework that captures all the major possible causes and reflects the hierarchy of causes (Exhibit 2-1). This framework proved applicable and useful in each of the five case studies, and we structured our discussion of causality in the case studies along the framework's elements.

In constructing this framework, we assumed that the observed productivity differences must have some tangible or proximate causes, meaning that the U.S. industries must do something different that makes them more or less productive than their European or Japanese counterparts. Explanations for differences on this first level of causality can be found in what we call the "production process". Here we have to look at factors like economies of scale, capital intensity and vintage of capital, skill and organization of labor, and differences in output mix and quality to find the causes of productivity differences.

- ¶ Output mix, variety, and quality: Two industries never produce exactly the same output of services. The output of industries can differ in the mix of common services (e.g., relatively more long-haul flights in the European airline industry), in the variety of services (e.g., more service offerings to residential customers in the U.S. telecommunications industry), and in the quality of common services (e.g., higher interest rates on deposit accounts in one industry versus another). Different service outputs may need different labor inputs. Since it is practically impossible

to capture all the aspects of service mix, variety and quality in the output measure, differences in service output may cause differences in measured productivity.

¶ Economies of scale: We use the term "economies of scale" or "scale effects" to describe the situation in which a firm can increase its output with less than proportional income in inputs. If scale effects exist, a larger firm is more productive than a smaller firm.

Three kinds of scale effects are important in international comparisons: economies of scale at the local or outlet level, e.g., individual bank brands, retail outlets or airports; traditional economies of scale on the firm level; and market economies of scale which may stem from a larger national or international market size.

¶ Intensity and vintage of capital: We use capital in the sense of physical assets which are capable of generating income, e.g., machines, plant and buildings, and the hardware in information systems. Besides labor, capital is the second factor of production. If an industry works with a higher capital intensity, i.e. uses more capital in combination with each unit of labor, we expect that this industry would show a higher labor productivity. Moreover, the same effect can happen if there are differences in the vintage of capital, i.e. if one industry applies a more modern stock of capital (newer tools or computers, for example). In both cases, labor can be more productive due to a higher or superior input of capital. In most of the case studies, labor productivity is much more important than capital productivity. Telecom is an exception. Thus, in all cases except telecom, we handle this leverage-effect of labor as a causal factor and do not take differences in capital input into account in measuring total factor productivity.

¶ Skill of labor: Another possible cause of differing productivities is differences in the skill of non-managerial labor. If the employees in one industry are more able to use their knowledge effectively and readily in the production process, they might be able to produce more service output in a given time. In other words, the skill factor tries to capture differences in the quality of the labor input.

¶ Organization of labor: Organization of labor describes the effectiveness and efficiency with which labor is used in the production process. This causal factor captures differences in the organizational structure and core processes of companies, which determine the division of labor, methods of service delivery, centralization versus decentralization, labor intensity, and motivation. Motivation is an important aspect of this causal factor. Under different working environments and leadership styles, employees may be more or less willing to work effectively and efficiently. As a consequence, motivated workers are more productive. The organization

of labor as well as the capital and skill of labor are elements of a broader notion of technology. Technology, or the sum of knowledge of the means and methods of production, encompasses both "soft" technologies like organization and skill of labor and "hard" technologies like physical capital. In our causality framework, however, we do not refer to technology as a whole but distinguish among its elements.

The above factors directly determine the labor productivity of an industry and are what management in the industry must change to make a difference in productivity. But this raises the next question: Why does management decide to provide certain services with a particular production process that is more or less productive than some other process? The answer to this question lies on a higher level of causality. On that level, we have the behavior of managers, that is, their skills and objectives. These factors determine why they act differently. To understand the different behavior of managers in various countries, however, we must explore the external forces that managers face and respond to. We grouped the external factors affecting management behavior into factors reflecting different market conditions (e.g., demand and relative factor prices) and factors reflecting different government policies and regulations (e.g., competition, ownership and labor rules).

- Demand factors: Differences in demand among industries may cause managers to make different decisions about the mix of services they provide. Through management's reactions and behavior, demand can particularly impact the output mix, variety, and quality of service industries.

- Relative input prices: Differences in relative input prices, especially the relative costs of labor, can give different incentives to managers to substitute labor for capital and to create more or less labor intensive production processes.

- Competition and concentration rules: As we will argue in more detail in Chapter 3, different competitive environments may cause different management behavior. If the competitive intensity is high, for example, and market entry is possible, prices are free, and no player has a dominant market position, managers are likely to behave differently than if the competitive intensity were low. These different patterns of behavior may cause the creation of more or less productive production processes in different industries.

- Government ownership: As with competition and concentration rules, differences in corporate ownership, and especially government ownership, may cause management to have different incentives to generate profits and use labor most efficiently. Management actions to achieve these goals affect productivity.

- ¶ Labor rules and unionism: The balance of power between management and labor may vary among industries due to different individual and collective rights of labor (e.g., workers councils, unions). These differences may generate different constraints and incentives for managers to consider when they decide on the elements of the production process.

This third and higher layer of causality gives us insights into how industry policy and industry structure and dynamics affect management behavior and thus indirectly affect productivity.

We close each case study with an outlook for the future of the industry and, where applicable, an outline of policy implications. The findings from each case study help fill in our understanding of the general causes of productivity differences. In Chapter 3 we synthesize the findings from all the case studies and draw our conclusions about the general causes of productivity differences.

A - PRODUCTIVITY IN THE U.S. AND

EUROPEAN AIRLINE INDUSTRIES

Deregulation in the airline industry is a worldwide phenomenon, that began at different times and is proceeding at different speeds. British Airways was privatized in the 1980s. The deregulation of the U.S. airline industry started in the mid-1970s. Culminating with the Airline Deregulation Act of 1978, new competitors were allowed to enter the industry and airlines could choose the routes they wanted to fly and the fares they wanted to charge. Over the last 15 years, consumers in the U.S. reaped many benefits from deregulation. Until 1989, real prices dropped an average of 20 percent - up to 35 percent on long routes. The industry saw many new entries, at least until the mid-1980s ushered in a phase of consolidation. In the end, the airlines sustained an extended network with more choice on more routes and higher frequency for the customer, even from smaller cities. And the recent "price war" in the U.S. domestic market, which led to further price cuts, confirms that the U.S. consumer has gained from deregulation.

In Europe, fares, traffic rights and market access are still heavily regulated. But increasing deregulation in Europe, competitive threats from high speed trains, and growing competition in the intercontinental markets will put the European airlines under pressure to innovate and sustain profitability. In addition, fears of terrorism triggered by the Gulf war sent a shock wave through the industry. The drop in passenger revenues triggered public concerns about the health of the European airline industry and raised questions in managers' minds about the relative competitiveness of their airlines. If the European industries respond to all these pressures as the U.S. industry responded to the pressures it faced, we are going to witness a major transformation of the European airline industry in at least two ways: an increased market orientation will lead to a proliferation of new services, and growing price and cost pressures will make the ability to improve productivity a key factor for success.

Given that labor costs account for about one-third of total airline costs, the latter point raises questions about labor productivity in the European airline industry. Compared with the U.S. industry, which has already undergone the major restructuring necessitated by deregulation, do the airlines in Europe have opportunities to raise their labor productivity? If so, in what areas, and what are the reasons why the labor productivity of carriers in Europe is different than for U.S. carriers?

To find answers to these questions, we took a close look at labor productivity in the European and the U.S. airline industries. We will describe the scope of our analysis and explain our measurement of labor productivity in the two industries. Then we will draw some conclusions concerning the causes of the observed

Exhibit 2A - 1

DEFINITION AND SCOPE OF AIRLINE INDUSTRY U.S. AND EUROPE - 1989

		U.S.	Europe*
Mainly "scheduled" airlines**	Major carriers/ flag carriers	America West American Airlines Continental Delta Eastern Northwest Pan Am Southwest TWA United US Air	Aer Lingus Air France Alitalia Austrian British Airways Finn Air Iberia KLM Lufthansa Sabena SAS Swiss Air
	Regional and commuter airlines	160 carriers	28 carriers
Nonscheduled or charter airlines		None	49 carriers
Cargo		Excluded	Excluded
Total		**171 carriers**	**89 carriers**

* EEC, Austria, Scandinavia, Switzerland, Yugoslavia

** More than 50% scheduled service in passenger-kilometers

Source: McKinsey analysis

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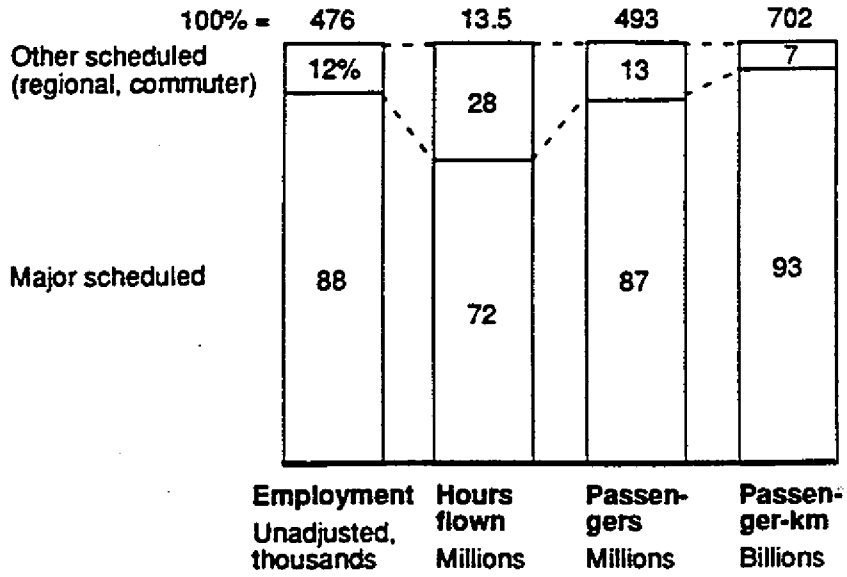
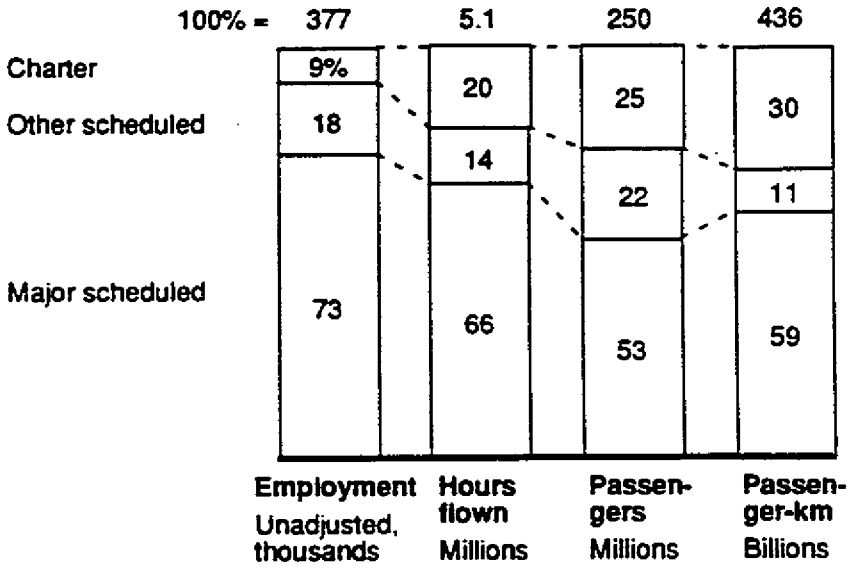
Exhibit 2A - 2

STRUCTURE OF THE U.S. AND EUROPEAN AIRLINE INDUSTRIES

U.S. AIRLINE INDUSTRY



EUROPEAN AIRLINE INDUSTRY



Source: IATA; ICAO; RAA; EURACA; McKinsey estimate

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productivity differences, the future development of the U.S. and European airline industries, and the implications for national policies.

THE AIRLINE INDUSTRY

Some 700,000 people worked in the U.S. air transportation industry in 1989, the year we used as a benchmark year. Air transportation is the second largest industry in the transportation sector in the U.S. and accounts for 0.6 percent of the total employment in the economy. In Europe we estimate that about 420,000 people, or 0.3 percent of the total employment, are engaged in the air transportation industry.

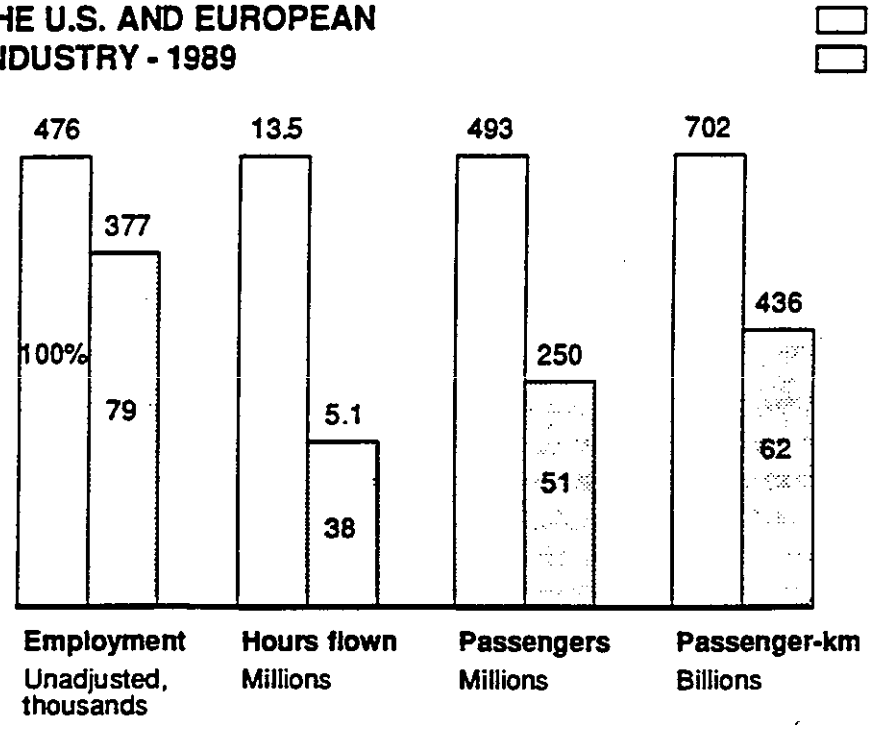
While the air transportation industry encompasses both airports and airlines, we focus our comparison primarily on airlines. We define the airline industry as the passenger operations of the scheduled airlines in the U.S. (major, regional and commuter airlines) and the scheduled and unscheduled (charter) airlines in Europe (European Community, Austria, Scandinavia, Switzerland, and Yugoslavia) (Exhibit 2A-1). To obtain a more homogeneous industry sample, we excluded the cargo business from this study. The major services provided by the airline industry are (Exhibit 2A-2):

- ¶ Scheduled passenger services. These are flights which are either scheduled and flown according to a published timetable, or are at least regular enough to constitute a recognizably systematic series. Scheduled passenger service is mainly provided by major carriers like American Airlines or British Airways, which mostly operate nationally and internationally. Their service is complemented by regional and commuter airlines like Air Wisconsin or the German NFD, which concentrate on relatively small markets and feed the networks of the major airlines. Scheduled service in the U.S. and Europe is dominated, however, by the major airlines.

- ¶ Charter (or non-scheduled) passenger services. These are flights which airlines provide on an irregular basis. Major, regional and commuter airlines are focusing on scheduled services and offer charter services only to a limited extent. For example, in 1990, only 4 percent of all passenger-kilometers flown by International Air Transport Association (IATA) airlines were in the charter mode. Charter service, however, still plays a major role in Europe and – to a lesser degree – on the North Atlantic routes. Specialized charter carriers like Britannia Airways or LTU in Germany account for about 65 percent of international passenger-kilometers within Europe. The major market for charter airlines is the low-cost leisure traveler flying to the Mediterranean, especially on routes from the U.K. or Germany to Spain. The penetration of charter airlines on the North Atlantic routes is about 7 to 8 percent. The European charter airlines account for about 30 percent of all passenger-kilometers flown by European airlines. In terms of employment, however, charters account

Exhibit 2A - 3

SIZE OF THE U.S. AND EUROPEAN AIRLINE INDUSTRY - 1989



Source: IATA; ICAO; RAA; EURACA; McKinsey estimate

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for only 8 percent of the industry. Since leaving out the charter industry would therefore mean neglecting the most productive mode in Europe, we decided to include European charter airlines in our comparison.

¶ Cargo services. Cargo services are aircraft operations offering capacity for freight and/or mail. The major European airlines dominate the cargo business in Europe, either with dedicated cargo fleets or with combi-aircrafts for passengers and cargo. In the U.S., cargo services are primarily provided by specialized freight carriers like Federal Express. As a result, in terms of total freight-tons carried, the U.S.-scheduled airlines transport about 40 percent less cargo than their European counterparts. However, even in Europe, the importance of dedicated cargo flights is limited; only about 2 percent of all the scheduled carriers' flights were dedicated cargo flights.

Using our definition of the airline industries, Exhibit 2A-3 shows the relative size of the U.S. and European airline industries in terms of employment, hours flown, passengers transported, and passenger-kilometers flown.

Our comparisons are mainly based on an aggregation of statistics provided by the IATA, the International Civil Aviation Organization (ICAO), the Regional Airline Association (RAA) and the European Air Carrier Assembly (EURACA) for the European charter carriers. Due to differences in these statistics, however, we will refer for some analyses to individual statistics from the IATA- or ICAO-members of the airline industry.

MEASURING LABOR PRODUCTIVITY IN THE AIRLINE INDUSTRIES

Productivity in the airline industries has been the subject of several comparative studies so far. All of these studies found a productivity difference between the U.S. or North American and the European airline industries of about 15 to 48 percentage points (with U.S. productivity as 100 percent) in the 1980s. Each study measured productivity on the basis of a single output measure.

Measuring Single-Output Productivities

¶ Windle compared the total factor productivity of 14 U.S. and 16 European airlines in 1983. He measured a higher productivity on the part of the U.S. carriers of 19 percentage points. He defined output as the revenue-weighted index of scheduled revenue passenger-miles, non-scheduled revenue ton-miles of passengers and freight, and scheduled revenue ton-miles of cargo. As inputs he used indices of labor, fuel, flight equipment, materials and ground property and equipment.

¶ Good et al analyzed four European and seven U.S. airlines for the period 1976 to 1985. They concluded that the U.S. airlines had, on average, a total

factor productivity advantage of about 15 percentage points over the Europeans. The productivity of British Airways was on about the same level as that of the U.S. airlines, but the remaining three European airlines differed in productivity by nearly 30 percentage points. Output was measured in revenues, and input was defined as labor, fuel, materials and aircraft fleet.

- ¶ Noyelle/Stanback computed labor productivity for 11 European and 16 North American airlines for 1983 and 1988. They measured the airlines' output in total ton kilometers (which combines cargo-ton kilometers and passenger-ton kilometers, assuming that each passenger and his or her luggage equals 90 kilograms). .The number of employees was the only input factor. The productivity of the North American sample was 22 percentage points higher in 1983 and 15 percentage points higher in 1988. Using a multiple regression model to adjust for differences in average stage length and weight load factor between the North American and European sample, Noyelle/Stanback saw the productivity differences widen to 32 and 48 percentage points, respectively.

These approaches to comparing productivity in the U.S. and European airline industries on the basis of a single output measure and a limited sample of airlines have some weaknesses.

- ¶ Single output measures do not reflect the inhomogeneity of the industry output, either as output is perceived by customers (passenger versus freight transportation), or produced by the airlines (e.g., handling passengers, flying, and maintaining airplanes). Single output measures are therefore subject to distortions caused by differences in the output mix of airlines and airline industries.

- ¶ These distortions increase if the sample of airlines in each industry is relatively small and corrections for contracting out and contracting in services between airlines and third parties are not taken into account. In Europe, more than in the U.S., these contracting out/in relationships are very common, especially in maintenance and airport handling.

Moreover, single output measures do not shed light on the sources of differences in labor productivity. We therefore tried to apply the concept of functional productivity to measure and compare labor productivity in each of the major functions of the airline industries.

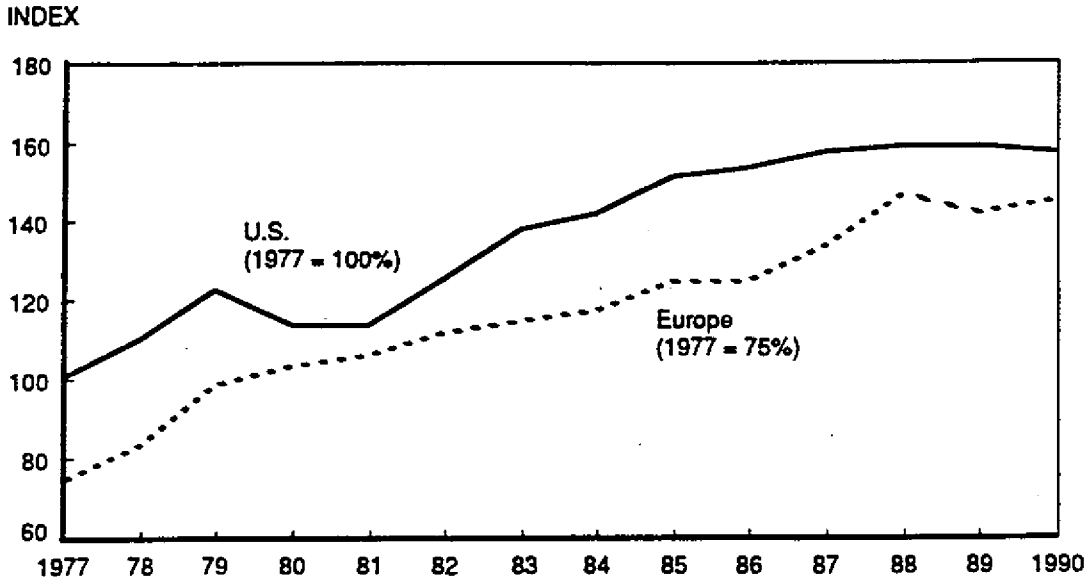
Measuring Functional Productivity

A McKinsey benchmarking study in 1977 applied the functional productivity approach in a study of five U.S. and four European airlines and one Australian airline. With the close cooperation of the airlines, the study derived labor productivities for over 100 employment categories or functions. Comparability

Exhibit 2A - 4

AIRLINE INDUSTRY* PRODUCTIVITY – 1977-90

Passenger-km per employee



* Trend based on ten major airlines for Europe; scheduled airlines for U.S.

Source: Air Transport Association of America; McKinsey benchmarking study 1977; Air Transport World

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Exhibit 2A - 5

MAJOR FUNCTIONS IN THE AIRLINE INDUSTRY

Function	Cockpit crew	Cabin attendants	Airport handling	Maintenance, overhaul	Ticketing, sales, promotion	Other personnel
Description of personnel	Pilots, co-pilots, other cockpit personnel (i.e., flight engineers and navigators)	Stewards, stewardesses, hostesses, pursers	All traffic and aircraft handling, (e.g., ramp and passenger handling, cargo, load control, catering, cleaning, security, ground equipment maintenance, cabin crew management; planning and training, etc.)	Aircraft engineering, maintenance, overhaul and repair personnel including corresponding administration and management	Reservations, ticketing, sales, marketing, scheduling, and tariffs	General management and administration, finance, legal, personnel, and corporate planning staff
Adjustments for input (employees)			Cargo Contracting in/out* (airports, third parties)	Third party work	Own sales vs. agent sales*	
Output measure	Hours flown	Passenger-km performed	Passengers transported	Standard fleet maintained* or passenger-km performed	Passengers transported	Passengers transported

* Not used/adjusted for in preliminary analysis

Source: IATA

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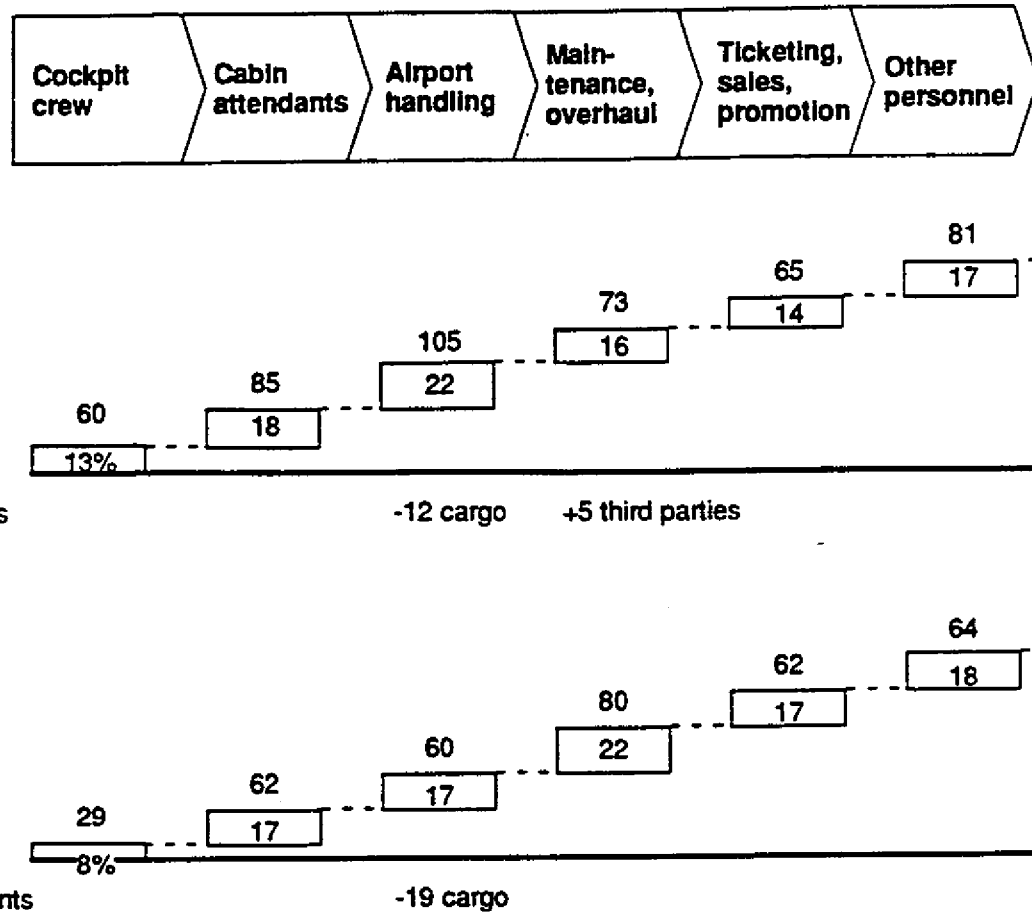
Exhibit 2A - 6

ADJUSTED EMPLOYMENT IN THE U.S. AND EUROPEAN AIRLINE INDUSTRIES – 1989

Thousands



Source: IATA; ICAO; RAA; EURACA; McKinsey estimate; Air Transport World 7/90

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across companies was ensured by various adjustments to the output and input sides of each of these measures. This study found an overall labor productivity difference of about 25 percentage points between the U.S. airlines and the European/Australian sample. Assuming that the samples were representative for both industries in 1977, we can use simple passenger-kilometer and employment indices to extrapolate the labor productivity of the industries (Exhibit 2A-4). This would imply a somewhat smaller productivity difference of 18 percentage points between the U.S. and European airline industries in 1989. However, the industry sample for 1977 is too small (e.g., no charter airlines) and the productivity measure used in the time series (passenger-kilometer per employee) is too simple to inspire much confidence in the extrapolated productivity results for 1989.

We therefore developed a less detailed but more up-to-date comparison of functional productivities in the airline industry. We first broke the airline business down into six major functions (Exhibit 2A-5). For each function, we defined an output measure that could be measured for the whole industry and that comes close to the "real" industry output of this function. On the input side we basically started out with the employment figures reported in the IATA, ICAO and other statistics. In some cases, however, we had to make adjustments and estimates to obtain industry-wide output and input figures and to increase their comparability.

Differences in Functional Productivity

Exhibits 2A-3 and 2A-6 show the output and adjusted input measures for the U.S. and European airline industries in 1989. The ratios of output and input, the functional productivities, are illustrated in Exhibit 2A-7. Again, the productivity comparison reveals significant productivity differences between the U.S. and European airlines. The differences in labor productivity, however, are not of the same magnitude in each function, and the overall difference includes:

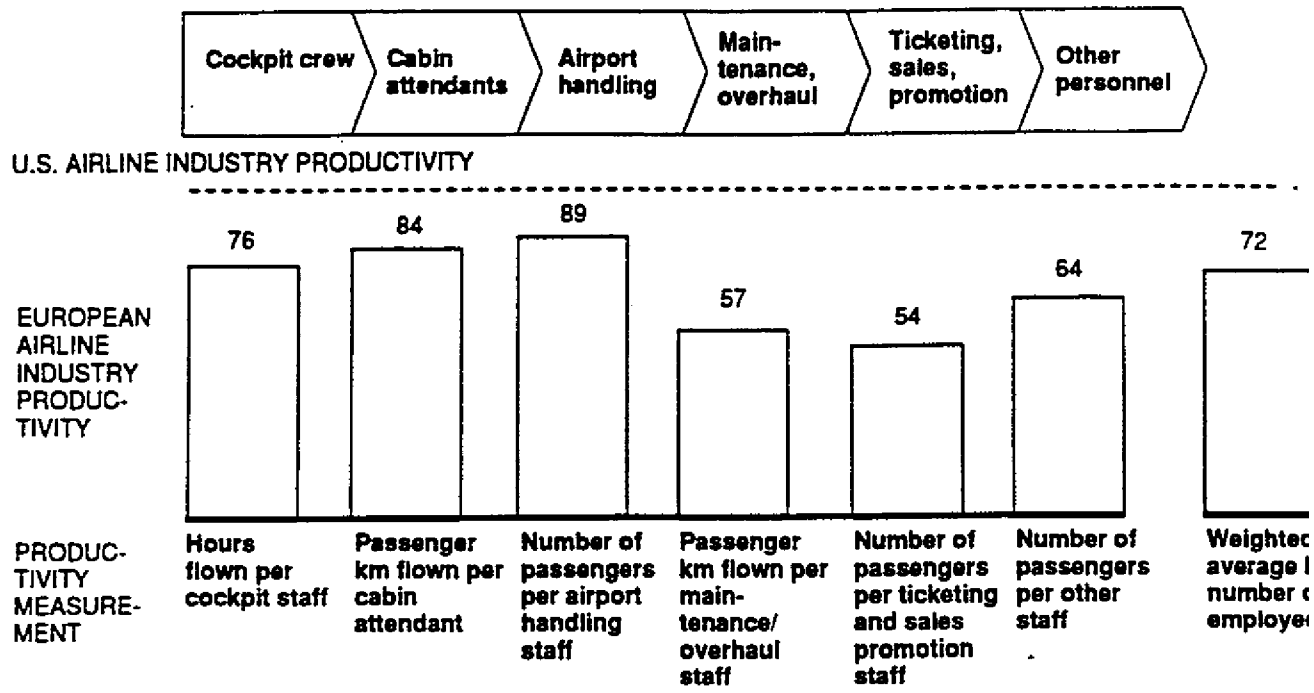
- A 24 percentage point difference in the productivity of cockpit personnel. The measurement of cockpit personnel productivity is quite straightforward. Hours flown seems to capture the output of the cockpit crew very well, as the correlation of hours flown and number of cockpit personnel per airline confirms (Exhibit 2A-8). We therefore chose the (unadjusted) hours flown per airline as our output measure and regarded differences in fleet structure (2- or 3-person cockpit) and route mix as causal factors for the observed productivity differences. Adjustments for differences in cargo mix are not necessary, since cargo flights are captured in the output figures as well as in the labor input.

- A 16 percentage point difference in the productivity of cabin attendants. The service of the flight attendant is primarily related to the passenger and the duration of his or her flight. Passenger-kilometer as an proxy measure for the output of cabin attendants captures both dimensions, which is confirmed by the high correlation between passenger-kilometers flown

Exhibit 2A - 7

PRODUCTIVITY LEVELS EUROPEAN AIRLINE INDUSTRY – 1989

U.S. PRODUCTIVITY = 100%



Source: IATA; ICAO; RAA; EURACA; McKinsey estimate

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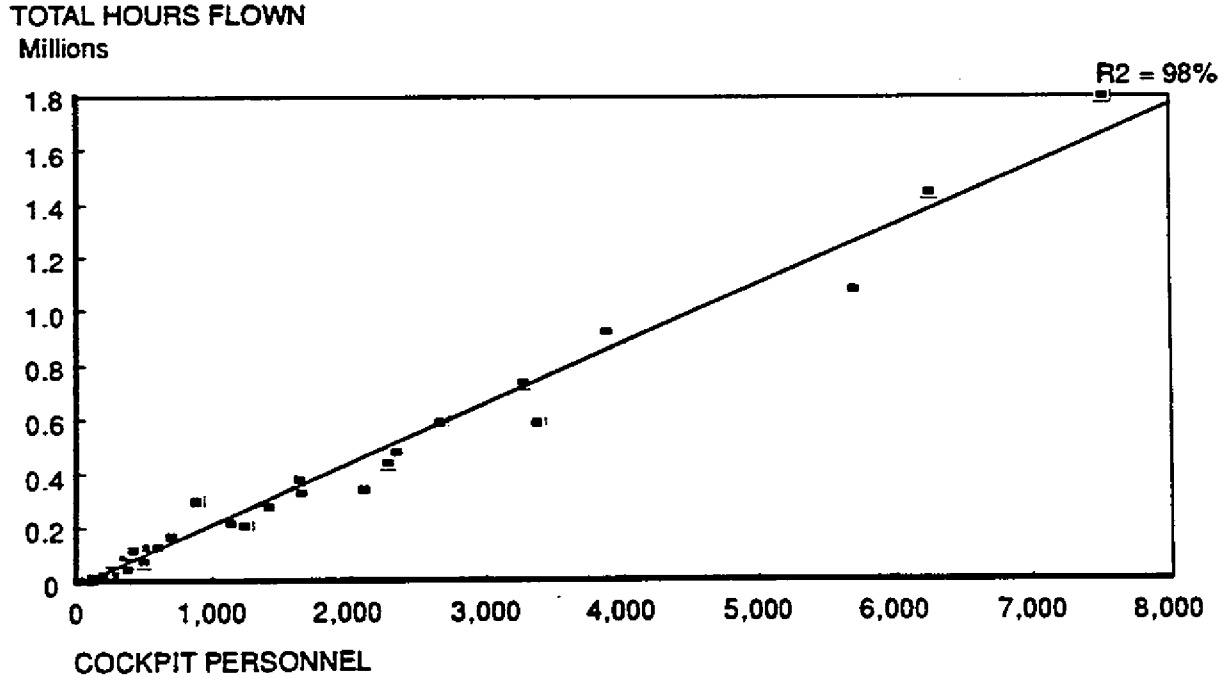
Exhibit 2A - 8

CORRELATION BETWEEN TOTAL HOURS FLOWN AND COCKPIT PERSONNEL

U.S. AND EUROPEAN AIRLINES 1989



Source: IATA

ZXE-119362

¶ A 43 percentage point productivity difference in maintenance and overhaul. The labor requirements in maintenance and overhaul are basically a function of the type and age of planes and their usage in terms of departures and hours flown. The appropriate output measure in maintenance would therefore be the number of "standard" planes, which makes the individual fleets with different structure and usage comparable. However, we use passenger-kilometers flown as a surrogate measure. This measure at least captures the aspects of plane size, number of departures and hours flown. Neglecting the age factor in our measure is a conservative approach, since the average age of planes is higher in the U.S. than in Europe. We therefore do not think that our productivity measure exaggerates the productivity gap we observe.

In Europe, airlines specialize in certain maintenance jobs, and service contracts among airlines for maintenance and overhaul services are very common. Since we aggregate the individual carriers to industries, however, we do not think that this affects our productivity measures in a significant way. Third-party work in the U.S. is a fairly recent development. We estimate that at most about 5,000 third-party employees provided services to the U.S. industry in 1989 and we adjusted our input measure accordingly. Third-party work in Europe (other than by airlines) does not play a significant role yet.

¶ A 46 percentage point difference in productivity of ticketing, sales and promotion personnel. We used passengers as an output measure for the ticketing, sales and promotion personnel. Due to limited information, we did not adjust this measure to account for tickets sold by agents and those sold by the airlines personnel. However, some data indicate that the proportions do not vary dramatically among airlines and between industries, and that our output measure is valid.

¶ A 36 percentage point difference in productivity of other personnel. This function encompasses all personnel in other categories, such as general management, administration, finance, personnel and corporate planning. Again, we used the number of passengers transported as an output measure for the other personnel. This is based on the assumption that the employment in this function is directly or indirectly related to the size of the airline or industry.

We can combine these six functional productivity measures to compute an index that reflects the aggregated overall labor productivity levels in the U.S. and European airline industries. Obviously, the numerators of the functional productivity measures cannot be added. But we can, for instance, define the U.S. productivity in each function as 100 percent and calculate for European airlines the weighted average of their relative functional productivities in each function versus the U.S., as shown in Exhibit 2A-7. The weighting scheme should reflect the

Exhibit 2A - 9

CAUSALITY OF PRODUCTIVITY DIFFERENCES IN THE U.S. AND EUROPEAN AIRLINE INDUSTRIES - 1989

External forces	Management behavior	Production process	Labor producti
Regulatory environment, state ownership, and labor relations constrain or impede European management to change and restructure Differences in scale and structure of demand of subordinated importance	In lack of pressure and opportunities to change and improve productivity, European management focuses on other issues U.S. management has to change networks, service, and costs quickly to survive in a very competitive environment	Different output mix U.S./Europe - European charter more productive, scheduled less - More intercontinental routes by European airlines - Higher quality of inflight product Differences in organization of non-flying personnel Scale/complexity disadvantage of European airlines in maintenance, sales, and general administration Hub and spoke technology rather to the disadvantage of the U.S. Limited impact of information technology	28 perce points productiv advantag the U.S. (100%) v Western Europe

Source: McKinsey analysis

Exhibit 2A - 10

MAJOR CAUSES OF PRODUCTIVITY DIFFERENCES BY FUNCTION
U.S. AND EUROPEAN AIRLINE INDUSTRIES 1989

Major ca

Causes on the level of the production process	Cockpit crew	Cabin attendants	Airport handling	Maintenance/ overhaul	Ticketing, sales, promotion	Other personne
Output mix (variety, quality)	• Network structure • Hub and spoke technology to the disadvantage of the U.S.	• In-flight product quality • Network structure				
Scale and complexity				• Small fleet size	• Improvements through indus restructuring possible	
Capital						
Organization of labor			• Rostering • Centralization/decentralization • Flexibility of labor			

Source: McKinsey analysis

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relative importance of the different functions of the airline industries and should therefore be derived from the employment distribution (Exhibit 2A-6).[1] We set U.S. productivity at 100 percent, and in 1989 the overall productivity of the European airline industry was 28 percent lower, at 72 percent.

Now that we have stated productivity levels for the U.S. and European airline industries in 1989 and observed a significant productivity difference in favor of the U.S., let us turn to the question of where these differences come from.

CAUSES OF THE OBSERVED PRODUCTIVITY DIFFERENCES

Exhibit 2A-9 summarizes our explanation of the differences in labor productivity we measured in the U.S. and European airline industries. We believe that on the level of the production process, the major causes of the productivity gaps can be found in a different output mix and differences in the organization of labor and scale of individual airlines. The U.S. hub-and-spoke technology, for example, rather lowers U.S. labor productivity. On the second level of causality, differences can be explained by a deregulated and privatized U.S. industry environment on the one side and a heavily regulated and state owned industry in Europe on the other side. As a result of these external factors, the behavior, freedoms, and the decisions of the U.S. and European airline managers make different decisions about how to run their airline businesses and they create production processes with different productivities.

In the following section we will investigate in more detail the differences in what we called the production process and discuss which differences are important and which are not. Then we will turn again to the external factors and their impact on management behavior.

Causality on the Level of the Production Process

In each function of the airline industry, we have identified specific proximate causes for the measured productivity differences between the U.S. and European airline industries (Exhibit 2A-10). U.S. hub-and-spoke technology decreases airline labor productivity in the U.S. somewhat, especially in the function of airport handling. Differences in output mix explain the productivity gaps between the flying personnel while scale and complexity are important to understanding labor productivity of the maintenance, sales, ticketing and other personnel.

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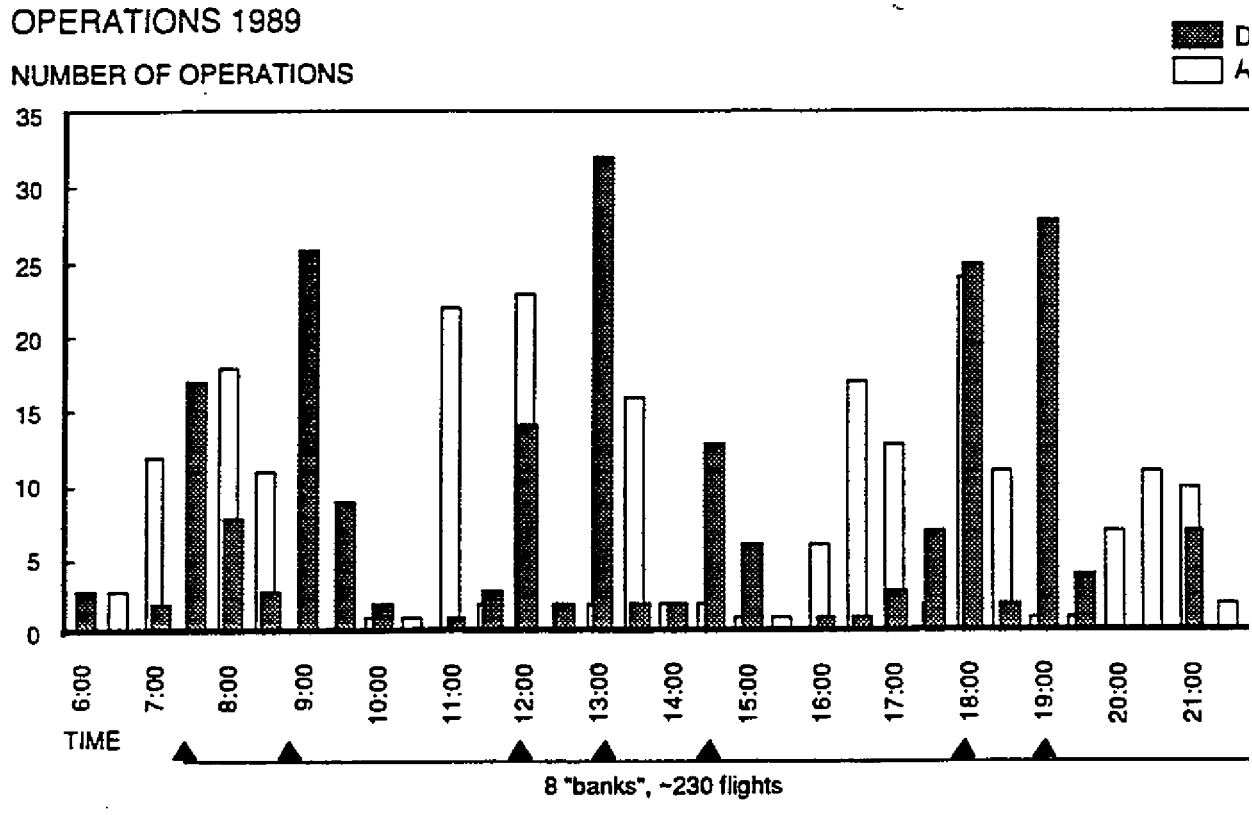
[1] Since the employment structure differs slightly from country to country, we first computed the overall labor productivity indexes twice, using in each case the U.S. and the European labor weights. Then we took the geometric average from those two index numbers as the final overall productivity index.

Exhibit 2A - 11

NORTHWEST ARRIVALS AND DEPARTURES IN MINNEAPOLIS/ST. PAUL
OPERATIONS 1989



Source: U.S. Department of Transportation

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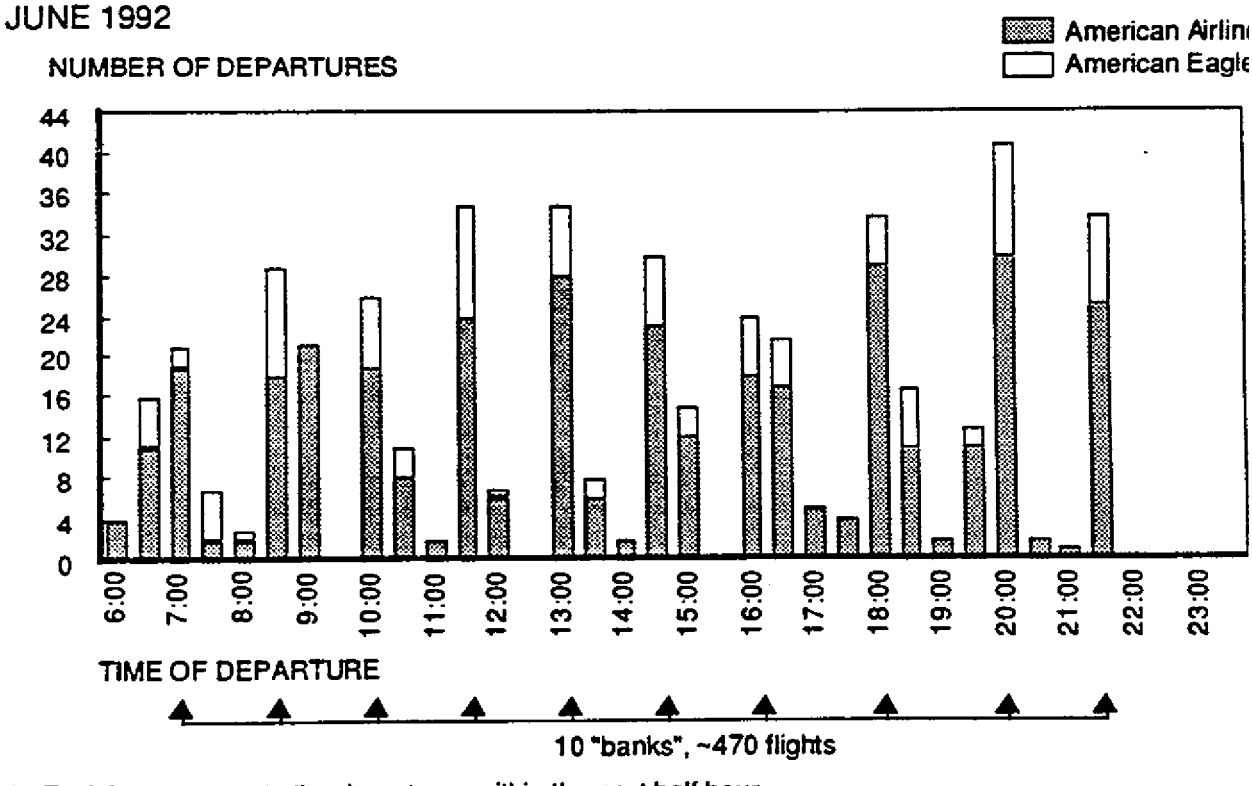
Exhibit 2A - 12

DEPARTURES* FROM CHICAGO O'HARE AIRPORT
JUNE 1992



* Each bar represents the departures within the next half hour

Source: American Airlines Timetable

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Organizational differences are causal for the remaining differences in productivity of the ground personnel.

¶ Differences in Output Mix: the Impact of Hub-and-Spoke

Shortly after deregulation freed managers to restructure their networks, the U.S. industry moved from a linear network to a hub-and-spoke network. By the mid-1980s, the hub-and-spoke system had already revolutionized the U.S. airline industry and at the end of the decade, U.S. airlines operated about 30 hubs which, in terms of flight pattern and frequency, produce a different output than non-hub airports.

The hub technology is distinguished from the operation of a large airport or homebase like Frankfurt or London-Heathrow by the coordination of the incoming and outgoing flights and the resulting flight pattern. Several times during the day, waves of flights come in and leave again about 60 to 90 minutes later. In between passengers from any arriving flight can transit to a connecting flight. In 1989 for instance, Northwest's hub in Minneapolis/St. Paul had about 8 waves or "banks" per day with the biggest departure peaks at about 9:00 am, 1:00 pm and 6:00 to 7:00 pm (Exhibit 2A-11). The arrival peaks were roughly one hour earlier.

The transformation of the U.S. airline industry to the hub-and-spoke system was driven by demand and revenues, rather than by cost. Given the traffic dispersion in the U.S. and given customers' desire for frequency between origination and destination cities, the hub-and-spoke technology is the only economical way to offer fast and frequent air transportation at convenient times to most of the travelers. Consequently, the carrier which could offer an advanced hub-and-spoke network could attract more customers and gain a competitive advantage over its competitors through superior traffic economies and revenues.

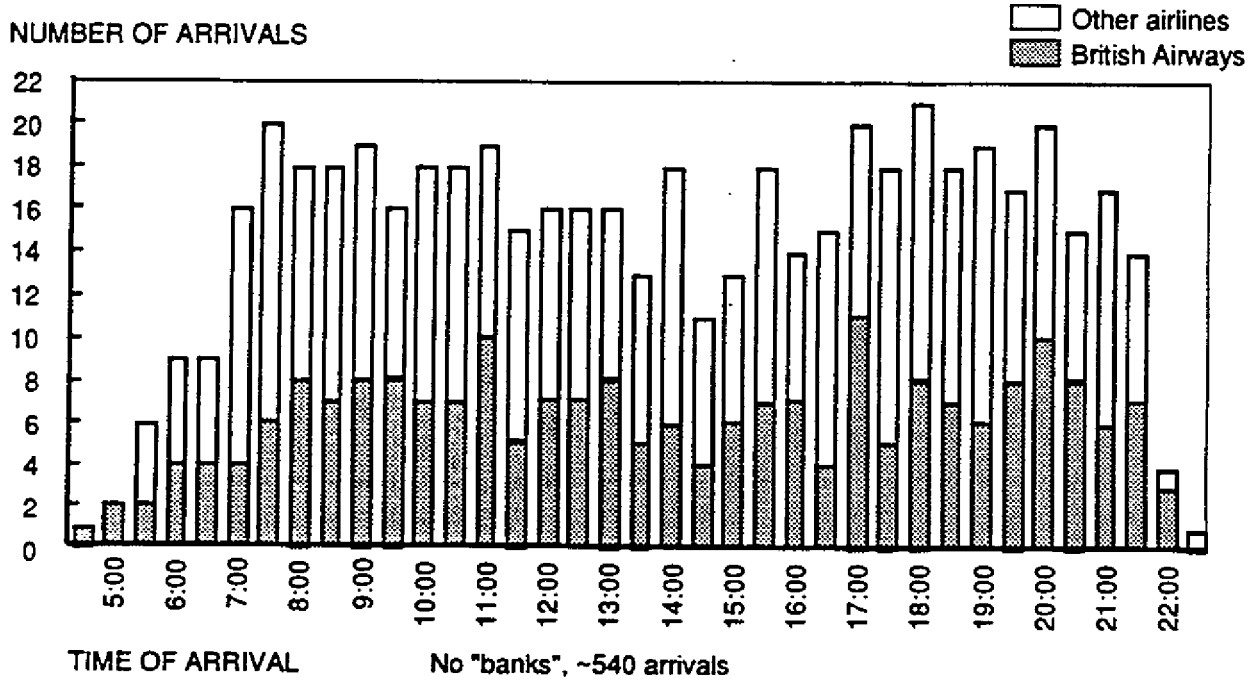
Whereas the hub-and-spoke system has increased service quality and variety for most of the customers (e.g., higher frequency of flights), we think that hubbing has generally had a negative impact on labor and capital productivity, at least to the extent that we are not able to measure customer utility as an output. The price for the hub-and-spoke technology is extremely peak driven operations at the hub, with unfavorable implications for labor and capital utilization.

- For the ground operations, hub-and-spoke operations require high organizational skills and labor flexibility to manage huge peaks and labor utilization at the hub. In Minneapolis for instance, the workload drops sharply after the morning peak of 26 departures in 30 minutes and for two hours there are almost no departures at all. And even at primary hubs like Chicago O'Hare, this peak pattern persists (Exhibit 2A-12). In contrast, at non-hub airports in Europe, or even at

Exhibit 2A - 13

AIRPLANE ARRIVALS* INTO HEATHROW

JUNE 1992



* Each bar represents the arrivals within the next half hour

Source: OAG Pocket Flight Guide

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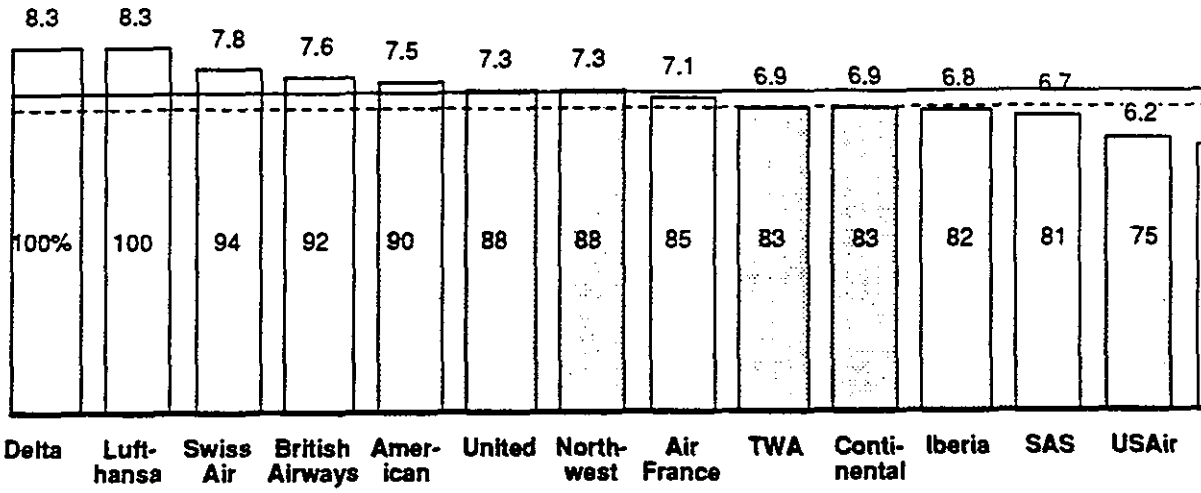
Exhibit 2A - 14

AIRCRAFT UTILIZATION OF MAJOR U.S. AND EUROPEAN CARRIERS – 1989

NARROW BODIES*

Average aircraft hours flown per day



* B-757, B-737, B-727, DC-9, MD-80

Source: IATA; ICAO; McKinsey analysis

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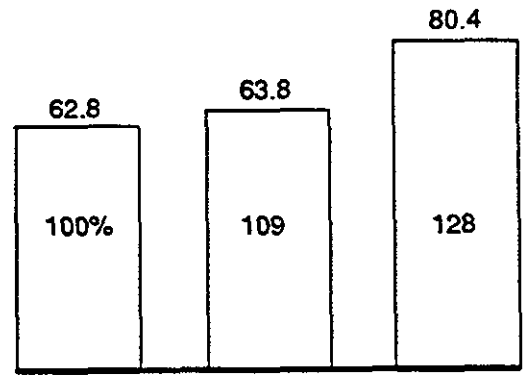
Exhibit 2A - 15

PASSENGER LOAD FACTOR OF U.S. AND EUROPEAN IATA AIRLINES – 1989

Passenger - km flown/available seat - km in percent



Source: IATA; ICAO

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big spoke airports like Boston, the patterns of arrivals and departures, and thus the workload over time, is much smoother (Exhibit 2A-13). All other being things equal, this should give a European airline at least the opportunity to achieve higher labor utilization and productivity among ground personnel at its homebase than a U.S. carrier could at its hub. As far as the ground operations and labor productivity at spoke airports is concerned, it is not obvious that hub-and-spoke has any significant effects on labor productivity.

- The hub-and-spoke system is not likely to enhance the labor productivity of the flying personnel either. On average, the stage length in a hub-and-spoke mode will be shorter than in a linear network, which increases the ground time of the crews. Moreover, the increased interdependency of flights lengthens the minimum turnover time of planes at the gates. The passenger and his or her luggage off even the last incoming plane must have time to get the first outgoing flight. This leads to rather longer turnover times and less flying time for the crews. As a result, the U.S. shift to a hub-and-spoke network has at least not led to a significantly higher aircraft utilization of major U.S. airlines versus major European airlines (Exhibit 2A-14). Moreover, the hub-and-spoke technology does not provide higher load factors for the U.S. airlines (Exhibit 2A-15).

- The capacity of the structures and equipment at the hub has to be dimensioned according to peak requirements, too. A hub-and-spoke network is therefore relatively capital intensive, e.g., in terms of runway, gate and baggage handling capacity.

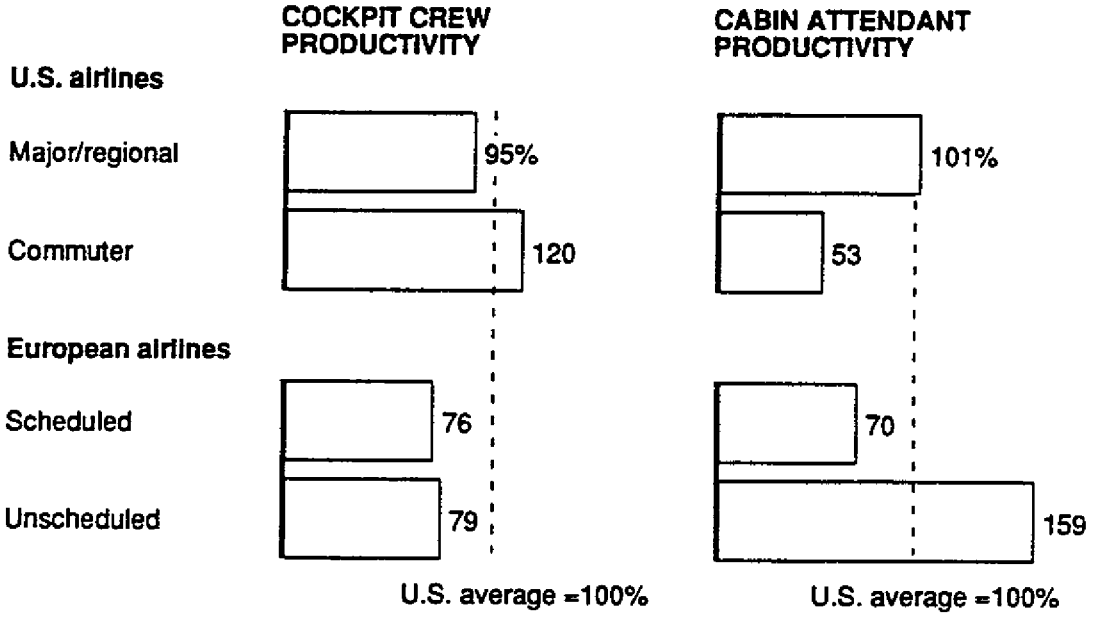
We therefore conclude that the shift to a hub-and-spoke mode of operation in the U.S. works to the disadvantage of the U.S. when it comes to labor as well as capital productivity. Especially in ground operations, the U.S. airline industry is more productive despite the hub-and-spoke system, not because of it. But the U.S. industry has taken action to overcome the utilization problems of a hub-and-spoke network, e.g., structuring the network to assure a minimum size of the hub (at least 6 banks per day), using more part-time workers and increasing the flexibility of labor (e.g., cabin attendants at the gate).

The discussion of the U.S. hub-and-spoke system also reveals that our physical output measures are missing an important qualitative aspect of the U.S. airline industry, namely the overall network performance, i.e., the ability to provide frequent services to hundreds of destinations in a reasonable time. To the benefit of the consumer, this output quality is provided at the expense of higher factor inputs, without being captured in our productivity measure. In that respect, we are rather underestimating the productivity of the U.S. industry from the consumer point of view. In

Exhibit 2A - 16

FUNCTIONAL PRODUCTIVITIES FOR U.S. AND EUROPEAN FLYING PERSONNEL – 1989

Percent of U.S. average



Source: IATA; ICAO; RAA; EURACA; McKinsey estimate

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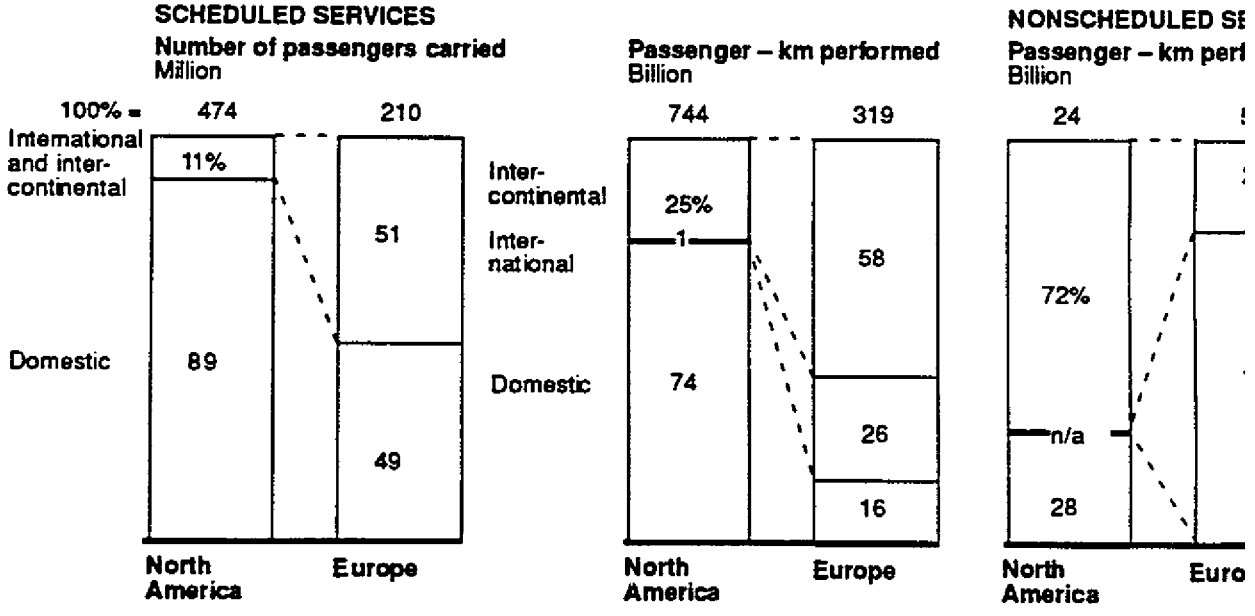
Exhibit 2A - 17

INTERCONTINENTAL, INTERNATIONAL*, AND DOMESTIC TRAFFIC – 1989

NORTH AMERICA AND EUROPE



* Within North America and within Europe

Source: ICAO; McDonnell Douglas; McKinsey estimate

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addition, the coincidence of deregulation and the shift to a hub-and-spoke network in the U.S. makes it difficult to compare labor productivity between the U.S. and Europe over time, or to draw conclusions from the changes in labor productivity after 1978 about the impact of deregulation in the U.S.

¶ Differences in Output Mix: the Productivity of Flying Personnel

The notion of service quality and variety will also help us to understand the reasons for the productivity gap we measured for flying personnel, i.e., cockpit crews and cabin attendants. Differences in the output mix of the U.S. and European industry are the primary reasons for the measured productivity gaps. In other words, the services offered in both industries are not exactly the same, which causes the difference in measured functional productivity. Besides the major difference in network technology (hub-and-spoke versus linear network), we observe three other important distinctions between U.S. and European industry output which could affect the relative productivity of flying personnel.

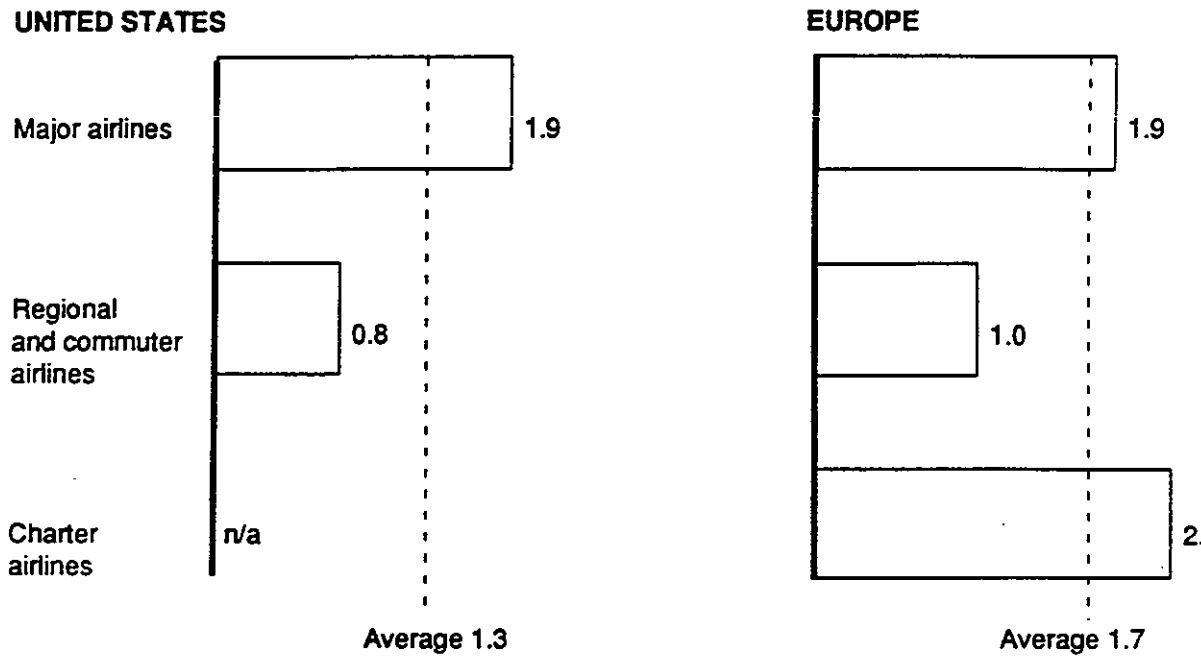
- Different mode of transportation: The labor productivity of flying personnel varies with the mode of transportation, i.e., scheduled, commuter and charter services (Exhibit 2A-16). In the case of the cabin attendants working for the European charter airlines, their "productivity" is not only more than twice as high than the "productivity" of European scheduled airlines, but also significantly higher than the U.S. average. The difference, however, reflects a lower service level on board chartered aircrafts rather than a "real" advantage in productivity. Higher seat density and less labor intensive inflight services allow fewer flight attendants per passenger-kilometer compared to the major carriers. The fact that 30 percent of the European passenger-km are flown in charter mode disguises the productivity difference of 31 percentage points between the U.S. major/regional airlines and the European scheduled airlines. We therefore measure difference in productivity levels of only 16 percentage points for cabin attendants.

- Different routes served: The 31 percentage point productivity difference for flight attendants for scheduled airlines in the U.S. (excluding commuters) and Europe, as well as the overall 14 percentage point discrepancy for the cockpit personnel, can partly be explained by differences in route structure. The output of the European carriers is dominated by international and intercontinental traffic (Exhibit 2A-17). Although the average stage length is similar for at least the major carriers in the U.S. and Europe (Exhibit 2A-18), the mixture of routes and destinations is quite different. Whereas Northwest, for instance, concentrates on the national market and serves only 20 cities outside of

Exhibit 2A - 18

AVERAGE STAGE LENGTH U.S. AND EUROPEAN AIRLINE INDUSTRY

HOURS FLOWN PER DEPARTURE –1989



Source: ICAO; IATA; RAA; EURACA; McKinsey estimate

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North America, KLM offers service to 70 destinations outside of Europe. This different route mix of U.S. and European carriers affects the productivity of flying personnel. A McKinsey analysis of two U.S. and six European carriers shows that more layover time, together with longer vacations, accounts for a 17 percent higher input of cockpit personnel per block hour.[2] The higher layover time for European crews can be explained by the higher share of intercontinental flights among the European carriers. Special rest rules after long flights and lower frequencies on these routes result in more layover time per hour flown than on national long- and short-haul flights of the U.S. carriers.

- Different inflight product: The European inflight product differs from the average U.S. offer in two respects. It is generally perceived that the mix of first, business and economy class is more skewed to the high in Europe. Moreover, the product offer in similar classes is of superior quality on European flights (e.g., warm meals and newspaper service on inter-European short-haul flights). Both quality aspects of the inflight product are not picked up by our output measure (passenger-kilometers flown). And since these additional services on European flights can be only provided at the expense of higher labor input, our measured productivity for European cabin attendants should be lower than in the U.S. In any case, pure staffing levels of cabin attendants per aircraft type are a question of service quality rather than labor productivity and are – within the limits of safety regulations – fully at the discretion of management.

We think that most of the measured productivity differences of flying personnel can be explained by the differences in output mix. The productivity differences in the other airline functions seem primarily to be caused by differences in scale and organization of labor, while differences in capital used does not seem to be an important factor. Although information technologies and systems play a pivotal role in marketing and yield management, and can help management to plan and organize labor more effectively (e.g., by planning systems for ground services or maintenance), we have not found evidence yet that differences in the application of these systems explain productivity differences.

¶ Differences in Capital Used

The U.S. and European airlines all use the same basic aircraft equipment from the three global producers: Boeing, Airbus, and McDonnell Douglas. The fleet structure in operation, however, is different and reflects the

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2 Block hours is equal to flight hours plus the time needed to and from the gate.

differences in the route network. Whereas the U.S. industry uses more commuter and narrow body planes like the B-727 to feed and run the hub-and-spoke system, the European airlines operate more wide body planes (e.g., the B 747-400) to serve their intercontinental routes (Exhibit 2A-19). In terms of people needed in the cockpit, however, the structure of the U.S. and European aircraft fleet is almost identical. This is mainly due to the intensive use of narrow body B-727 planes in the U.S., which are still manned with three people. On average, the European and U.S. airlines need the same number of personnel in the cockpit per plane hour flown. The different mix of capital equipment used therefore fails to explain productivity differences between Europe and the U.S. We also did not find any evidence that the U.S. industry uses more or more modern hardware technologies that would explain the productivity difference.

¶ The Impact of Scale and Complexity

Without doubt, there are enormous revenue-scale economies in the airline industry. Competitive advantages of a big customer base and customer loyalty, created by a dense route network, have driven both the concentration of the U.S. airline industry since 1985 and the emergence and growing importance of computer reservation systems, frequent flyer programs and code sharing agreements. But as far as labor productivity is concerned, scale economies are not so obvious. We would not expect that the productivity of flying personnel would change significantly with scale. Economies of scale, however, could be an important factor for labor productivity in the airport handling, maintenance, sales/ticketing and corporate management and administrative functions.

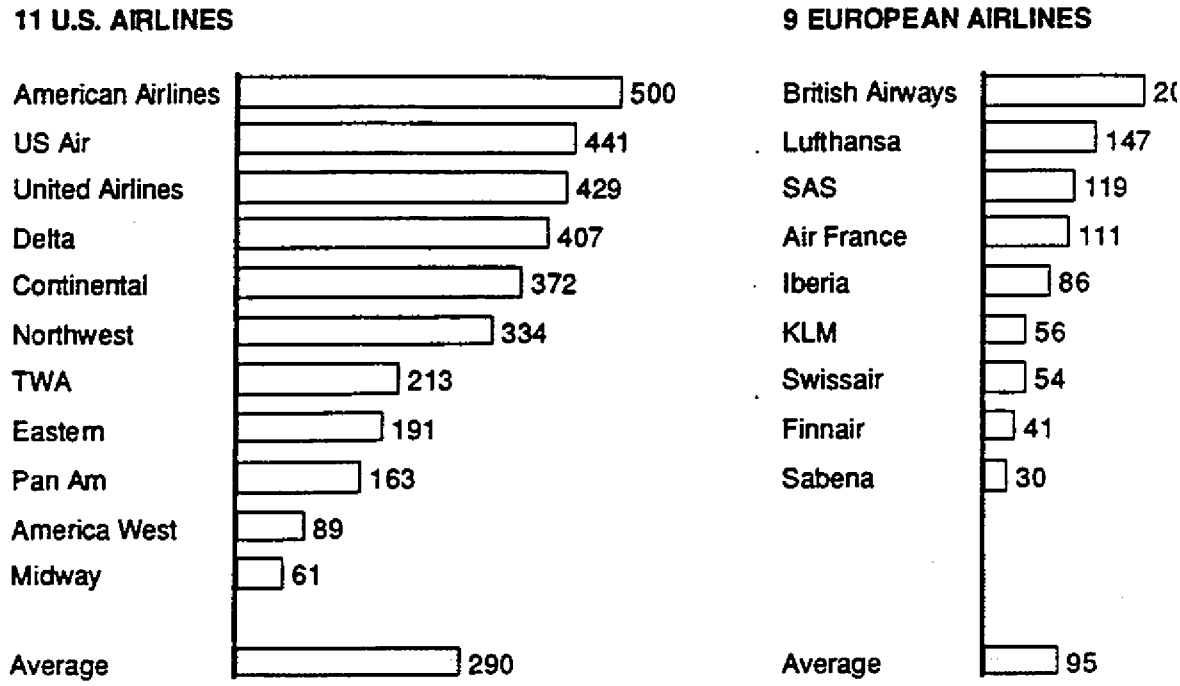
- The European airlines could have scale disadvantages in the airport handling function. Demand in Europe is lower and thus the European airports are smaller than U.S. airports (Exhibit 2A-20). Unlike their U.S. counterparts, however, European airlines share extensive resources on the ground, especially in those functions which do not have a direct customer contact. Additionally, the airport authorities in Europe usually provide ground services to airlines. This at least gives the European (and American and other non-European) airlines the opportunity to contract out those functions in which they do not reach a critical scale. We therefore do not see the European airline industry at a scale disadvantage versus the U.S. There are even voices reckoning that smaller airports can operate more efficiently than bigger ones because of their greater flexibility.

- The European airlines are much smaller than the U.S. carriers. In terms of fleet size, even the top three European carriers together did not reach the scale of American Airlines in 1989 (Exhibit 2A-21). This raises the question of whether the European airlines have the

Exhibit 2A - 21

SIZE OF U.S. AND EUROPEAN MAJOR AIRLINES - 1989

Number of planes



Source: ICAO

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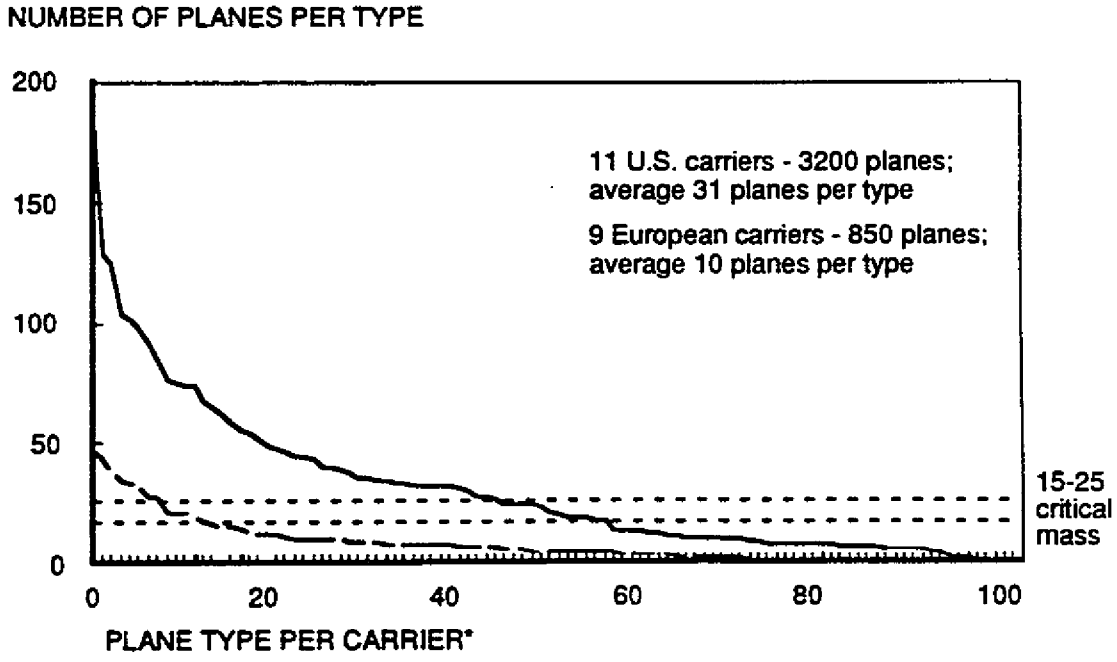
Exhibit 2A - 22

NUMBER OF PLANES PER TYPE AND PER CARRIER

11 U.S. AND 9 EUROPEAN MAJOR CARRIERS



* Each plane type (e.g., B737-200) is counted separately for each carrier

Source: ICAO

ZXE-119 374

necessary scale to operate their maintenance shops productively, i.e., with high labor specialization and utilization. Crucial for scale economies in aircraft maintenance is the size of the sub-fleets, i.e. the number of aircrafts of the same type and specification (e.g., B 737-300 or A-310). It is estimated that the critical size of a sub-fleet is about 15 to 25 planes of one type. While the European and U.S. airlines operate on average the same number of aircraft types (about 10), the number of planes per type in the U.S. is three times higher than in Europe (Exhibit 2A-22).

In order to compensate for this scale disadvantage, European airlines to some extent pool their maintenance efforts, either by contracting out or by contracting in maintenance services to or from other airlines. In 1989, for instance, KLM provided maintenance services to 40 customers, small Sabena provided services to about 90 airlines, and Lufthansa and British Airways each provided services to twice that many. This, however, raises two questions. First, we observe a certain propensity for every European flag carrier to sell rather than buy maintenance services, in order to ensure employment and to keep the know-how in-house. It therefore seems reasonable to doubt whether the European practice of contracting in and out really assures the minimum scale in aircraft maintenance. Second, providing maintenance services for numerous foreign airlines certainly increases the overall complexity of maintenance in planning, organization and operation. Examples in other industries have proved that complexity is a major driver of costs and productivity.

Although our evidence is limited at this point, we believe that differences in scale and complexity – consequences of the European industry structure – are a major cause of productivity differences in aircraft maintenance.

- The European airline industry is not likely to reap the same benefits from scale that the U.S. industry has in sales and ticketing or in other corporate functions. At the margin, the labor productivity in these functions could certainly be increased if a restructuring of the European industry led to larger airlines. Mergers and acquisitions in the airline industry have the potential to increase labor productivity in these functions, e.g., through reconfiguration of ticket offices, reorganization of sales forces and reservations, or concentration of support functions like data processing and systems. However, the productivity disadvantage of the European airline industry caused by pure lack of scale in these functions should not be overestimated. Too often, size leads to diseconomies in indirect functions and corporate centers.

However, different realization of scale economies do not explain the whole productivity gaps. Differences in organization of labor are another important explanatory factor.

¶ Differences in organization of labor

Despite the fact that the U.S. airline industry operates an input intensive hub-and-spoke system, the measured productivity in the airport handling function is still at a higher level than in Europe. And in the functions of maintenance, ticketing and sales and other personnel, the productivity differences are particularly large. Our basis of comparative data to explain these productivity differences is quite limited at this point. However, we believe that differences in organization must play a pivotal role in explaining the productivity gaps.

Various studies have shown immense opportunities for European airlines to improve their productivity and cost efficiency in the airport handling function. In the case of the ramp service staff, for instance, "unproductive" employment can amount to over 40 percent, due to lack of work during non-peak hours, unnecessary transportation and waiting time. Organizational changes can significantly reduce these unproductive times. Adapting the organization of the airport ground stations (centralization versus decentralization of tasks and responsibilities), optimizing the match between labor capacity and workload (rostering) with flexible shift lengths and extended use of part-timers (Exhibit 2A-23), and increasing the overall flexibility of the organization with polyvalent personnel (e.g., division of labor between air and ground personnel) leads to significant productivity gains.

In sales and reservations, organizational changes towards more centralized reservation centers, for instance, could improve the labor productivity in this function of some carriers. And organizational changes in maintenance have boosted productivity by more than 30 percent in certain areas.

Our hypothesis that organizational differences are a major cause of the productivity difference is further supported by the McKinsey benchmark study from 1977. Comparing the North American and European airline organizations, the study generally stated that different approaches towards standardization and specialization, and a higher proportion of supervisory and indirect personnel due to different training programs and promotion schemes, led to lower labor productivity at the European airlines. This benchmark study also revealed tremendous productivity differences of about 30 percent in maintenance and about 60 percent in the sales and ticketing functions, which are in line with our findings. Again, we think that these differences can be explained partly by variances in organizational effectiveness and efficiency.

We have stated that differences in output mix, scale and complexity, and organization cause lower labor productivity in the European airline industry. The next question is what determines the identified causal factors on the level of the production process of an airline. To find an answer, we have to look for differences in the European and U.S. industry environments and discuss how they affect management behavior.

External Factors and the Role of Management

Airline regulation, government ownership, labor relations and performance pressure appear to be the prevailing environmental factors in the European industry that have a dominant influence on airline management and determine how much attention management pays to labor productivity. Other market factors, like demand and relative factor prices, have only limited power to explain the differences in labor productivity between the U.S. and Europe.

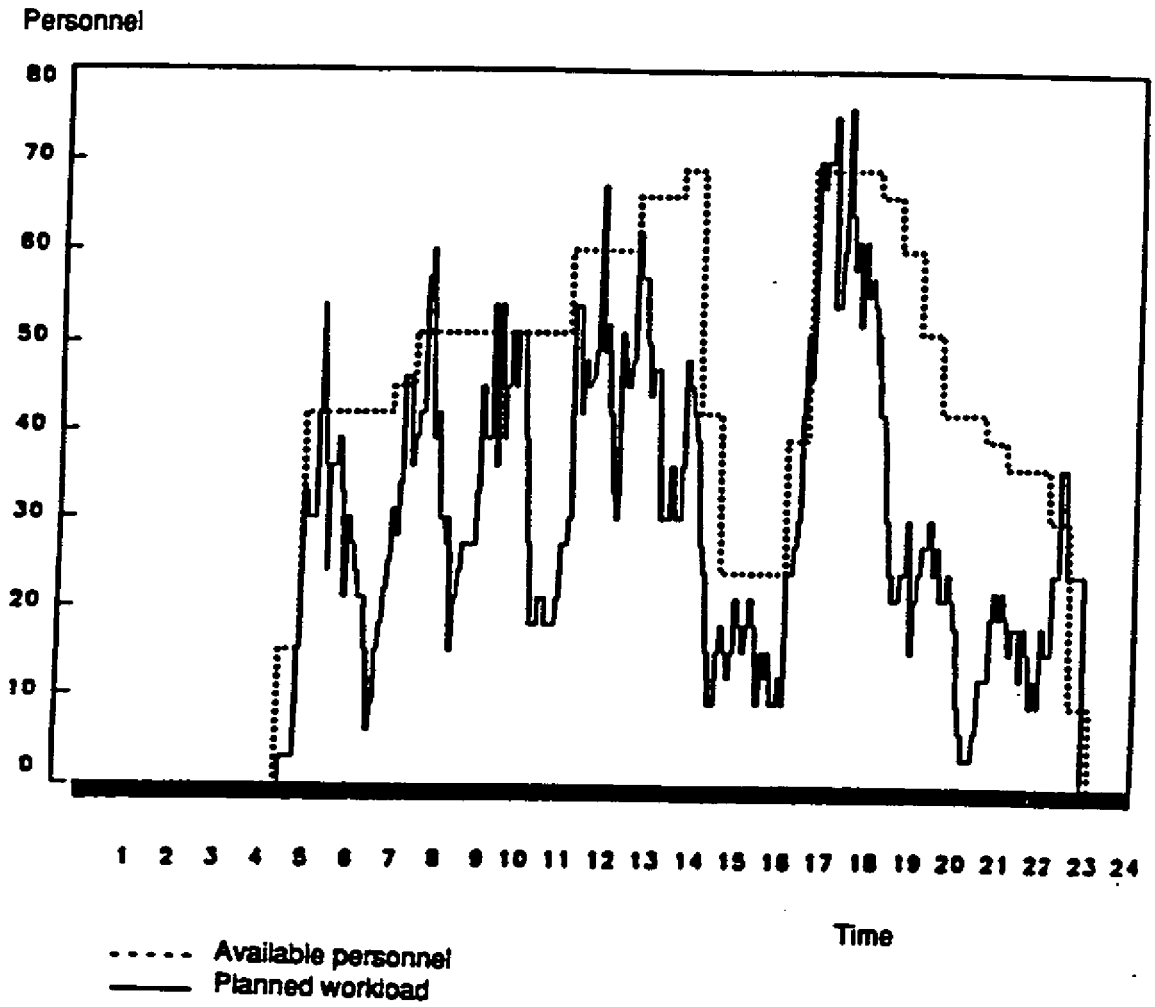
¶ The regulatory environment for scheduled airlines in Europe has so far prevented a major restructuring of the industry like the one in the U.S. after 1978. Regulation has created duopolistic markets and limited competition among the major European airlines. It has been, together with state ownership, an obstacle to individual airlines growing and building scale. Regulation has directly and indirectly restricted the capacity of the industry and ensured relatively high load factors for the European airlines at the consumer's expense: prices are relatively high and frequency of service is restricted.

- Traffic rights in Europe have been heavily regulated. Until the end of the 1980s, about three-quarters of the inter-European traffic was operated under inter-airline pooling agreements (which have been forbidden for U.S. airlines by anti-trust legislation). Most of these pooling agreements for each market (city-pair) involved the two flag carriers of the origination and destination country. Pooling agreements split up the capacity, slots and revenues between two or more carriers. About one in five of the pools between European airlines even allowed an unlimited transfer of revenues from one airline to the other. Such pool agreements basically removed all competitive incentives within the European market.

- Price competition between Europe's major airlines during the 1980s was almost non-existent. Fares for international flights in Europe required approval by both governments, and fares were usually based on the cost position of the high-cost producer. This system allowed for cross-subsidization and removed the incentive or pressure to reduce costs.

Exhibit 2A - 23

EXAMPLE OF AN OPTIMIZED ROSTER FOR RAMP HANDLING PERSONNEL

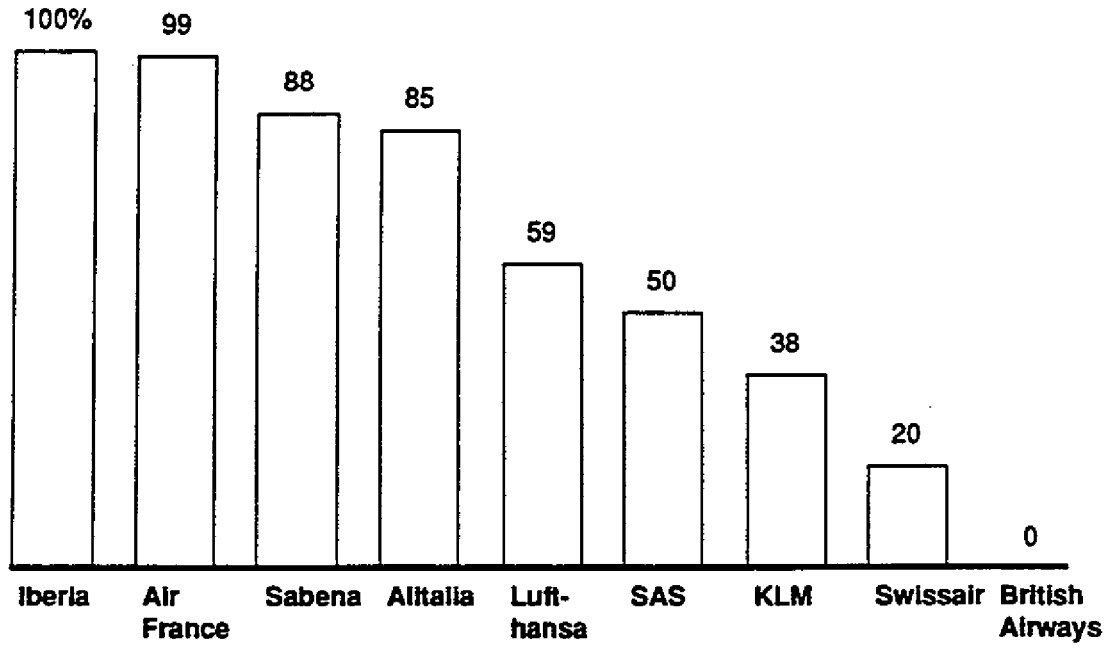


Source: McKinsey analysis

Exhibit 2A - 24

OWNERSHIP OF MAJOR EUROPEAN CARRIERS

Percent state owned



Source: The Economist

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- The European charter industry operates under a separate set of regulations which allows competition among charter airlines but limits the degree of competition between charters and the major airlines. This shelters the major airlines from a possible price/cost squeeze which might occur if the charter industry were allowed to enter the most attractive business routes in Europe on a scheduled basis.

While the U.S. airline industry was deregulated, these regulations and constraints restricted the ability of the European airline managers to re-organize their companies, restructure networks and alter service offerings. Regulation thus has diminished the pressure and incentive to compete on costs and to increase labor productivity.

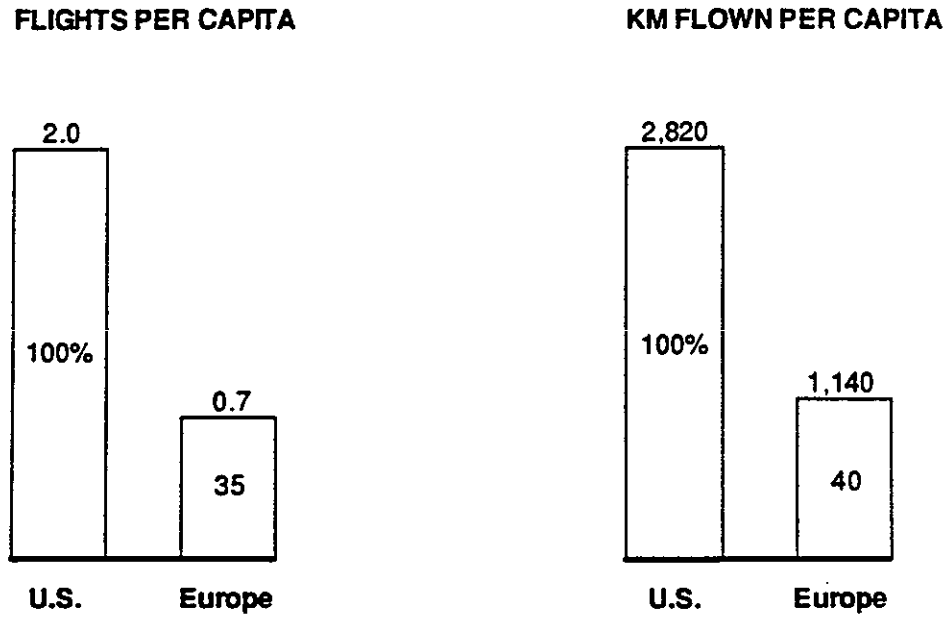
The regulatory environment in Europe, however, has been changing in recent years. In the single European market, capacity limits are to be abolished and a double disapproval of new fares will be required to prevent them. But during the 1980s, the regulatory regime in Europe certainly caused a rigid industry structure, constrained scale and limited cost incentives for European airlines. But differences in regulation are not likely to be the only cause for the measured productivity differences. Even by 1977, when deregulation in the U.S. was in process, U.S. airlines had a remarkable productivity advantage. We think that state ownership and labor relations have further impeded management efforts to achieve high labor productivity and have distracted management from this issue.

¶ The European governments are heavily involved in the airline industry and most of the flag carriers are owned primarily by the state (Exhibit 2A-24). Government ownership has a direct and indirect negative impact on the vigor with which management pursues productivity objectives. To some extent, management is subject to the political process and the need for approval from the government regarding capital expenditure and other major decisions. Governments sometimes do not allow management to lay-off employees and restructure their business, and often reduce the willingness of management to take risks (e.g., with "no strike" policies). Outgrowing inefficiencies then remains the only option managers have for increasing productivity. Overall, government ownership does not seem to encourage management to pursue a low cost/high labor productivity strategy.

¶ Labor rules and union power and demands can affect management's ability and readiness to change the organization and increase its flexibility and productivity. The major fights between unions and management in the U.S. after deregulation were over labor compensation and labor costs rather than labor productivity. However, it is widely believed that restrictions and impediments regarding the organization of labor are

Exhibit 2A - 25

DEMAND FOR AIR TRANSPORTATION* – 1989
U.S. AND EUROPE



* Passenger or passenger miles flown by U.S. (European) airlines per capita population in the U.S. (Eurc
Source: IATA; ICAO; RAA; EURACA; McKinsey analysis

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higher in Europe than in the U.S. European management can overcome these difficulties if the pressure to change is urgent enough. But the regulatory environment and state ownership so far have kept this pressure below the threshold needed to spur change.

As a result of these factors, the pressure on European airline managers to increase profitability and productivity came primarily from outside the industry, e.g., from the fuel crisis, recessions and, more recently, from increased intermodal competition with high-speed trains, and from the revenue drop-off caused by the Gulf war. In the U.S., however, industry dynamics run on competition within the industry. And since competition creates winners and losers instead of affecting all competitors in the same way, its impetus on management behavior is likely to be stronger than in Europe.

We have found no evidence that differences in relative factor prices cause European airline management to use more labor. The labor conflicts in the U.S. industry during the 1980s have led to lower salaries in the U.S., and opportunities to substitute labor with capital are restricted in any case.

The impact of differences in size and structure of demand between the U.S. and Europe on labor productivity is limited. Demand per capita for air transportation is significantly higher in the U.S. than in Europe (Exhibit 2A-25). However, the size of demand can only be important for labor productivity if economies of scale are a major causal factor of the productivity differences. But the lack of scale in some functions of the European airline industry is a consequence of prevented restructuring rather than a result of insufficient scale of demand. As discussed earlier, some differences in the structure of demand work to the disadvantage of European labor productivity (e.g., more intercontinental low density routes). However, these effects are relatively small and we therefore do not see demand as an important factor in explaining the overall productivity difference.

From an industry perspective, most of the measured productivity disadvantage of the European airline industry seems manageable. Changes in regulation and ownership presumed, we would expect that the European airlines have at least the potential to achieve the same labor productivity as their U.S. counterparts have. And because manageable differences among airlines are not neutral in a competitive environment but are a source of competitive advantages, we expect that productivity leadership will be of increasing importance for the European carriers in a less regulated environment.

OUTLOOK FOR THE FUTURE OF THE AIRLINE INDUSTRIES

The U.S. airline industry now appears to be in the final phase of consolidation after deregulation. The recent "price war" is likely to have two major consequences. First, it may accelerate the exit of the 20 percent of industry capacity which currently operates under Chapter 11 bankruptcy protection (TWA,

Continental, America West). This will leave the industry with about five major players and lead into a phase of domestic competition with more stable market shares. Second, the fierce price competition puts tremendous cost pressure on the U.S. industry. While productivity growth was almost flat in the last years, we expect that management may now turn its primary attention from marketing to cost control in the domestic market. Labor productivity in the U.S. industry is therefore likely to grow in the next few years.

Considering the concentration of the domestic industry, it is possible that the deregulation of the U.S. industry will continue and foreign carriers will be allowed to run domestic U.S. operations. Given the very strong competitive position of the U.S. carriers in their home market, however, this does not appear to pose a great threat to the U.S. industry. Even the major European airlines on the North Atlantic route (British Airways, Lufthansa) are interested in free access to all U.S. cities as an international gateway rather than building a domestic U.S. network. The elaborate U.S. hub-and-spoke systems, which offer a dense and frequent service network, and the frequent flyer programs and other marketing instruments have created solid customer loyalty and pose almost insurmountable barriers to enter the core domestic market for foreign carriers. Indeed, with the home market consolidated and more stable, the American mega-carriers will likely now pursue a more aggressive expansion strategy, at least on the intercontinental North Atlantic and East Asia routes, as worldwide deregulation proceeds. With the North Atlantic market almost as big as the inter-European market in terms of passenger-kilometers, this will put even more pressure on the European industry to restructure and perform.

Indeed, a major restructuring of the European industry seems inevitable during the next decade if deregulation goes on as scheduled. Judging from the U.S. market, which is twice as large as the European market and 15 years after deregulation offers room for only five major competitors, we know what to expect if market forces proceed unimpeded. Deregulation in Europe, however, will not produce the same hub-and-spoke systems that the U.S. favors. Geography, capacity restrictions on airports, and inter modal competition with high-speed trains will allow for only a very limited number of hub-and-spoke systems in Europe. And only a few European carriers will have the strength to compete for one of these systems.

Deregulation, however, will lead to a realignment of the scheduled and charter industry in Europe. While charter airlines today have a clear cost advantage over the major scheduled carriers, they operate primarily relatively simple linear networks in market niches for the Mediterranean leisure traveler. We therefore doubt whether the charter airlines have the resources, skills and marketing power to become a dominant force in a restructured European airline industry. However, their cost position and marketing alliances with major carriers might give them the chance to survive in a low cost/low service market segment.

One problem with the U.S. deregulation was that economically bankrupt airlines did not exit the industry for a long time. Given the ownership structure of the European airlines and the national pride invested in some airlines, this might be an even bigger problem for the European industry. This raises the question of whether deregulation alone is enough to force competition on the industry and allow the industry to reap the benefits of competition. If deregulation in Europe is not complemented by privatization or enforced by completely opening the inter-European market to non-European, i.e., American, airlines, we think that the transformation of the European industry will very likely take longer than the process did in the U.S. and will be more painful to the successful European airlines and the consumer. Proceeding with the European deregulation as planned will change the industry. Alliances and mergers between European airlines will occur, and fights for market share (headed by the more aggressive British Airways) will lead to overcapacity, lower load factors, increased cost pressure, and ultimately productivity improvements in the European industry. But again, as long as airlines are not allowed to exit the industry and state ownership or subsidies keep losers alive, the restructuring of the European airline industry will not lead to the optimal supply of air transportation services to the consumer.

POLICY IMPLICATIONS

Our productivity comparison of the U.S. and European airline industries revealed significantly higher productivity levels in the U.S. industry. The causality analysis suggests that differences in public policy are a major cause of this productivity difference. This has profound implications for the U.S. and European public policy, in particular for competition, anti-trust, and ownership policies. It indicates that changes in public policy which foster productivity could increase the provision of air transportation services in the U.S., and to an even greater degree in Europe to the benefit of customers.

In the following, we highlight what are, in our view, the most important issues for airline policy agendas in the U.S. and Europe. Overall, we think that the policy agendas should focus on the idea of a competitive, open, and global airline industry based on a level playing field with freedom of market entry and freedom of pricing and capacity.

The U.S. policy agenda should focus on the issues of market entry for foreign airlines, ownership restrictions, and anti-trust policy.

- ¶ U.S. regulations restrict the access of foreign airlines to the U.S. market in two ways: foreign airlines are not allowed to chose their international gateways freely or to fly from abroad into every city within the U.S., or to have cabotage rights, i.e., the right to build a domestic network and to provide services within the U.S. This tends to lower the competitive

threat of new entries. Therefore, we think new regulations should give foreign airlines full access to the U.S. domestic market.

The restriction of cabotage rights does not pose a problem for foreign airlines. Given the extremely high economic entry barriers to the U.S. domestic market, it is unlikely that any foreign airline wants to build a U.S. domestic network. But the restriction of gateway access constrains the European airlines, in particular, on the North-Atlantic route. Bilateral liberalizations of this rule and a free sky policy on both sides of the Atlantic could increase the competitive intensity in this market. The recent bilateral agreement between the U.S. and Dutch governments, followed by a closer cooperation between KLM and Northwest Airlines, illustrates the importance of such measures.

¶ U.S. regulations restrict foreign ownership of U.S. airlines to less than 25 percent of voting capital. This prevents foreign airlines from gaining corporate control and executing operational or strategic leadership and exploiting economies of scale or scope. We think the ownership restrictions should be abolished.

Operational or strategic leadership in a corporation may be necessary to reap the full benefits of the economies of scope of a partnership between, say, British Airways and USAir. These economies of scope arise from a close co-ordination of the route network and flight schedules of two airlines. For example, under common leadership, the coordination of British Airways' international flights in and out of a USAir hub could be coordinated with all the domestic flights which USAir schedules into this hub. This could have the advantage of creating consumer preferences by offering short transit times for all passengers changing from a domestic to an international flight and vice versa. Deregulation of the foreign ownership rules would allow a clear leadership role in transatlantic cooperations and thus stabilize this cooperation. Again, in the end the consumer would benefit from cooperation which would likely offer more choice and more harmonized flight schedules. Moreover, a liberalization of foreign ownership could give foreign airlines access to the domestic market and thus help to keep the competitive intensity in the domestic U.S. market high.

¶ As the industry concentration in the domestic U.S. market grows, regulators are getting more and more concerned about how to ensure competition in an oligopoly with only four to six major players. The opening of the U.S. market as described above would help to maintain competitive pressure in the U.S. In any case, competition in the U.S. airline industry will have to be guarded by a strong anti-trust policy. In particular, any further mergers among the major players should be

carefully scrutinized by the Federal Trade Commission with regard to their possible effect on the competitive intensity in the industry.

The list of current regulatory impediments to more competition in Europe is much longer than in the U.S. Accordingly, a detailed European policy agenda would be very long. However, the major thrust of the European policy agenda should center on opening the inter-European and intercontinental markets, creating a single industry within Europe, enforcing anti-trust rules, and cutting back government ownership.

¶ The major policy implication for the European airline industry is to completely localize market entry, pricing and capacity.

While liberalization of the European airline industry is under way, the industry will still be very regulated until at least 1996, when fifth freedom rights will be granted to European airlines (Swissair will then be allowed to fly from Paris to Madrid, for instance). Overall, the European policy agenda should strive for free market entry (liberalization of traffic rights) and market determination of capacity and prices on all routes. Moreover, we think that as the U.S opens its market, Europe should also grant cabotage and fifth freedom rights to EEC and non-EEC airlines. In addition, with increasing competition among airlines it is likely that the European live-and-let-live mechanism for distributing traffic slots will have to be replaced with a more market-oriented approach.

¶ If the development of the European airline industry after deregulation follows the pattern set by the U.S. industry, we will witness a major consolidation of the European airline industry. As in the U.S., an active anti-trust policy therefore will be necessary to ensure a competition in a concentrated oligopoly.

¶ We think that one issue on the European policy agenda should be the (further) reduction of government ownership.

A major concern of the European governments is whether employment will be maintained if after deregulation, national flag carriers merge with other carriers or are forced to exit the industry. Thus, governments could be tempted to keep majority stakes in their national carriers to ensure this goal. As discussed above, we expect that, for the benefit of the consumer and probably even for total employment, privatization would give the airline management more freedom to strive for economic success and to be competitive. However, until the airline markets in the Triad are fully deregulated, a minority share by the government can facilitate the bilateral negotiating stance of the European airlines.

Exhibit 2A - 26

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES
AIRLINES

● Important
O Secondary
X Undifferentiating

External factors	
– Market conditions	
• Demand factors	X
• Relative input prices/ factor availability	X
– Policy and regulation	
• Competition rules and concentration rules	●
• Government ownership	●
• Labor rules and unionism	O
Management behavior	●
Production process	
– Output mix, variety, quality	O
– Economies of scale	O
– Capital (intensity and vintage)	X
– Skill of labor	X
– Organization of labor	●
Labor productivity	

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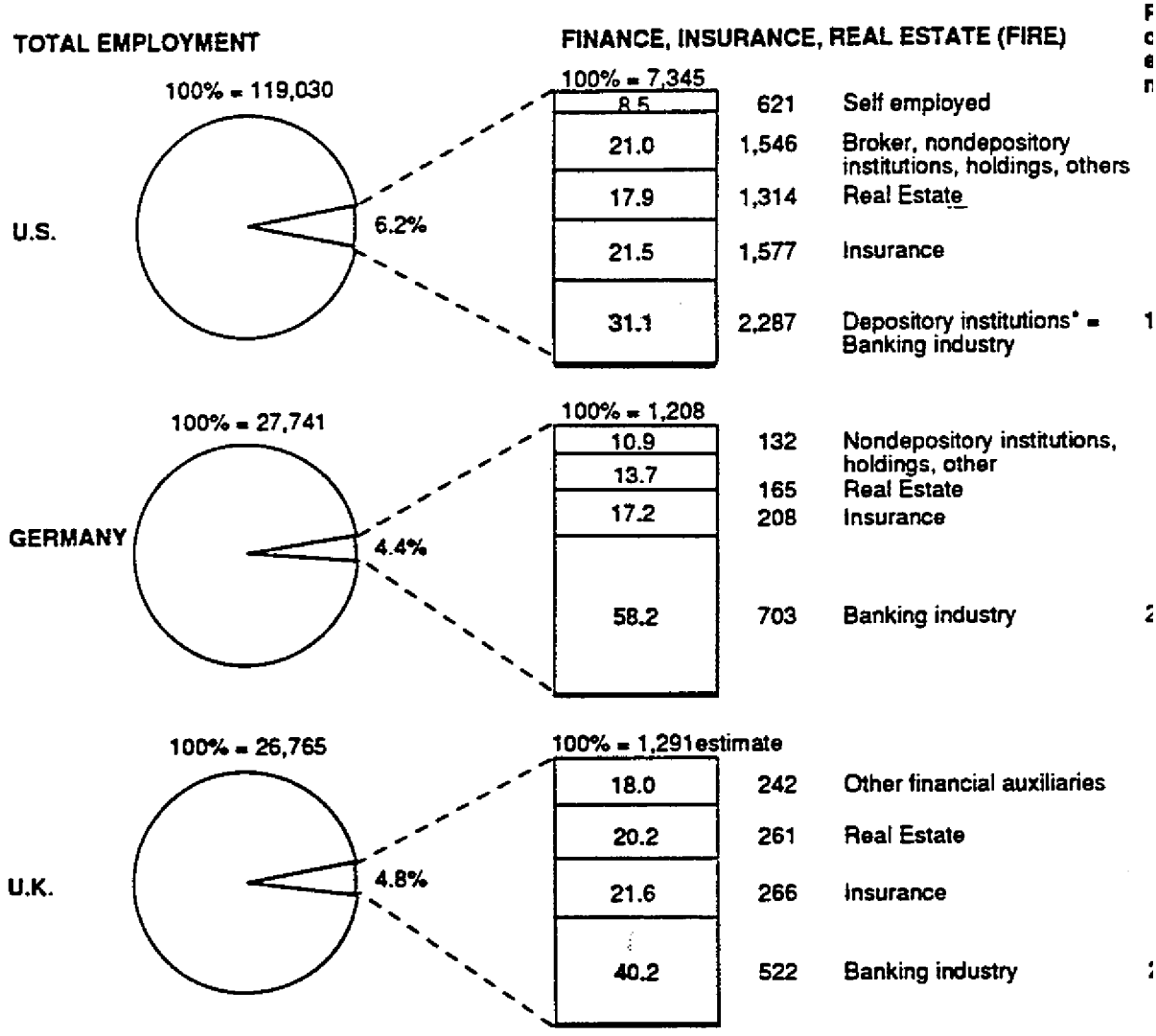
* * *

The 28 percentage point labor productivity difference (U.S. = 100 percent) between the U.S. airline industry and the European industry is largely a function of the less regulated, more competitive U.S. market environment. The output mix of services and scale contributed to the productivity gap in some functions, but the major factor appears to be the organization of labor, as Exhibit 2A-26 points out. U.S. airline managers have responded to the liberalization of regulations and the ensuing intensified competition by restructuring their networks and adapting service and costs quickly to survive. One such effort, the U.S. move to a hub-and-spoke system, increases customer value, but (surprisingly) not measured labor productivity. The European airlines operate in regulated environments under policies which forbid new entrants, restrict price competition, prevent exit from the industry, mandate state ownership, protect labor, and leave the airlines with little incentive to improve productivity. If the liberalization of the European airline industries gains speed as planned during the 1990s, we will see a major restructuring of the European industry much like we saw in the U.S.

Exhibit 2B-1

TOTAL EMPLOYMENT AND BANKING INDUSTRY EMPLOYMENT - 1989

Thousands



* Excluding self-employed

Source: BLS Establishment Survey; Statistical Abstract U.S.; Statistical Yearbook Germany; Statistisches Bu
Arbeitsstättenzählung 1987; Department of Employment (U.K.); McKinsey estimate

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B – PRODUCTIVITY IN THE U.S., GERMAN AND U.K. RETAIL BANKING INDUSTRIES

The growing internationalization of capital markets has generated a growing pressure for competition and deregulation in financial markets. This has had implications for retail banks in the U.S. and Europe. The problems of the U.S. banking industry have been particularly the focus of much attention in recent years. The savings and loan crisis, the failure of more than 500 banks since 1989, and the high proportion of bad loans have tainted the image of U.S. banks worldwide. And there is more trouble ahead for the U.S. banking industry. Commercial real estate loans are now the biggest threat to the financial strength of banks. U.S. banks are carrying commercial real estate loans totaling double the amount of equity capital.

Does the trouble in the U.S. banking system reflect a declining, unproductive and inefficient industry, or is it a consequence of a transformation process to a more productive and competitive state? In other words, with all their apparent problems, could U.S. retail banks actually be more productive than their British and German counterparts?

To answer these questions, we looked closely at productivity in retail banking, which accounts for about 71 percent of employment in banking. After defining what retail banking means, we will turn to the measuring of labor productivity in this industry. Then we will shed some light on the reasons for the observed productivity differences and try to conclude what the future might bring for the retail banking industry in each country. Finally, we will outline some policy implications which arise from this comparison. Since our productivity measurement is based on 1989 data, our findings relate mainly to the situation of the retail banking industries at the end of the 1980s.

DEFINING THE RETAIL BANKING INDUSTRY

The banking industry in the broad sense encompasses all depository institutions in the economy and thus includes not only banks, but also saving and loans institutions, credit cooperatives or building societies, and postal banks who provide some banking services. The banking industry accounts for about 1.9 to 2.5 percent of employment in the U.S., German, and U.K. economies (Exhibit 2B-1).

The retail banking industry is the part of the banking industry which maintains the relationship between depository institutions and private customers and small businesses, e.g., high-street retailers and family businesses. In terms of employment, the retail banking industry in the U.S. and the U.K. is dominated by commercial banks and clearing banks, respectively (Exhibit 2B-2). In Germany,

savings banks form the largest group of institutions, ahead of commercial banks and credit cooperatives.

Retail banking basically means branch banking, since today the branch or the single unit bank in the U.S. is still the pivotal place where supply for private bank services and demand by private persons meet. In terms of number of branches and geographical coverage, the importance of commercial banks in the U.S. decreases relative to their employment (Exhibit 2B-3). Almost every second outlet in the U.S. is a thrift or credit union. In Germany, more than 80 percent of branches are savings banks or credit cooperatives (without even taking the network of the postal banks into account).

Branch-based depository institutions compete with other industries which provide substitutional services. These industries are relatively underdeveloped in the U.K. and incorporated with the "universal" banks in Germany. But in the U.S., brokers, investment banks and funds, or credit agencies, compete intensively for retail deposits and credits with the banking industry. To maintain a more homogeneous industry sample, we did not include these institutions in our productivity measurement and comparison. The existence or absence of competitors outside of the banking industry, however, may play an important role when we analyze the causes of productivity differences among retail banking industries.

MEASURING LABOR PRODUCTIVITY IN THE RETAIL BANKING INDUSTRIES

Conventional measures of productivity and profitability of banks are neither conclusive nor very meaningful in measuring and comparing productivity in retail banking across countries. Differences in business mix, e.g., between wholesale versus retail business, as well as real prices/interest rates differences affect the comparability of cost-, revenue-, asset- or profit-based productivity and profitability measures for banks. These mix and price effects make the interpretation of traditional cost/income, cost/asset, or return/asset ratios very difficult.

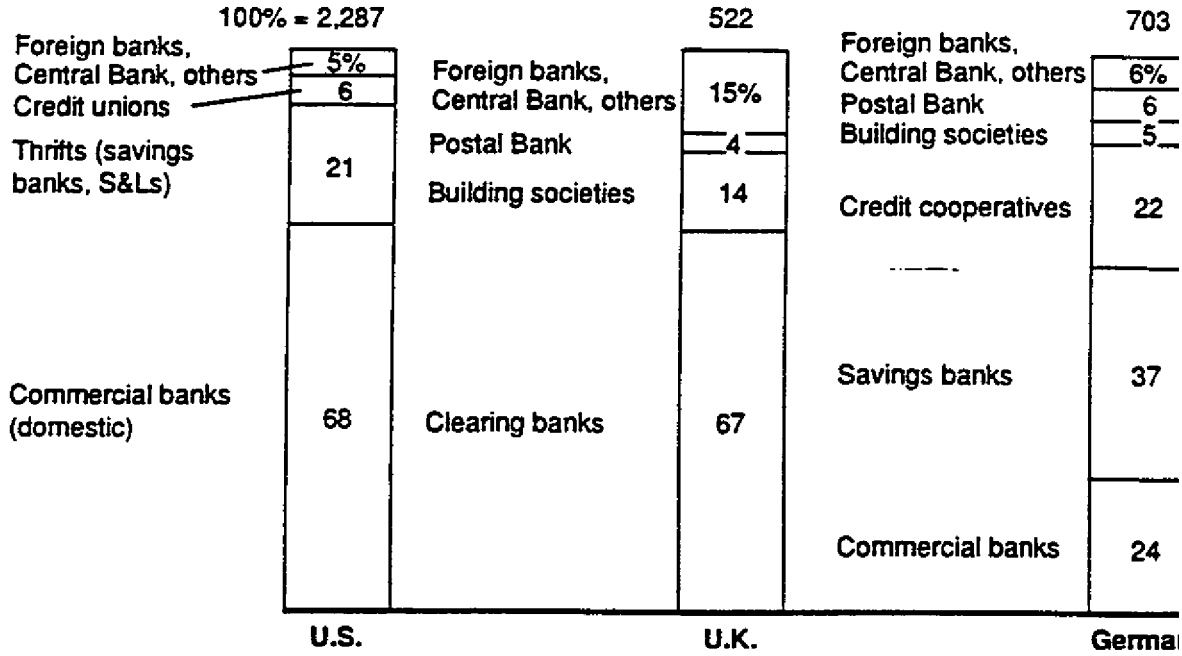
The drawbacks of the conventional measures point out the need for more sophisticated productivity analysis. We therefore adapted and improved a methodology used by the U.S. Bureau of Labor Statistics (BLS) for the purposes of international comparisons. In recognition of the diverse output of retail banking, our method measures first the productivity of each of the main outputs or functions of the retail banking industry. In a second step we aggregated those "functional productivities" to the overall measure of labor productivity for each industry.

The concept of functional productivity has to cope with two major problems: identifying and measuring the major outputs or functions of the retail banking industry and breaking down the labor input by those functions.

Exhibit 2B-2

BANKING INDUSTRY EMPLOYMENT BY INSTITUTIONS - 1989

Thousands



Source: BLS; BBA; McKinsey analysis

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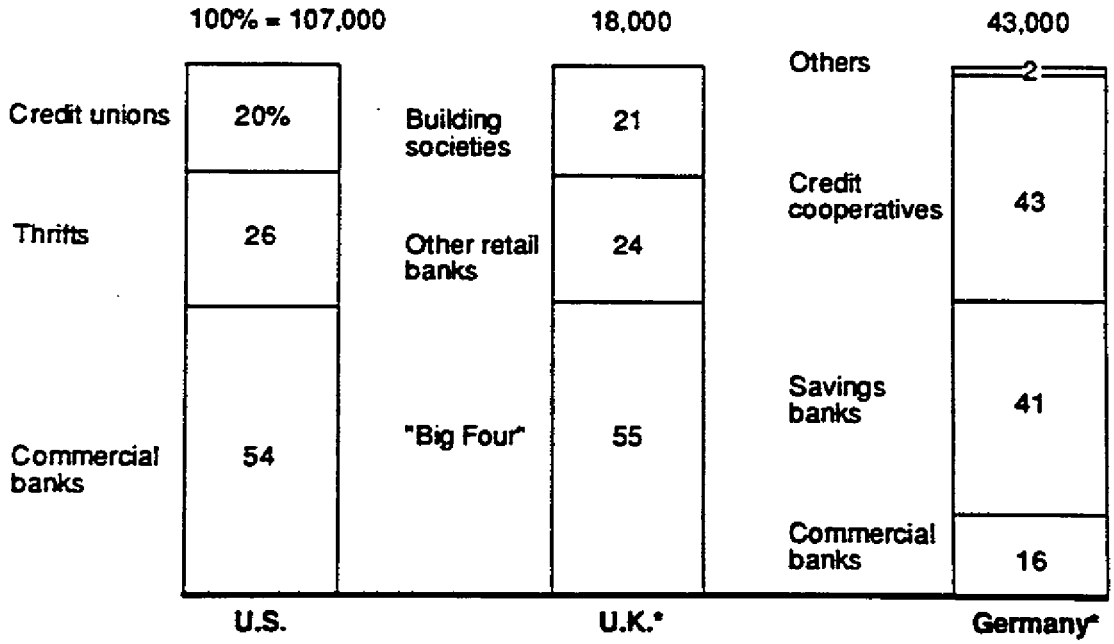
Exhibit 2B-3

BRANCHES BY INSTITUTIONS - 1989



* Without postal bank

Source: McKinsey analysis

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Functions of Retail Banking

The major common functions of the retail banking industry among the U.S., Germany, and U.K. are transacting non-cash payments, disbursing cash, taking deposits, and lending money. Most of the employees in retail banking are engaged in one of these functions. In the case of Germany, we corrected for the security business of the universal banks. We also neglected other relatively minor outputs of the industry in every country (e.g., trust business, safekeeping). To get around the problems of price effects and currency conversion we avoided any value-based output measures. Instead, we measured output by the number of physical output units for each of the three main functions of retail banking (Exhibit 2B-4).

- In terms of employment, the major function of retail banking is to transact non-cash payments and disburse cash. Based on the Bank for International Settlement (BIS) statistics, we measured the number of payment transactions per year in each country, regardless of the transaction instrument used. In other words, a payment made by check counts as much as a credit card or direct debit transaction. "Retail payments" which involve private persons or small business cannot easily be distinguished accurately from "wholesale payments" between enterprises or other institutions. The check or the giro, for instance, are used for both types of payment and they share the same resources and systems when they are processed. We therefore included both wholesale and retail payments in our output measure. Those payment transactions, however, which could be identified as solely wholesale were not included (e.g., the "Fedwire" transactions in the U.S.). To take the different importance of cash as a payment instrument and the involvement of banks in cash circulation into account, we also included the estimated number of cash withdrawals at bank tellers per year in this output measure. We did not include, however, transactions at automated teller machines (ATMs).

- We measured the second major output of retail banking, taking deposits, by the number of accounts held by retail customers, i.e., private customers and owners of small businesses. This is a stock measure and we counted every deposit account as one, regardless of the type of account (e.g., savings or money market) or the amount of money deposited. Of course, the transaction intensity and thus the labor intensity differs by type of account. But on a higher level of abstraction we are trying to measure the productivity of a function of retail banking and not the productivity of a more distinguished service output, i.e., the productivity of savings accounts, for instance. As long as each of the service outputs basically fulfills the measured function, we can treat them equally. When we talk later about the different service mix in each country as a potential explanation of productivity differences, however, we will look more

closely at how labor productivity across countries is affected if different services are used to fulfill the same function.

¶ For the third measured function of retail banking, lending money, we again counted the stock of (retail) credits outstanding, regardless of type. As for the number of deposit accounts, we estimated the number of credits outstanding using various national sources, namely American Bankers Association (ABA) reports for the U.S., British Bankers Association (BBA) figures for the U.K., and a McKinsey retail banking market analyses from 1988 for Germany.

Exhibits 2B-5 and 2B-6 show the measured output for each of the three functions of retail banking by country. Not surprisingly, the U.S. retail banking industry produced more services in each of the functions than the European countries. But the U.S. industry also transacted about twice as many payments and cash withdrawals per inhabitant and sustained almost twice as many credits per inhabitant as the U.K. and German industries did. Only in deposit-taking did the output per inhabitant of the German retail banking industry exceed the U.S. output, which might partly be explained by the fact that the transaction intensity of U.S. savings accounts is about twice as high as in Germany. In other words, Germans indeed have many savings accounts but they do not make many labor intensive – transactions per account. Thus, on average, a German savings account might be more easily sustained than a U.S. savings account.

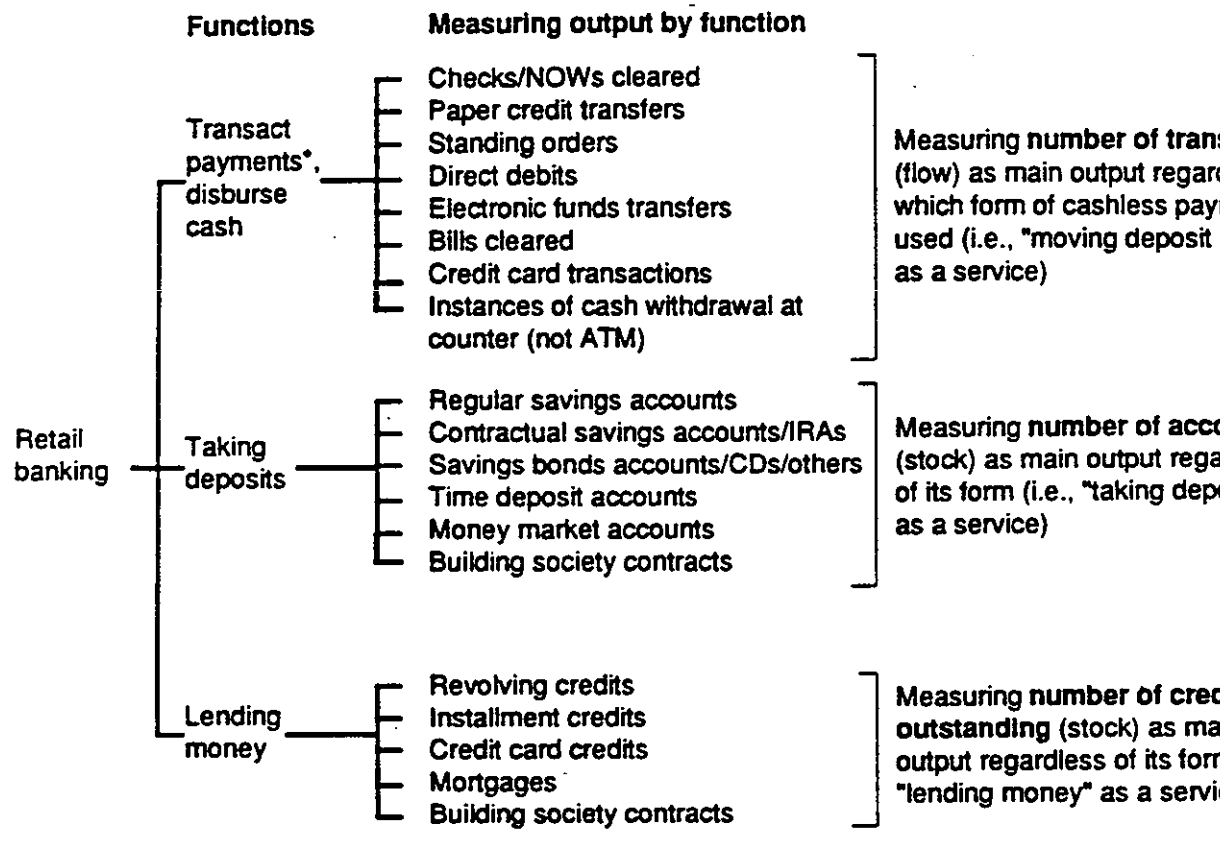
Input of Retail Banking

With about 50 to 60 percent of operating expenses usually being personnel expenses, labor costs are the major cost component for a bank. Labor therefore is the main input of retail banking and labor productivity appears to be the appropriate single-factor productivity measure. For every country, we first calculated the total labor input in the retail banking industry and then estimated the break down of this labor input by the three main functions of retail banking to achieve consistent output and input measures for each function.

¶ To calculate retail banking industry employment, we corrected the total banking industry employment for those elements which we assumed not to be part of the retail banking industry (Exhibit 2B-7). We therefore excluded the employment of foreign banks, which, based in money centers like London or New York, are mainly engaged in international or wholesale banking. We also estimated and subtracted the number of employees who are mainly engaged in the wholesale business and, especially in the case of Germany, in the security business for retail customers. As a result, we estimate that about 71 percent of total employment in the banking industry can be allocated to retail banking. Part-time workers are a fairly consistent proportion of the workforce in these countries, about 10 to 13 percent. However, we counted every part-

Exhibit 2B-4

MEASURING OUTPUT IN RETAIL BANKING



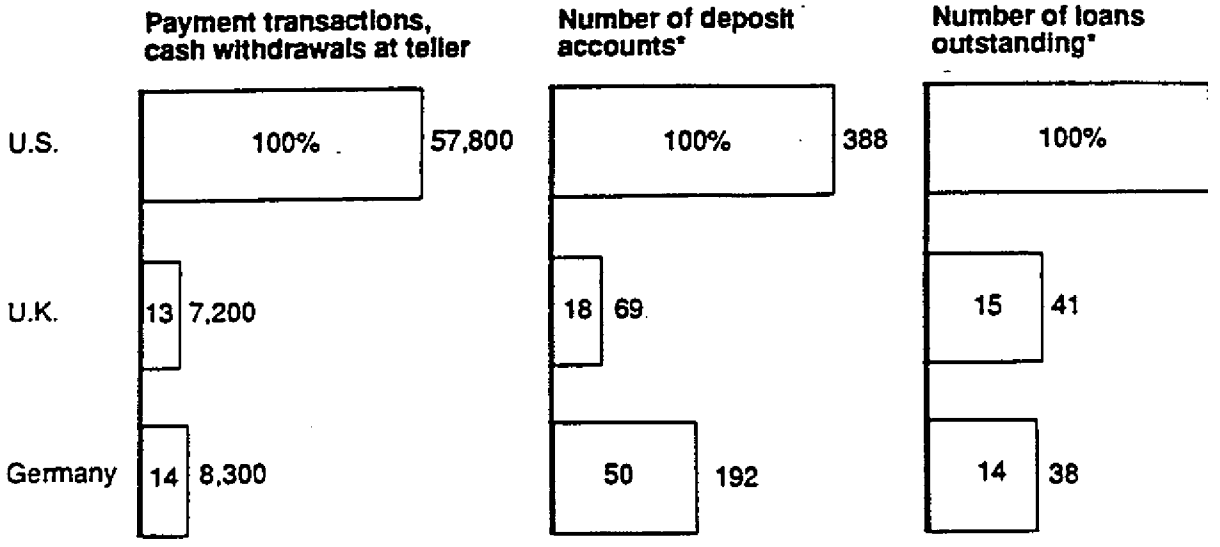
* Including wholesale payments in output and wholesale payment staff in input

Source: McKinsey

Exhibit 2B-5

MEASURED OUTPUTS OF THE RETAIL BANKING INDUSTRY – 1989

Millions



* German figures 1988

Source: McKinsey analysis

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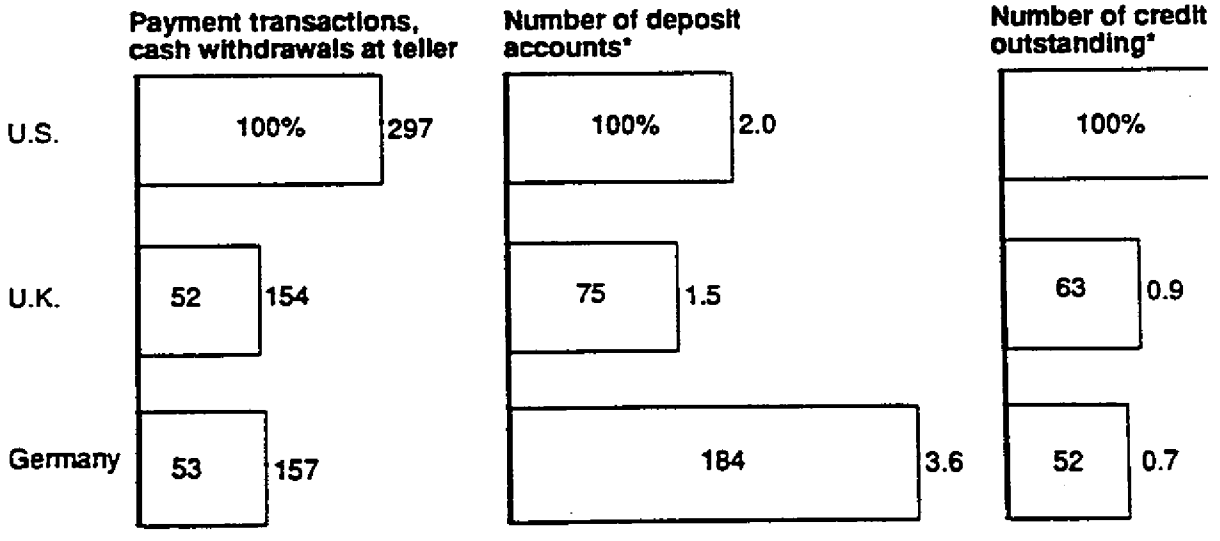
Exhibit 2B-6

MEASURED OUTPUT OF RETAIL BANKING INDUSTRIES PER INHABITANT (OLDER THAN 14 YEARS) – 1989



* German figures 1988

Source: McKinsey

ZXE-119 104

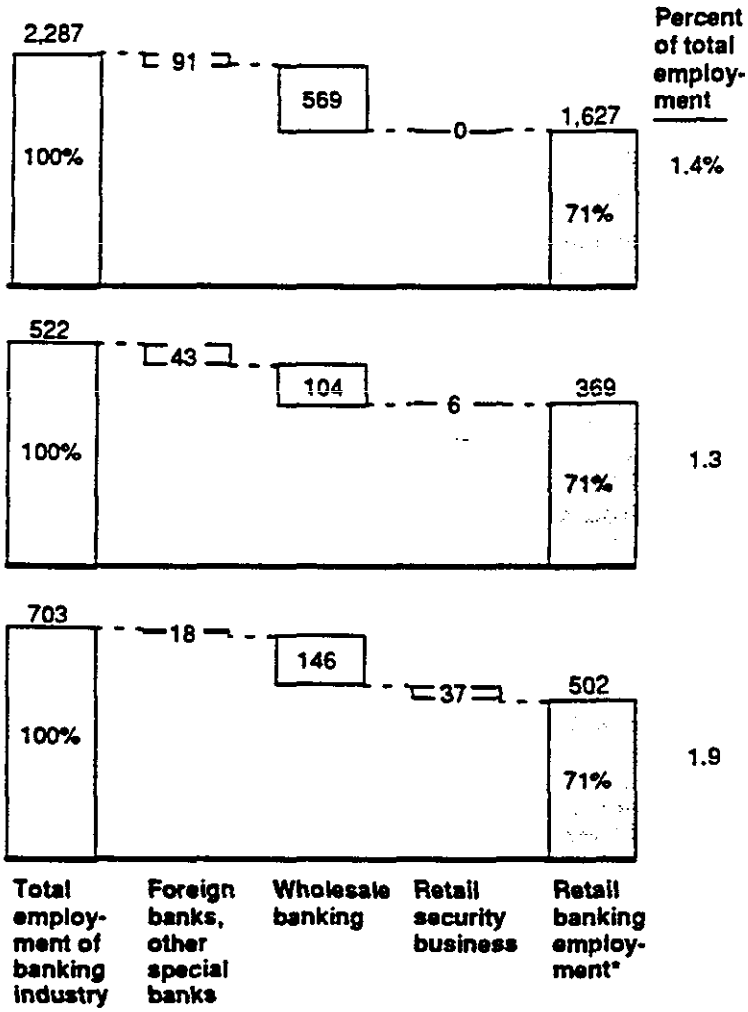
Exhibit 2B-7

EMPLOYMENT IN THE U.S., U.K., AND GERMAN RETAIL BANKING INDUSTRY 1989

U.S.
Domestic depository institutions
- Commercial banks (SIC 602)
- Thrifts (SIC 603)
  - S&L
  - Mutual savings
- Credit Unions (SIC 606)
- Federal Reserve

U.K.
Domestic depository institutions
- Clearing banks
- Other banks
- Building societies
- Postal bank

GERMANY
Domestic depository institutions
- Commercial banks
- Savings banks
- Credit cooperatives
- Postal bank
- Building societies, mortgage banks
- Dt. Bundesbank



* Including staff for wholesale payment systems

Source: McKinsey

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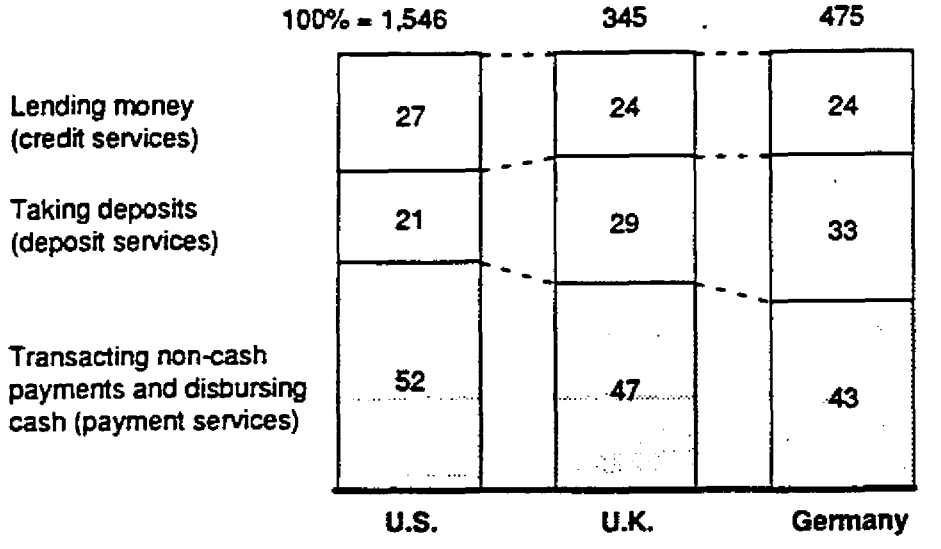
Exhibit 2B-8

EMPLOYMENT STRUCTURE IN RETAIL BANKING (FTEs)* BY MAJOR FUNCTION

Thousands



* Part-time employees with 50% converted into FTE

Source: McKinsey analysis and estimate

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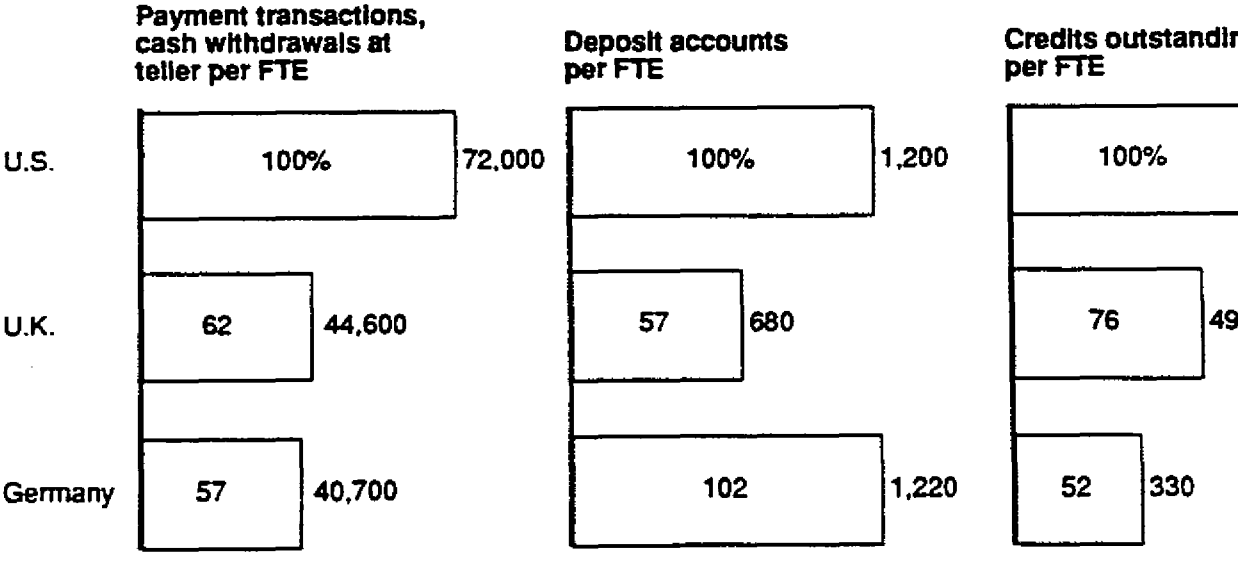
Exhibit 2B-9

FUNCTIONAL PRODUCTIVITY MEASURES OF RETAIL BANKING 1989



Source: McKinsey analysis

ZKE-119 102

time employee as 50 percent of a full-time employee and estimated total full-time equivalent (FTE) employment in each industry. Lacking reliable data about average annual hours worked in the banking industry, we did not try to take differences in hours worked across countries into account. We do not think, however, that this would affect the validity of the productivity measurement and comparison.

¶ Based partly on publicly available sources like the Functional Cost Analysis in the U.S., but mainly based on our experience in the banking industry, we estimated the break-down of the total retail banking FTEs by the three major functions of retail banking (Exhibit 2B-8). The function of transacting non-cash payments, i.e., running the payment system, is the most labor intensive function and employs between 43 and 52 percent of the FTEs. The share of labor committed to the deposit taking function varies the most. The relatively high employment in Germany and the U.K. in this function seems to reflect the relative importance that the retail banking industries place on collecting retail deposits compared to other industries like securities and investment funds.

Having defined and measured the output and labor input in each of the three functions of retail banking, we can now divide the output by the input for each function and thus calculate the functional productivities of retail banking.

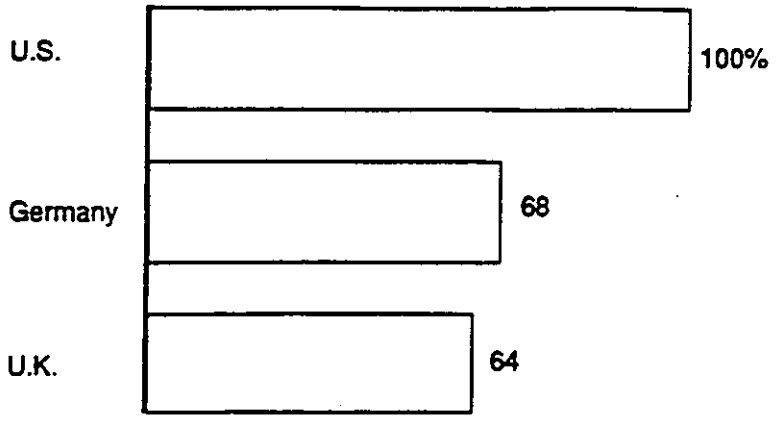
Productivity in Retail Banking

U.S. labor productivity generally exceeds the functional productivity of the European industries by 24 to 48 percentage points in each function (U.S. as 100 percent) (Exhibit 2B-9). In the most labor intensive function, transacting payments, the U.S. also has a significant advantage over both Germany and the U.K. We partly confirmed this finding by comparing four U.K. clearing banks and four U.S. money center banks, which showed a large productivity gap in the payment transaction function. Only German productivity in deposit-taking is slightly higher than U.S. productivity and this might be partly due to the lower transaction intensity of German savings accounts, as mentioned earlier.

We can combine the three functional productivity measures to compute an index which reflects the aggregated overall labor productivity levels in retail banking in the U.S., Germany, and U.K. Obviously, the numerators of the functional productivity measures cannot be added. But we can, for instance, define the U.S. productivity in each function as 100 percent and calculate for Germany and the U.K. a weighted average of their relative functional productivities in each function versus the U.S. as shown in Exhibit 2B-9. The weighting scheme should reflect the relative importance of the different functions of retail banking and

Exhibit 2B-10

OVERALL PRODUCTIVITY RETAIL BANKING* U.S., U.K., AND GERMANY
1989



* Composite index of productivities for payment, deposit and credit services, weighted by labor input

Source: McKinsey analysis

ZKE-119 115a

Exhibit 2B-11

CAUSALITY OF PRODUCTIVITY DIFFERENCES IN THE RETAIL BANKING INDUSTRY

External factors	Management behavior	Production process	Labor produc
Underdeveloped demand, low cost pressure, and lack of price competition in Germany and the U.K. Very low competitive intensity in the U.K. External shock due to deregulation, demanding customers, fierce competition, and high-cost pressure in the U.S.	Germany: try to maximize customers and savings funds with extensive branch network U.K.: perform as well as your peers; competition does not pay off U.S.: try harder; outperform your competitors and gain market share	Major factors on first level of causality - Labor organization - Usage of automation and information technologies - Scale of branches (only Germany) Minor factor: quality differences in service levels (only Germany) Different mix of services provided not important	Productivity advantage of (100 percent) - Vs. German percentage - Vs. U.K. (36 percentage

should therefore be derived from the employment distribution (Exhibit 2B-8).[1] Exhibit 2B-10 shows the result. We set U.S. productivity at 100 percent, and in 1989 the overall productivity of the German and U.K. retail banking industries was 32 and 36 percentage points lower. Taking the European countries as a basis, productivity in the U.S. retail banking industry was about 50 percentage points higher than in Germany and the U.K.

Given this productivity difference in retail banking between the U.S., Germany and the U.K., we now discuss the question of where these differences come from.

CAUSES OF THE OBSERVED PRODUCTIVITY DIFFERENCES

Exhibit 2B-11 summarizes our explanation of the differences in labor productivity we measured in the U.S., German, and U.K. retail banking industry. We believe that on the level of the production process, the major causes of the productivity gaps can be found in differences of labor organization, usage of automation and information technology, and, in the case of Germany, in diseconomies of scale in small branches. On the second level of causality these differences can be explained by a combination of relatively underdeveloped demand and relatively low cost pressure and competitive intensity in the two European countries. As a result of these contextual factors, the behavior and the decisions of U.S., German, and U.K. bank managers concerning how to run the banking business are different, and different production processes with different productivities are created.

In the following section we will look more closely at the differences in what we called the production process and discuss which differences are important and which are not. Then we will discuss in more detail to the market forces and context and their interaction with management behavior.

Causality on the Level of the Production Process

On the level of the production process, the observed productivity differences can generally be explained along four dimensions (Exhibit 2B-12).

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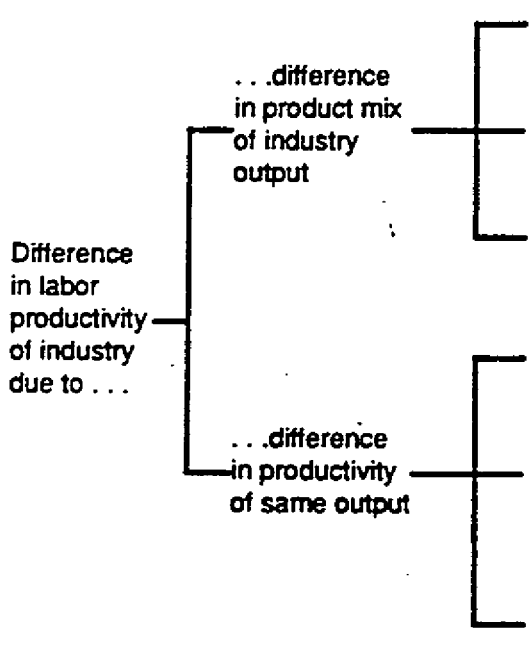
[1] Since the employment structure is slightly different from country to country, we computed the overall labor productivity indexes for Germany and the U.K. on a bilateral basis with the U.S. That means we calculated the productivity index of Germany and the U.K. twice, using in each case the U.S. and the German or U.K. labor weights. Then we took the geometric average from those two index numbers as the final overall productivity index for Germany and the U.K.

Exhibit 2B-12

HYPOTHESES ABOUT RELEVANT FACTORS EXPLAINING PRODUCTIVITY DIFFERENCES IN THE RETAIL BANKING INDUSTRY



	Hypothesized importance of factor in explaining the productivity gap between U.S. and . . .	
	U.K.	Germa
. . .different mix of common output	No	No
. . .different output (variety)	No	No
. . .different quality of common output	No	Low
. . .different output volume/scale economies	No	Medium
. . .different input mix of labor, and capital (automation and information technology)	High	High
. . .less effective and efficient use of labor	High	High

Source: McKinsey

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¶ Differences in the output mix of the industries (i.e., differences in the importance of the same services and in service variety or quality). In the case of the U.K. retail banking industry we think that differences in service mix and variety do not explain the overall productivity gaps. Different service levels, however, may explain a small part of the productivity gap between the U.S. and Germany.

¶ Economies of scale. Many German branches do not reach the critical size for operating in a productive manner. This lack of scale explains a significant share of the German productivity disadvantage.

¶ Capital intensity (i.e., usage of automation and information technologies). These technologies are major productivity drivers in retail banking and, we believe, a major cause of the measured productivity differences. The U.S. industry has spent more on these technologies and has more equipment in place than its European counterparts.

¶ Organizational differences which lead to a less effective and efficient use of labor. Even given scale and technology parity, differences in organization, process design and capacity management are further important explanations for the productivity gaps.

In the following, we will lay out each of these causes in more detail.

¶ Different output mix as causal factor.

Since we measure the industry output on a relatively high level of (functional) abstraction, we might lose some of the richness and the diversity of industry output across countries. Different services might have different inherent labor productivities, even when they fulfill the same function. The service mix could therefore account for differences in functional productivities. And the mix and variety of services in the three countries is quite different.

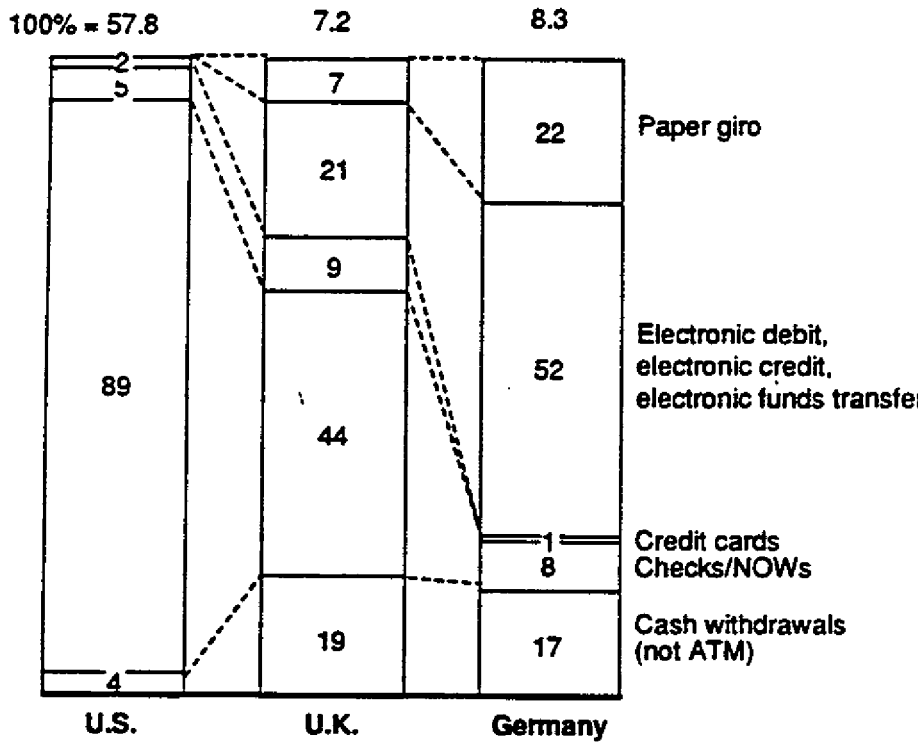
- The U.S. retail payment system is heavily based on checks, whereas the German systems use more than 50 percent electronic-based transactions and the U.K. uses a mix of both (Exhibit 2B-13). The heavy uses of the generally less labor-intensive electronic payment instruments in the European countries, however, should work to their advantage when it comes to labor productivity.

- The mix of services provided is more similar for the deposit function. Regular savings accounts, accounts at building societies, and comparable other deposit products account for at least 70 percent of the deposit-taking output in each country. As mentioned above, however, the usage intensity of these accounts seems to be quite different across countries, which again puts the U.S. rather at a disadvantage.

Exhibit 2B-13

FORMS OF RETAIL PAYMENTS – 1989

Number of payments and cash withdrawals in billions



Source: Bank for International Settlement (BIS); McKinsey analysis

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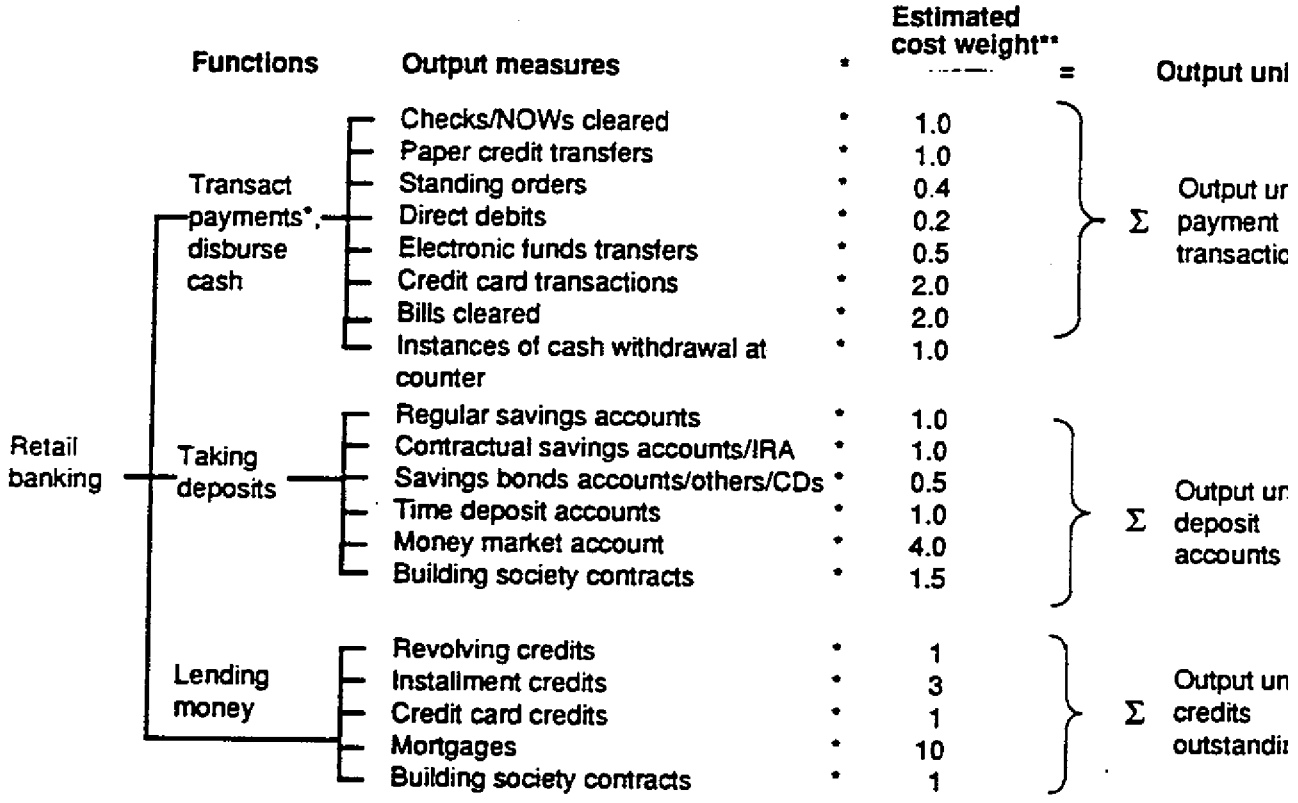
Exhibit 2B-14

MEASURING OUTPUT IN RETAIL BANKING USING COST-BASED OUTPUT WEIGHTS



* Including wholesale payments in output and wholesale payment staff in input

** Estimate based on German and U.S. costs per unit

Source: Functional cost analysis (Fed); McKinsey analysis

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Exhibit 2B-15

QUALITY DIMENSIONS OF RETAIL BANKING SERVICES – 1989

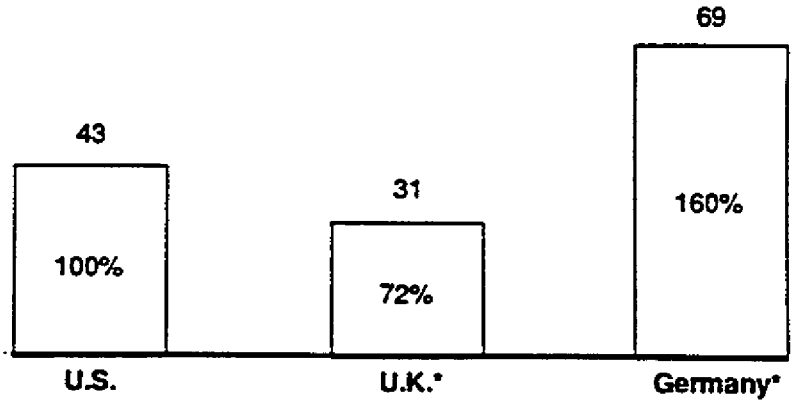
● High
◑ Medium
○ Low

Quality criteria	U.S.	U.K.	Germany	Comment
Interest rates				
- Deposit	●	○	○	Low interest on savings accounts in Germany, very high interest rates on loans in the U.K.
- Credit	●	○	●	
Access to branches				
- Location	◑	○	●	Germany with the highest branch network density
- Opening hours	◑	◑	◑	
Access to ATM services				
- Network density	●	◑	○	U.S. with 20% - 60% more ATM's per capita which have more advanced functions
- Functionality	●	○	○	
Service level in branch (waiting and processing time)	●	●	●	Teller and platform staffing models used in U.S.
Other service critieria	Not evaluated			
- Access to professional advise				
- Willingness to customize				
- Error avoidance and resolution				
- Timeliness				

Source: McKinsey
ZXE-119S 120

Exhibit 2B-16

BRANCHES PER 100,000 INHABITANTS - 1989



	U.S.	U.K.*	Germany*
Total branches	107,000	18,000	43,000

* Without postal bank
Source: McKinsey analysis
ZXE-119S.079a

- The structure of lending accounts also does not work in favor of the U.S., which has the highest proportion of labor-intensive installment credits.

We tested the service mix effect by multiplying the different services of one functional output with their relative costs (Exhibit 2B-14). This transforms the different services into a more comparable output unit for each of the three functions of retail banking and takes care of the "apples and oranges" problem. The calculation of overall retail banking productivity based on these weighted output units reveals that the mix effect does not explain the productivity differences. Instead, the concept of a weighted output measure widens the gap because the service mix in Germany and the U.K. puts them rather at an advantage relative to the U.S. Using the weighted output units in the productivity comparison results in a productivity advantage for the U.S. of 50 and 46 percentage points versus Germany and the U.K., respectively.

We mentioned different grades of quality as another aspect of output mix, e.g., a check is not a check if one is cleared in two days and the other one in 5 days. And the delivery of higher quality services might make higher labor input necessary. We therefore evaluated several major dimensions of quality in retail banking to see whether the U.S. industry "buys" its higher productivity at the expense of lower quality. Overall, however, the quality of U.S. retail banking does not seem to be lower than in the U.K. and lags behind Germany only in the criteria of branch density (Exhibit 2B-15).

- U.S. service quality seems to be superior to the U.K. and Germany in two areas: Real interest rates are more advantageous for the consumer and a dense and advanced Automated Teller Machine (ATM) network allows more convenient 24-hour banking.

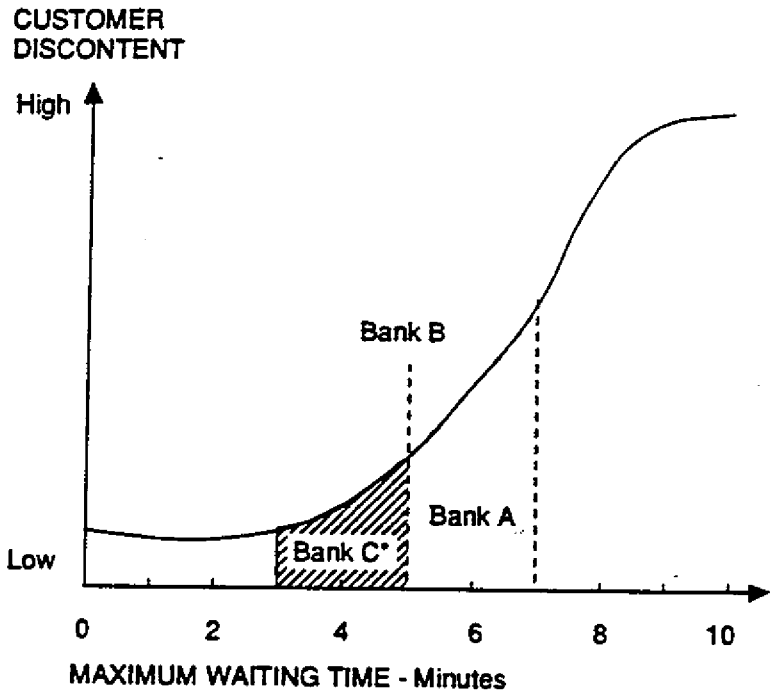
- Access to the branch network, however, is easier in Germany, where the branch density exceeds the U.S. by 60 percent (Exhibit 2B-16). The German savings banks and credit cooperatives run an extensive branch network which also covers rural areas very well.

- Service levels in branches are an important quality factor for the consumer because even the U.S. customer still goes into a branch an average of about once a week. U.S. banks have studied customer behavior and apply statistical staffing models for tellers to control the maximum waiting time in the line (Exhibit 2B-17). The general perception in Europe that U.S. customers always stand in lines might be skewed by the peculiar Manhattan market. We therefore conclude that service levels in U.S. branches are not generally lower than in Germany or the U.K.

Exhibit 2B-17

MAXIMUM WAITING TIME IN STAFFING MODELS OF U.S. BANKS

EXAMPLES



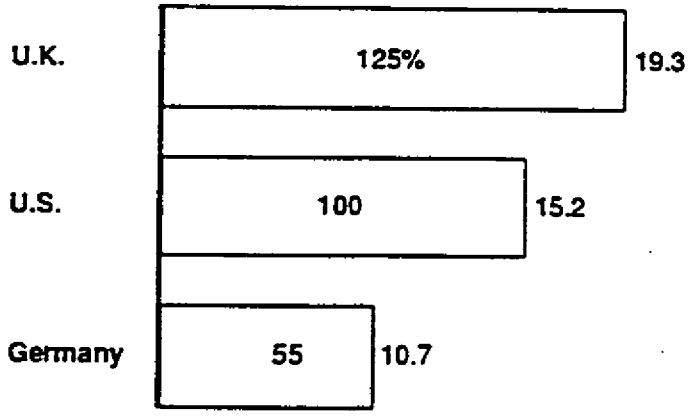
* Average waiting time 1.5 - 2.1 minutes for 92% of customers

Source: Interviews

ZXE-119 238

Exhibit 2B-18

AVERAGE RETAIL BANKING FTEs PER BRANCH* - 1989



		Percent of employment
Credit unions	7	8%
Thrifts	16	27
Commercial banks	20	64
Credit cooperatives	7	24%
Savings banks	12	41
3 big commercial banks	20	19

* Total retail banking employees divided by number of branches; excluding postal bank in Germany and U.

Source: McKinsey analysis

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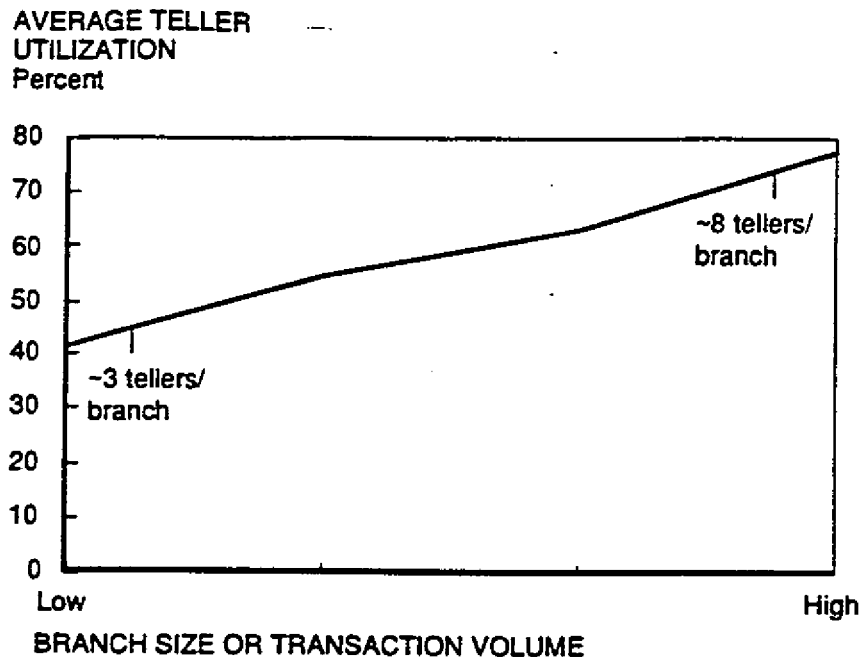
Exhibit 2B-19

TELLER UTILIZATION AND BRANCH SIZE AT A U.S. BANK



Source: McKinsey analysis

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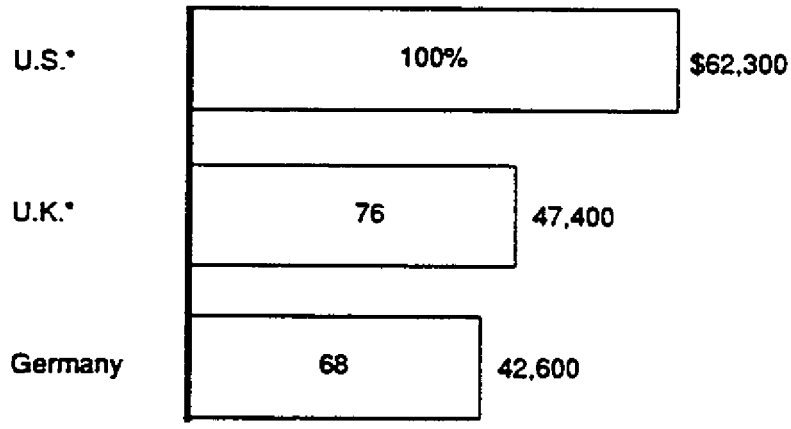
Exhibit 2B-20

CUMULATIVE SYSTEMS EXPENSES PER BANKING EMPLOYEE – 1980-90
(AT PPP)



* Commercial banking industry only

Source: McKinsey estimate

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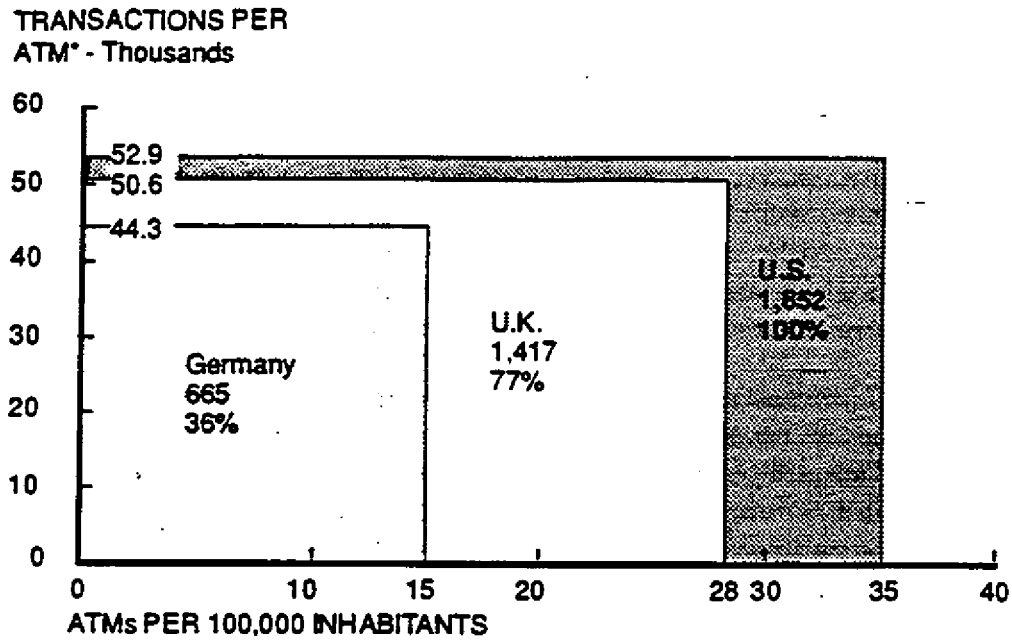
Exhibit 2B-21

USAGE INTENSITY OF ATMs - 1989

Transactions per 100 inhabitants



* U.S. : 79% of monthly transactions (excludes balance inquiries)
U.K.: Cash withdrawals
Germany: Estimate based on cash withdrawals at ATMs of savings banks (major supplier of ATMs)

Source: BIS; annual report Sparkasse; APACS; Bank Network News

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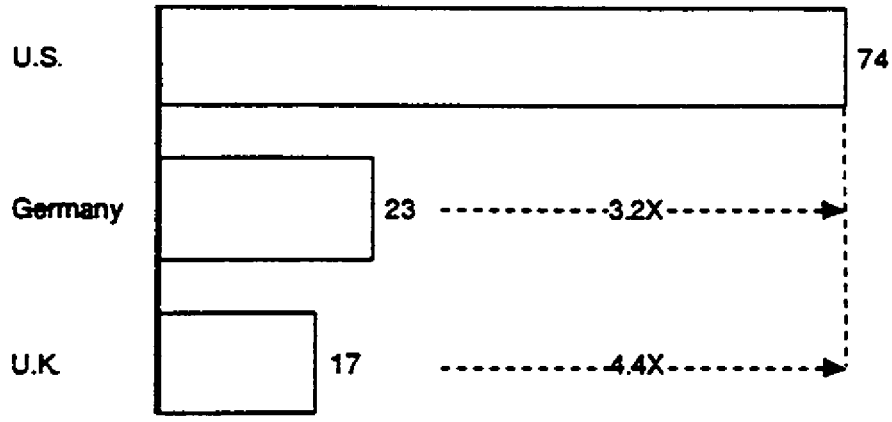
Exhibit 2B-22

TERMINALS IN BANK BRANCHES PER 100 EMPLOYEES*



* U.S. : Retail terminals (on-line teller and platform) per employee in commercial banks - 1989
Germany: Teller terminals and platform terminals per employee in savings banks - 1990
U.K.: Terminals other than ATMs in U.K. banks per bank employee - 1991

Source: ABA National Operations/Automation Survey; Annual report Sparkassen; MACE

Overall, we come to the conclusion that pure quality differences explain at best only a small fraction of the productivity gap between the U.S. and Germany. The productivity gap between the U.S. and U.K. does not appear to be affected by quality differences at all.

¶ Different Scale as Causal Factor

Compared with the retail banking industries in Germany and the U.K., the U.S. industry is more fragmented, with an average of only 3 branches per institution, compared with 11 in Germany. U.S. banks therefore generally do not have any scale advantages related to a bigger branch network. But U.S. institutions could have a scale advantage on the branch level if economies of scale in branches exist and U.S. branches were bigger.

U.S. branches are on average bigger than German branches. The credit unions or credit cooperatives, the smallest institutions in both countries, have about the same average size of 7 employees per outlet and account only for 6 percent of employment in the U.S., but about 22 percent in Germany (Exhibit 2B-18). Consequently, the scale of German branches is on average smaller. And scale matters, since bigger branches can generally reap the benefits of scale due to higher total transaction volume in the branch. This allows for increased utilization of the tellers, for instance, from about 40 percent in a branch with about 3 tellers to almost 80 percent in a 8 teller branch, as an U.S. example shows (Exhibit 2B-19).

We estimate that about 5 percentage points of the 32 percentage points productivity difference between the U.S. and the German industry are explained by this factor. These economies of scale from lower average branch size in Germany therefore contribute to but are not the most important factor of productivity differences. By contrast, due to the larger average scale of branches of U.K. banks, they should have even higher economies of scale than U.S. institutions. But either these economies are not exploited by the organization or the scale effects are offset by other inefficiencies in U.K. retail banking.

¶ Automation and Information Technology as Causal Factor

The U.S. retail banking industry spent significantly more resources on systems and information technology per employee during the 1980s than the two European industries (Exhibit 2B-20). The U.S. not only spent more money on systems, but apparently invested it even more effectively to increase labor productivity. While systems expenses and power increased heavily in both the U.S. and the U.K., only U.S. employment in the banking industry stayed flat during the 1980s. We think that one reason for that is the U.S. commitment to two new technologies that changed the retail banking industry in the last decade: ATMs and on-line applications in the branches.

- The U.S. banking industry invested heavily in automation technologies like the ATM. The density of the U.S. ATM network, as well as its functionality, exceeds European standards. Taking the transactions per ATM into account, the German usage intensity of ATMs is only 36 percent of the U.S. rate (Exhibit 2B-21). We estimate that the lower usage intensity of ATMs alone accounts for about 1 to 3 percent points of the productivity gap of the total retail banking industry (shift effect from manual to automated teller service).

- The support of labor in the back office, at the tellers, and at the platform desks with on-line terminals is certainly an important source of productivity advantages. We estimate that the penetration of these applications in the U.S. significantly exceeds penetration in the two European countries (Exhibit 2B-22). Although the U.K. and Germany have made impressive productivity improvements using these technologies, the different penetration rate between the U.S. and Europe indicates that there is much more room for improvement.

We cannot quantify the impact of automation and information technologies on retail banking productivity in detail. We do believe that their effective use is a major productivity driver in retail banking. However, why managers use globally available technologies to different extents, cannot be explained by differences in factor costs. The cost of labor has been about the same in all three countries and managers should therefore face a similar trade-off between labor and capital.

¶ Organization as Causal Factor

Productivity differences which cannot be explained by any of the factors discussed earlier must originate from differences in organization of labor, i.e., the way labor is applied to provide services effectively and efficiently. Although we could not quantify the differences in labor organization across countries in detail, we found some anecdotal evidence to support our hypothesis, that organizational – and that means manageable – differences account for a significant part of the productivity gap.

- U.S. banks continuously streamline their operations. Applying new technologies, they centralize non-customer functions and reap the benefits of scale, standardization, and specialization. More recently, they started to rethink the whole branch network organization and restructured the network using a modular approach so that only services needed by the specific local market are offered at each location.

- The organization in U.K. branches is traditionally very rigid and changes only slowly. Each branch is operated very much as an independent "small bank." As a consequence, processes not directly

related to customers are still very much decentralized, e.g., checks are still encoded in the back office of each branch.

- In Germany, the organization in the extensive branch network is also rather decentralized. The emphasis on personal service led to the prevalence of full-service branches with a high degree of specialization among branch employees, even in relatively small branches.

The organization of the service delivery process in the branches and network is designed by bank management. Thus, differences in organization reflect differences in the skills and objectives of management. We do not think that there are general long-term differences in (potential) skills of management and clerks in the U.S., German and U.K. retail banking industries. Current skills of the management, however, are a function of the peculiar challenges and environment of each industry in the recent past and thus they might be a constraint for change in the short term. In any case, we think that the creation of a productive organization is mainly a function of the objectives and motivation of management to design effective and efficient structures and procedures.

Moreover, management also decides what mix of services it provides, and how it exploits economies of scale and reaps the benefits of information technology. However, differences in demand, regulation and competitive pressure create different objectives and incentives for management. Therefore, management's decisions on the production process differ and productivity varies. Let us therefore turn to the second level of causality to understand the different drivers of management behavior in the retail banking industries.

Causality on the Level of Management, and External Factors

The approach that U.S. retail bank managers have generally taken to labor productivity has been motivated by a variety of pressures on their industry to perform. Deregulation in the late 1970s and early 1980s created new threats to the old way of doing business and opportunities for those who would innovate. Demanding customers rewarded banks who lowered costs and improved services. And competition within the industry and with other industries (e.g., the security industry) meant only the best managed banks would survive. Managers in the U.S. therefore had great incentives to improve their operations. Largely through the deft use of information technology, streamlining their organizations and just outgrowing inefficiencies, retail bank managers responded to the pressures they faced by raising the productivity of their industry. As a result they created the more productive production process described earlier, and they now enjoy a considerable productivity advantage over their British and German counterparts, who thus far have not faced comparable pressures to perform.

The objectives and incentives of banking management in Germany and the U.K. and the resulting behavior have been different from that in the U.S. Objectives and incentives have been formed by the specific market forces and context in each country. While the German retail banking industry has been almost completely deregulated, the pressure to innovate and increase productivity was still low at the end of the 1980s. And competitive intensity in the U.K. increased only after the deregulation of the early and mid-1980s. The major differences in market forces and context across the three countries can be summarized as follows:

- Underdeveloped demand in Germany and the U.K.: While U.S. customers are price sensitive and switch banks frequently, the German customer is not yet very demanding. Relatively low accumulated wealth (especially in the first decades after the war) and the emphasis by the current asset holders on "soundness," rather than on return, led to relatively price insensitive demand. German savers at the end of the 1980s were still satisfied with low interest rates on their savings deposits. This allowed the banking industry to raise savings funds at a very attractive rate. In the U.K., the demand for financial services developed only fairly recently. In 1976, less than 70 percent of adults had any account at a bank or building society and almost 60 percent of employees were paid in cash. By 1989 those figures had changed to about 90 and 25 percent, respectively.

- Retail banks in Germany are not forced to compete on rates: U.S. banks face intense competition for retail assets from substitutes (e.g., money market funds), other industries (e.g., investment banks) and new entries (6,000 new banks between 1960 and 1985). In Germany, however, the competitive intensity is relatively low. High non-regulatory barriers to entry prevent new entries in the retail banking industry. The universal bank concept allows cross-subsidizing and cushions competitive pressures. Regulation of some products (money market funds will not be allowed until in 1993) prevented the invention of high interest substitutes for savings accounts. Since the prospects for advantages through price competition for savings funds seem limited. German banks compete on personal service rather than interest rates.

- Relative low cost pressure in Germany and the U.K.: While U.S. banks frequently suffered losses and were forced to streamline their operations and cost base, German banks never, and U.K. banks only recently, experienced a comparable profitability squeeze. The pressures and incentives for German and U.K. management to restructure their business and to improve their cost base significantly are therefore very different.

- Low competitive intensity in the U.K.: Until recently, the U.K. retail banking industry was dominated by the four big clearing banks that held more than 50 percent of total banking industry assets (Exhibit 2B-23). The

— industry followed the rules set by these players. Only the recent deregulation of interest rates (1980) and increasing competition between building societies and banks (1986) led to a performance spread and increased the competitive pressure in the U.K. retail banking industry (Exhibit 2B-24). Before these deregulations, banks in the U.K. faced competition in their international and wholesale business rather than in their retail business.

As a result of these factors, banking managers in Germany and the U.K. had different objectives for and made different decisions about running businesses and competing from their counterparts in the U.S.

¶ German bankers tried to get as many saving deposits at cheap rates as possible. They, therefore, built an extensive branch network to maximize the number of customers and thus savings deposits. And, given the context of the German industry, it was very rational to pursue this strategy, since regular and contractual savings products accounted for almost 90 percent of total profits in the retail banking business in 1988. Since price competition is limited, they stress personal service, which leads to overstaffed branches, over specialized personnel and little investment in automation and self-service concepts. In the end, the low rates for savings funds drove the resources of the industry towards low labor productivity but high profitability.

¶ U.K. bankers tried to perform only as well as their peers. There were only limited incentives to outperform the competitors in the national retail business. Accordingly, the management in the U.K. paid more attention to the international and wholesale business. Consequently, the strategy, technology and organization in U.K. retail banking was not aimed at achieving high levels of labor productivity.

We have discussed the causes for the observed differences in labor productivity between the U.S., German, and U.K. retail banking industries on the two levels of the production process, and the external factors, which both influence and are created by management. Differences in pressure to perform and in the degree of competition were the underlying major reasons for productivity differences. Changes in those drivers of productivity will have particular impact on the German and U.K. industries in the next years.

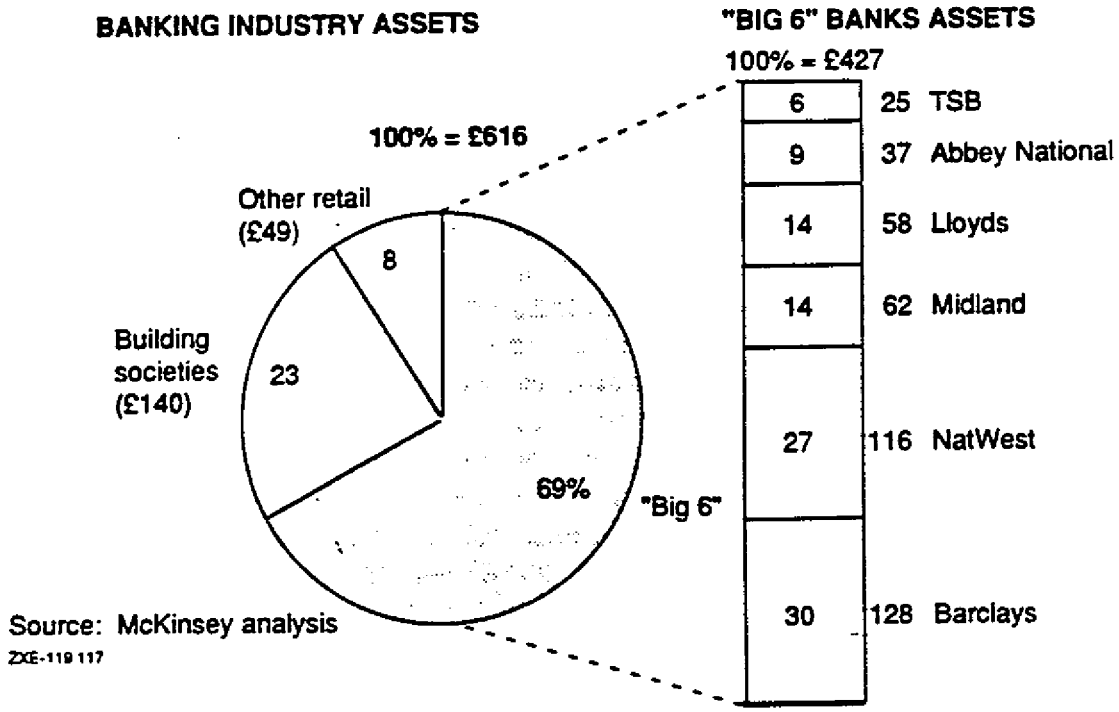
OUTLOOK FOR THE FUTURE OF THE RETAIL BANKING INDUSTRIES

The pressure in Germany to improve labor productivity is increasing. Almost 50 percent of the most profitable assets (saving accounts) will shift in the next decade to a more "educated" and demanding generation of customers. New competitors like credit card operators offer customers attractive substitutes, the

Exhibit 2B-23

INDUSTRY STRUCTURE U.K. – 1989

£ Billions



Source: McKinsey analysis

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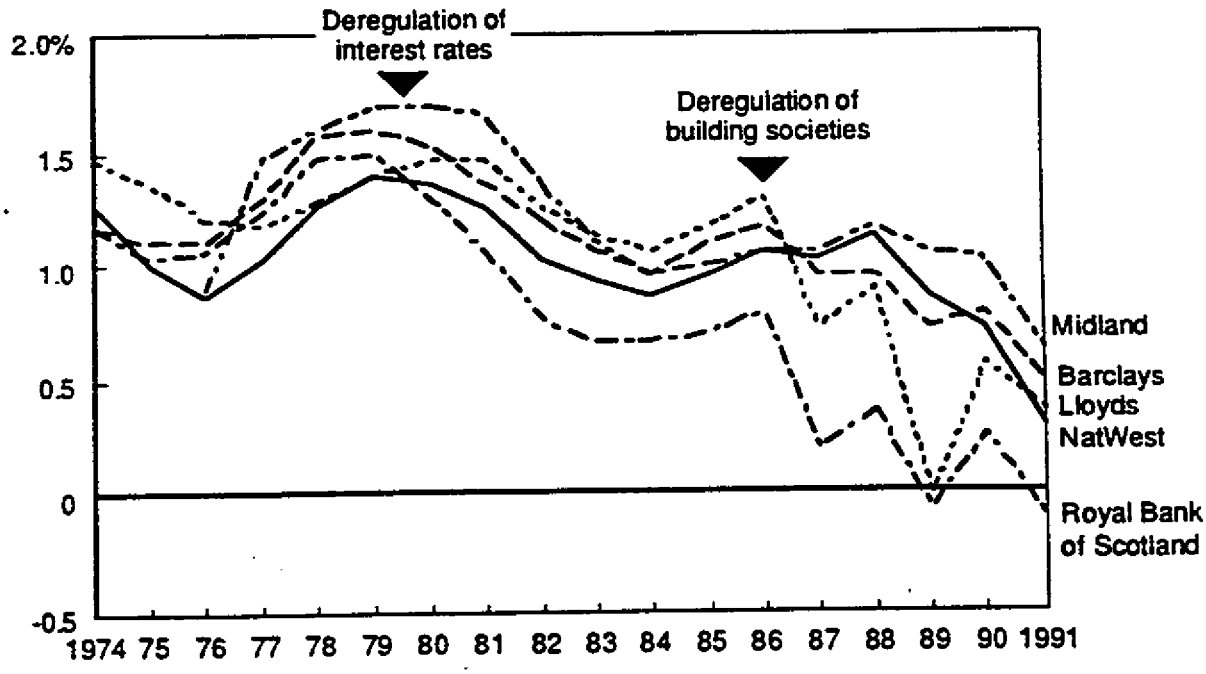
Exhibit 2B-24

RETURN ON ASSETS (PRETAX) OF U.K. CLEARING BANKS

3 YEAR AVERAGE

Percentage



Source: BBA

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security and insurance industries are gaining market share from the banking industry, and money market funds will be allowed in 1993. We therefore expect that the German retail banking industry will undertake a major restructuring of its branch network and that the banks' business system will undergo significant reconfigurations, e.g., through automation and self-service concepts like homebanking, but also through expanding in other business like insurance ("Allfinanz"). The productivity of German retail banking will increase sharply during the next decade.

The U.K. retail banking industry is currently undergoing a major restructuring. As pressure from new competitors (especially the building societies) and the profitability squeeze from recent loan losses break up the cozy retail business, the need for productivity improvements becomes undeniable. A major shakeout of employment will be the likely consequence.

The question, however, is whether this will lead to a convergence of the two European industries with the U.S. industry in terms of labor productivity that would close the productivity gap. Probably not, because the U.S. banking industry has not yet finished the current era of transformation. We expect massive market share shifts through mergers and acquisitions in the next years and a consolidation of the industry will probably lead to a more stable new equilibrium with the survival of the most productive. Thus, the industry is likely to further boost its labor productivity again by two means: increasing output with the growing economy and eliminating jobs in less productive banks.

POLICY IMPLICATIONS

Our productivity comparison of retail banking in the U.S., Germany and the U.K. revealed significant productivity differences in favor of the U.S. industry. The causality analysis indicates that differences in public policy are important causes of this productivity difference. This has implications for U.S. and European public policy, in particular for competition and anti-trust policy.

In the following, we highlight what in our view are the most important issues for the policy agendas in the U.S., Germany, and the U.K. Overall, we think that the policy agendas should focus on the idea of a competitive, open retail banking industry in which the major roles of government are making markets work better and supporting the transition to an industry with high competitive intensity.

To follow upon the deregulation that occurred in the 1980's, the U.S. policy agenda should focus on additional steps to further encourage competition in the retail banking industry.

- Federal and state banking regulations on ownership and merger and acquisition rules prevent market entries of non-banks (e.g., the Bank

Holding Company Act) and impede market penetration by the most successful players (e.g., unit banking regulations). Further deregulation of nation-wide banking and branch banking should foster competition and the transformation of the U.S. retail banking industry.

¶ Restrictions on the service range of banks and thrifts (e.g., security and insurance business) prohibit direct competition with related industries and curb the opportunities for innovations. Again, consumers are likely to benefit from a liberalization of these restrictions.

Facing a major transition in the German and U.K. retail banking industries, government and regulatory bodies in these countries should pursue a somewhat different policy agenda.

¶ In both countries, market entry is not restricted and retail banking institutions are free to offer a wide range of services (with the exception of money market mutual funds in Germany, which will be liberalized in 1993). Formally, the retail banking industries are already fairly deregulated. Thus, further deregulation plays only a minor role on the policy agendas.

¶ As a result of deregulation in the markets, market forces will create pressure to perform, and the competitive intensity in Germany and U.K. is likely to increase significantly in the near future. The transformation of the industries seems inevitable. Competition, however, will create failures. Government and regulatory bodies therefore have to create mechanisms for dealing with them. Institutions which could not compete were handled rather poorly during U.S. deregulation in the 1980's. European policy makers should try to avoid the mistakes which were made in the U.S.

¶ Avoiding bank failures and resolving them quickly during the transformation of the industry towards more intense competition will create a healthier financial sector and minimize the effects on the rest of the economy. Maintaining high capital and accounting standards and forcing failing institutions to raise capital or to merge with strong institutions are examples of measures that could minimize the failures.

* * *

Exhibit 2B-25

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES
RETAIL BANKING

● Important
O Secondary
X Undifferentiating

External factors	
– Market conditions	
• Demand factors	O
• Relative input prices/ factor availability	X
– Policy and regulation	
• Competition rules and concentration rules	●
• Government ownership	X
• Labor rules and unionism	X
Management behavior	●
Production process	
– Output mix, variety, quality	O
– Economies of scale	O
– Capital (intensity and vintage)	●
– Skill of labor	X
– Organization of labor	●
Labor productivity	

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Labor productivity in the retail banking industry in the U.S. was 32 percentage points higher overall than in the German industry in 1989 and 36 percentage points higher than in the U.K. industry (U.S. = 100 percent). A major cause of the gap on the level of the production process is the U.S. industry's much more extensive use of information technology (Exhibit 2B-25). Usage of information technology contributed to the importance of another causal factor of productivity differences, organization of labor. The U.S. industry's managers have been responding to the intense competitive pressures on the industry in the last decade that have encouraged higher productivity. Managers in the U.K. have only recently begun to face similar pressures and we expect that the industry will change dramatically in response. In Germany, managers operated until recently in an environment of stable rates and demand. Again, this led to a lack of incentives and pressure for improving productivity by creating an industry structure which would serve customers in a productive and efficient manner.

C – PRODUCTIVITY IN THE RESTAURANT INDUSTRY

Throughout the world, restaurants make up a significant part of the service economy. The restaurant industry in the United States, for example, employs nearly 6 million workers, but has become notorious for its low productivity and low wages. The restaurant industry has an important symbolic place in internal American debates about economic policy. Some critics of U.S. economic performance have viewed the growth of fast food restaurants as a sinister development, and use the phrase "hamburger-flipper" as a code word for the decline of industrial America and the loss of good manufacturing jobs. Government statistics report declining productivity in the industry during the 1980s. Despite these rather bleak perceptions, our review of international differences in the restaurant industry has led us to some rather surprising findings about the economic impact of the U.S. restaurant industry:

- ¶ The U.S. restaurant industry has productivity levels that are slightly lower than those of the French restaurant industry and somewhat higher than in Germany
- ¶ Fast food restaurants not only have clear advantages in meal throughput, but they also are just as productive as full service restaurants on average in terms of total service output per employee
- ¶ All the international differences in productivity are in the full service category.

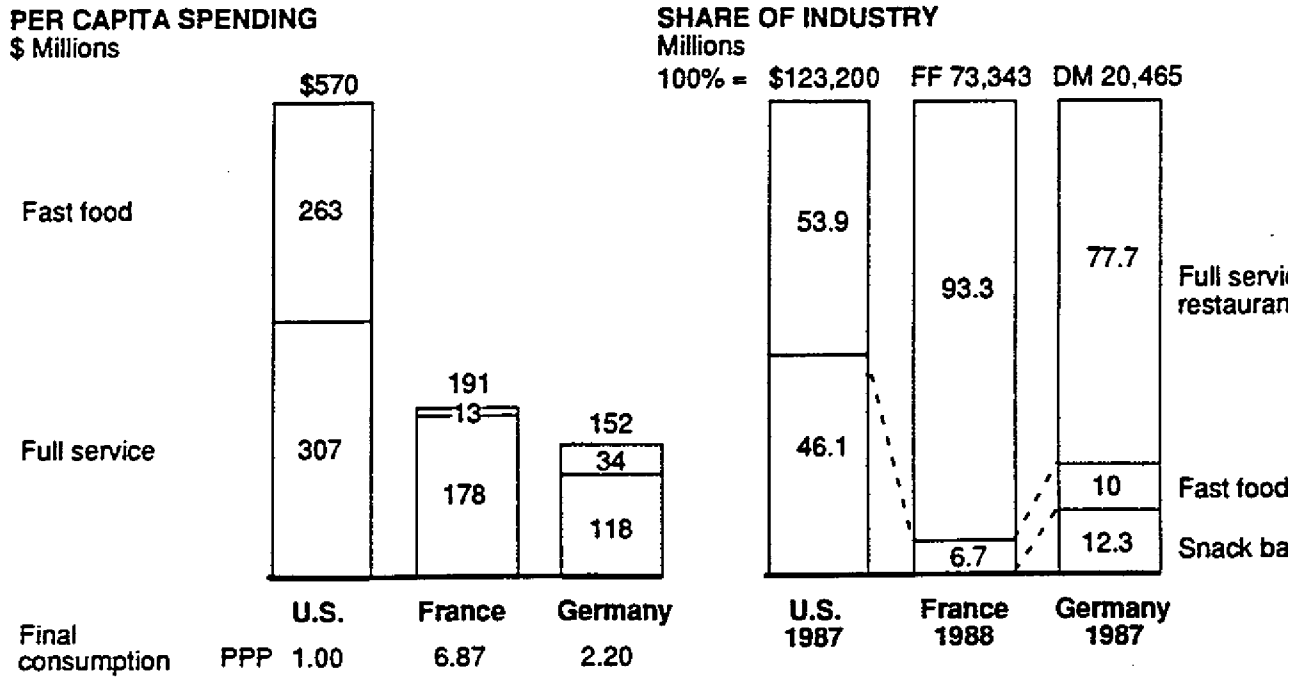
This summary report will discuss our case study in five sections. First, it provides as short overview of the industry and data issues relevant to the study. Second, it discusses the issues involved in selecting and interpreting a productivity measure for the restaurant industry. Third, the report summarizes the results of international comparisons. Fourth, it proposes a causality story in two parts. It discusses at some length the impact of scale and format differences on productivity, and it relates these production function differences to differences in market forces and national context. Fifth, the report concludes with comments about the outlook for the restaurant industry.

DEFINING THE INDUSTRY

This case study evaluates the relative performance of the restaurant industry in the U.S., France and Germany. We defined the restaurant industry as both fast food, which includes outlets providing counter service from a limited, low price menu, and the more general full service category, which includes establishments providing table service. Restaurants in the full service category very often serve alcoholic beverages; but because establishments that sell mostly alcohol (i.e., bars,

Exhibit 2C - 1

RESTAURANT INDUSTRY OVERVIEW



Source: Department of Commerce; Statistische Bundesamt; INSEE

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Exhibit 2C - 2

RESTAURANT INDUSTRY PRODUCTIVITY MEASUREMENT OPTIONS

	Option 1	Option 2
Output measure	Sales	Value-added
Conversion	Eating and drinking PPP	Final consumption PPP
Implies measurement of	Throughput of normalized meals	Service value provided by restaurant, measured by opportunity cost to customer

ZOE-119 409

taverns and pubs) generate extremely high throughput and margins, we have excluded those types of establishments from our results. To the extent that the remaining European establishments sell more alcohol than their U.S. counterparts, our productivity measures will be biased against the U.S.

The structure of the U.S. restaurant industry under investigation is quite different from that of its French and German counterparts (Exhibit 2C-1). In the first place, the U.S. spends much more per capita on restaurant meals of all kinds. Americans spend two to three times as much per capita in full service restaurants as the French and Germans. But the really striking statistic is the amount that the U.S. spends on fast food, from 6 to 20 times as much per capita. The result is that fast food accounts for nearly half of U.S. restaurant spending, versus 10 percent in Germany and less than 7 percent in France. To the extent that fast food restaurants efficiently maximize throughput, we might expect this format mix difference to contribute to higher average throughput in the U.S.

In every country studied, the restaurant industry has many thousands of participants. Authoritative, official data comes from surveys and inquiries, which track industry conditions and employment. However, the restaurant industry typically has not been subject to the kind of intense data collection required by government regulators of, for example, airlines, banks, or telecommunications. As a result, the official data that is available is generally limited to sales and establishment data at a very high level of aggregation, with occasional notes on margins and total employment, part-time, and unpaid employment. We have used this official data whenever possible, but we have also included private sources to help model format differences and the impact of mix shifts.

DEFINING PRODUCTIVITY

Exhibit 2C-2 shows sales per employee at the industry PPP and value added per employee at the final consumption PPP are the two primary candidates for measuring labor productivity in the restaurant industry. The first option is essentially to measure the throughput of normalized meals. The second option measures all restaurant services as valued by consumers in each economy. While neither measure is perfect, we believe that both have power to help explain international differences in the restaurant industry. This study uses value added per employee as the primary measure of productivity. Understanding this choice requires some exploration of the key issues involved – specifically, how to define industry output and make currency conversions

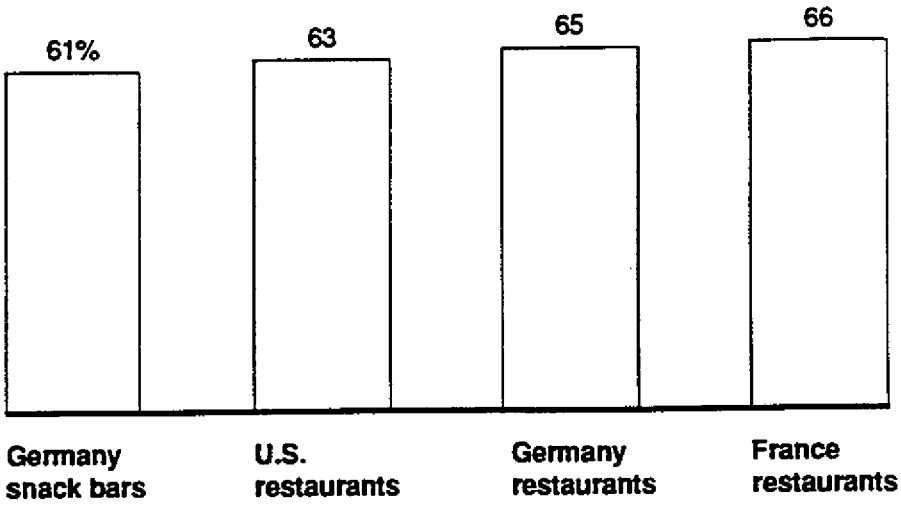
Defining the output

As in the retailing case, defining an appropriate productivity measure is problematic. On one hand, it is tempting to measure the throughput of meals as the chief output. Yet we immediately recognize that some meals are simply not

Exhibit 2C - 3

GROSS MARGIN COMPARISON

Percent of sales



Source: BRD Statistiche Bundesamt; Department of Commerce; INSEE

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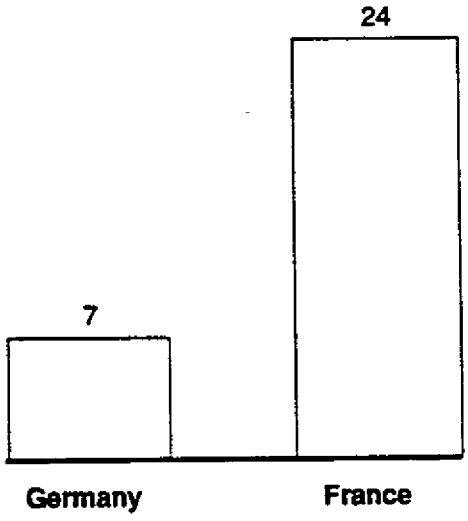
Exhibit 2C - 4

RESTAURANT PPP DISADVANTAGE VS. FINAL CONSUMPTION PPP

1990 BENCHMARK



Source: OECD

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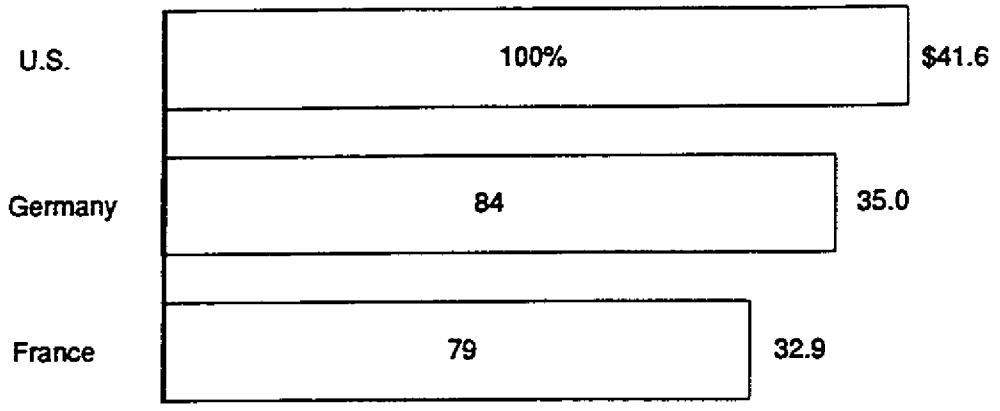
Exhibit 2C - 5

THROUGHPUT PER EMPLOYEE

$ Thousands at E&D PPP



Source: Department of Commerce; BLS; INSEE; BRD Statistische Bundesamt

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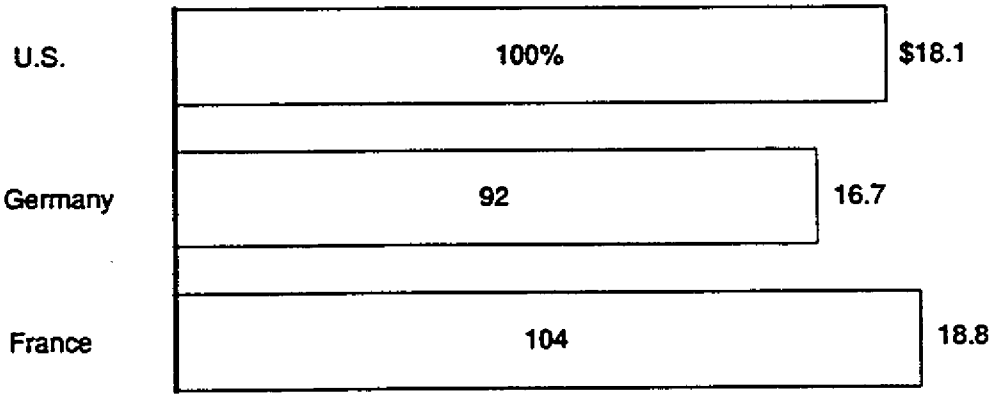
Exhibit 2C - 6

RESTAURANT PRODUCTIVITY

VALUE ADDED PER EMPLOYEE

$ Thousands at final consumption PPP

ESTIMATE



Source: INSEE; U.S. Department of Commerce; BLS; BRD Statistiche Bundesamt

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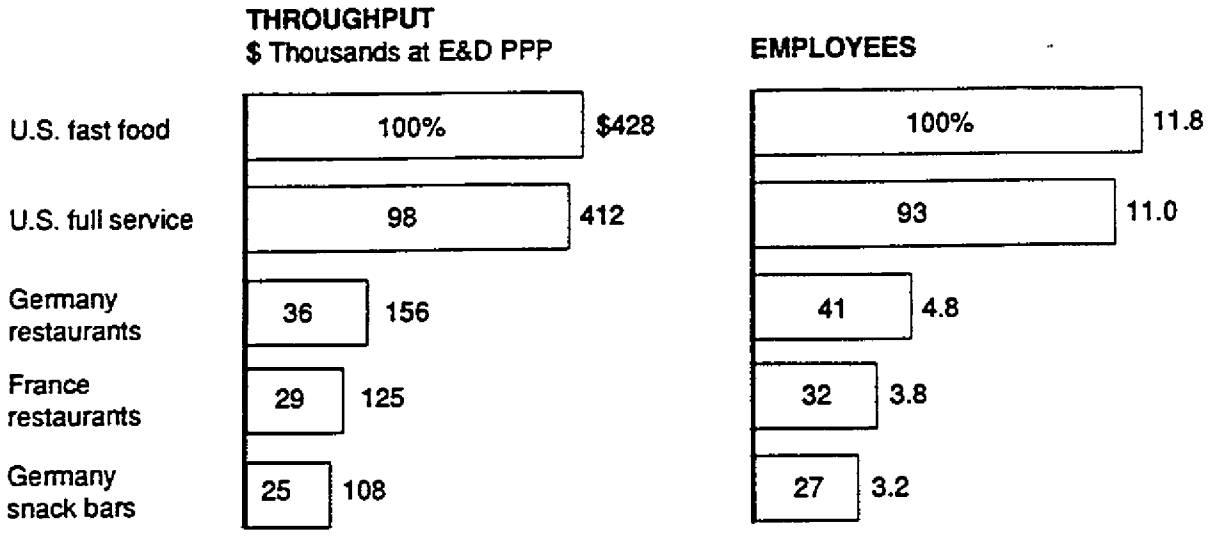
Exhibit 2C - 7

ESTABLISHMENT SIZE



Source: Department of Commerce; BLS; INSEE; BRD Statistiche Bundesamt

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comparable; no one would argue that the output represented by dinner at Tour d'Argent or Lutèce is the same as provided by a Big Mac, fries, and a shake at a drive-through window. The amount of effort, and labor, required to provide the different level of food preparation, service, presentation and ambiance are so fundamentally dissimilar as to make comparison meaningless. As in retailing, there is a persuasive argument that the real output of the restaurant industry is a bundle of services, and that the best way to measure them is by their value added. At the end of the day, we believe that using sales or value added would probably make very little difference in the magnitude of measured differences. As Exhibit 2C-3 shows, margins are large and similar across countries. We infer that cost structures and value-added margins are also similar and that the sensitivity of our finding to using sales or value added is relatively small (less than 5 percent).

Making international conversions

But if the difference between sales and value added is minor, the differences between the eating and drinking component of the 1985 benchmark PPP and the PPP for all consumption are very large. We can infer from this that restaurant meals are relatively expensive compared with other goods in the German and French economies. We assume this difference results from the relative higher average quality and service of European restaurants relative to the U.S. We choose to use the final consumption PPP because it better reflects the perspective of customer value and because the uncertainties of the PPP methodology tend to be concentrated at the industry level compared with the whole economy. It is worth noting that applying the eating and drinking PPP is a simple matter, since it will systematically reduce German and French productivity by 7 and 24 percent, respectively, versus comparisons made using the final consumption PPP (Exhibit 2C-4).

MEASURED PRODUCTIVITY DIFFERENCES FAVOR THE U.S.

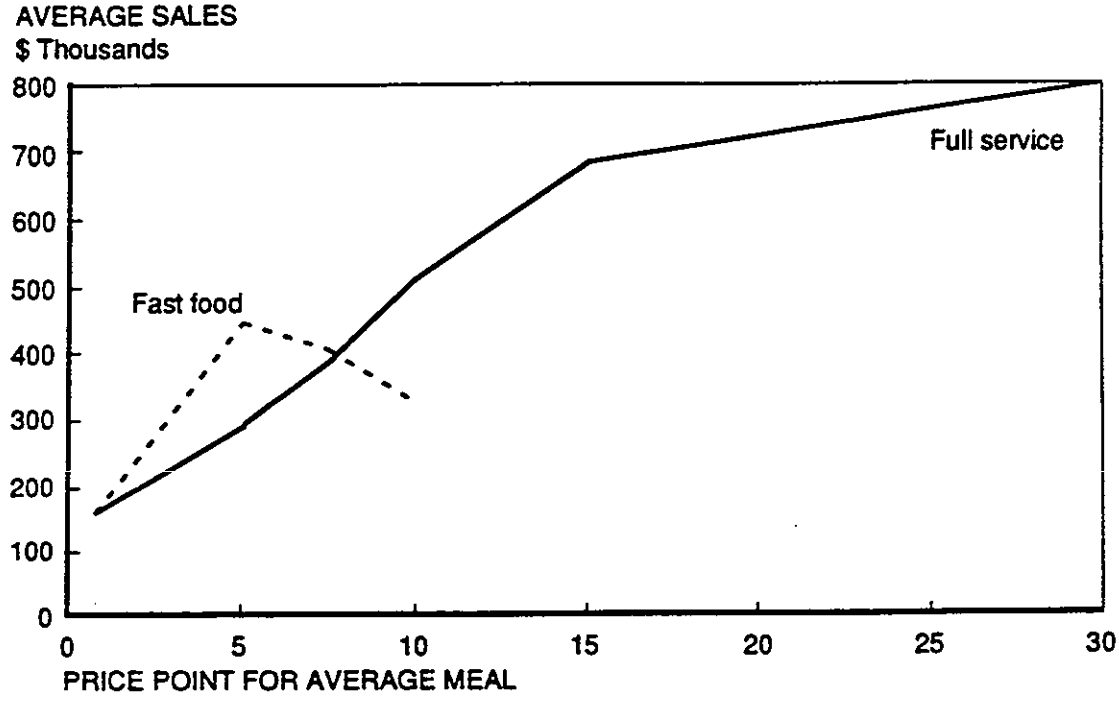
At the highest level, we found higher U.S. productivity levels in throughput, although the picture is considerably different when we measure total service output. Exhibit 2C-5 shows that throughput per employee in U.S. restaurants is 21 percentage points higher than in the French industry, and 16 percentage points higher than in German restaurants. Exhibit 2C-6 shows, however, that when quality and the customer value perspective are taken into account, productivity in French restaurants is 4 percent higher than in the U.S. and the difference in German and U.S. levels narrows to 8 percent. The difference between these two ways of looking at productivity is almost identical to the difference between the GDP final consumption and industry specific PPPs.

The relative lack of difference between national productivity levels is surprising, especially considering the small size of average restaurants in France and Germany (Exhibit 2C-7). While fast food and full service restaurants in the U.S.

Exhibit 2C - 8

PRICE POINT AND AVERAGE SALES PER ESTABLISHMENT – 1987

U.S.



Source: U.S. Department of Comerce

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average over $400,000 in annual sales and 11 to 12 full time equivalent employees, average restaurants in France and Germany have a sales level that is about one-third as high and average only 4 to 5 employees. This clearly raises issues of scale. Unfortunately, comparable international data that would allow us to continue down through format differences to functional level productivity differences are not available. Therefore, our causality story will examine the economic differences between formats based upon the experience of restaurants in the U.S. and apply our findings to international differences.

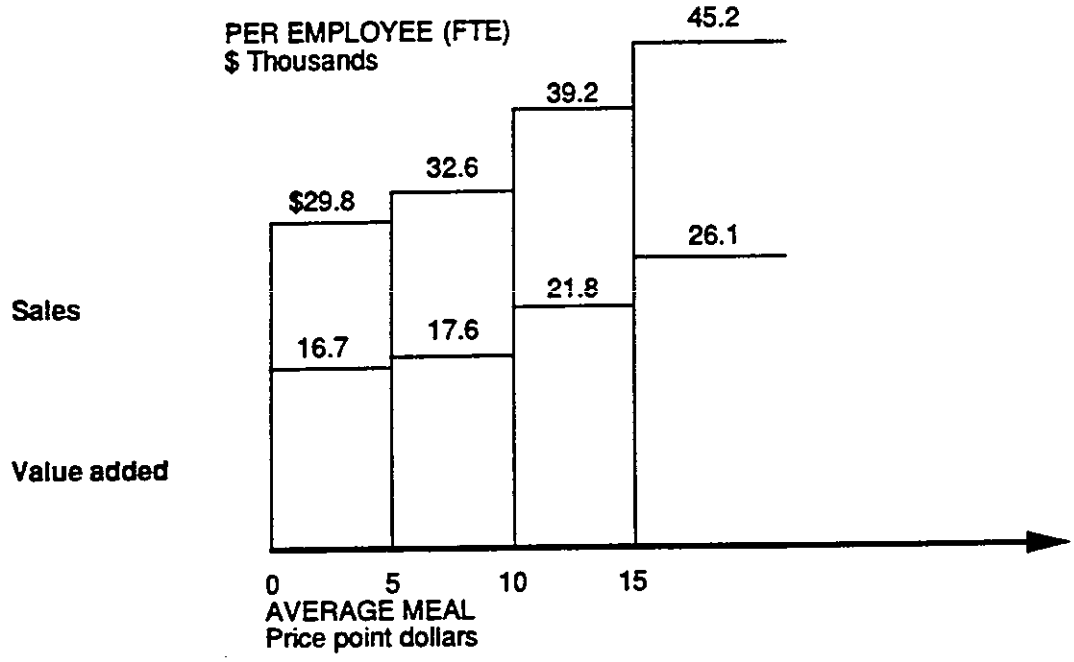
CAUSALITY

The production process in restaurants is technically very simple, which allows both the use of the most marginal, least skilled labor and scale economies, with some exceptions, at relatively low volume. It is very labor intensive and the cost of materials is usually about 35 percent of sales. This implies that sustainable differences in price and contribution are almost wholly the result of differences in service, and that sales and value-added per employee will both increase as the "quality" of the restaurant increases. The very large number of competing businesses in the eating and drinking industry implies that the level of effective consumer choice is high enough to overcome immediate concerns about monopoly rent-taking. However, full service restaurants suffer from a much higher degree of complexity at each stage of production, with the result that they are under a large disadvantage in terms of throughput. The most surprising finding about the U.S. restaurant industry is that fast food restaurants have average productivity, equal to the average for full service restaurants. Our analysis leads us to reject the idea that fast food restaurants reduce overall productivity, or that they lower the average productivity of the U.S. industry.

Exhibit 2C-8 shows that total restaurant sales are related to the amount of the average check. Fast food restaurants almost always have an average price per meal of about $4. In 1987, restaurants at this price point averaged about $450,000 in sales per outlet. Restaurants below $2 dollars averaged sales that are much lower than average; in fact such establishments seem to be similar in size to the average German snack bar. Fast food restaurants above the $5 price point have some difficulty finding a market, as the declining average sales per establishment indicates. Full service restaurants, by contrast, show a consistent increase in average restaurant sales as average cost per meal increases. There are a number of very small low value establishments with price points under $7. These establishments are however, large in number, and account for 65 percent of full service restaurants and 48 percent of sales. Middle range restaurants, with meals priced between about $7 and $15, begin to have average sales greater than the average fast food restaurant, and they account for 28 percent of establishments and 38 percent of sales. Finally, there are white table cloth restaurants with average meals costing over $15, are 7 percent of establishments and account for 15 percent of total sales. Luxury

Exhibit 2C - 9

PRODUCTIVITY AND FULL SERVICE RESTAURANT PRICE POINT



Source: National Restaurant Association survey

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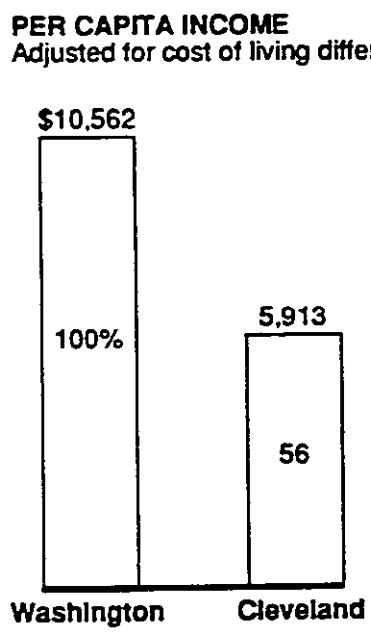
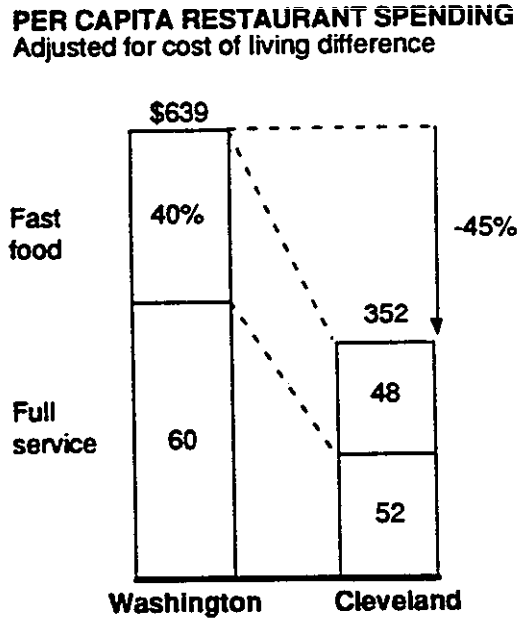
Exhibit 2C - 10

INCOME EFFECT ON MARKET SIZE – 1987





Source: Department of Commerce; American Chamber of Commerce; BLS

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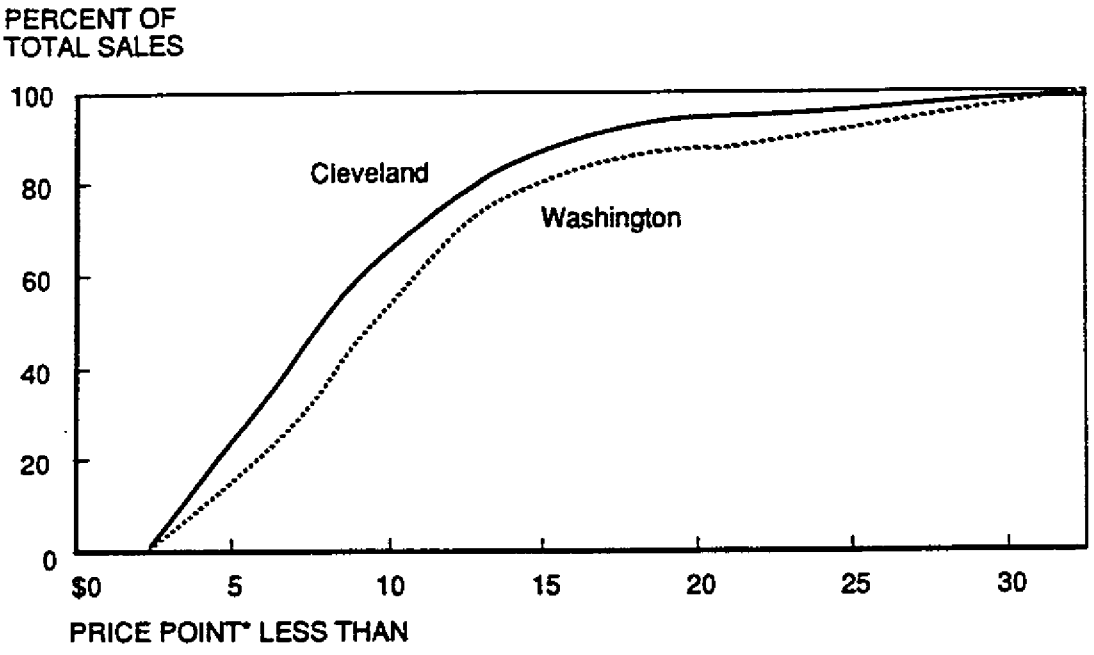
Exhibit 2C - 11

RESTAURANT PRICE POINT DISTRIBUTION – 1987

FULL SERVICE RESTAURANTS



* Adjusted for Cost of Living Difference

Source: Department of Commerce

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restaurants, a subset of this high-end group with a price point over $30 per meal, average more than $1 million in sales per establishment.

¶ Full service restaurant economics. The preceding discussion has two important implications for our productivity measurement. First, full service restaurants as a class are extremely heterogeneous. It is therefore understandable that while some white table cloth restaurants offer a higher level of service and are more productive than fast food restaurants, there are many full service restaurants do not. Second, the mix of full service restaurants can have as much impact on overall productivity as the mix of fast food and full service.

- Price effects on full service restaurant productivity. The NRA surveys also confirm our expectation that value added increases with price point (Exhibit 2C-9).

- Scale effects in full service restaurant productivity. It is reasonable to believe that scale effects exist in full service restaurants. Above some threshold size, it must be possible to exploit the advantages of division of labor in the kitchen and pantry operations. The operational characteristics of table service fulfill many of the requirements of waiting line systems, much like retail bank branches. As the number of tables and servers increases, managers find it easier to maintain a high level of utilization. We can conclude, therefore, that economies of scale probably exist at the outlet level. Unfortunately, we do not know their impact or limits, so we do not know whether most restaurants have already achieved minimum efficient scale. Measuring volume by sales, our industry group samples mix scale and price point effects.

- Income effects on format mix. In the retailing case study, we observed that rising customer income has often been correlated with increasing outlet productivity, and we hypothesized that increasing demand for high value added or luxury services could create a mix shift effect in the direction of higher productivity. It is possible that the same effect occurs in full service restaurants. If we use a U.S. comparison between metropolitan Cleveland and Washington, D.C., we can see how income affects both market size and the distribution of demand. In 1987, the per capita income in Cleveland, adjusted for differences in living costs, was 44 percent lower than in Washington (Exhibit 2C-10) and per capita spending on restaurants was 45 percent lower. An examination of the demand for full service restaurant meals shows that the mix shift does occur, as Exhibit 2C-11 demonstrates. In Washington, 20 percent of sales occurred in restaurants with price points above $15 and 4 percent of sales at restaurants above $30. In Cleveland, the comparable percentages fall to 15 and 2 percent,

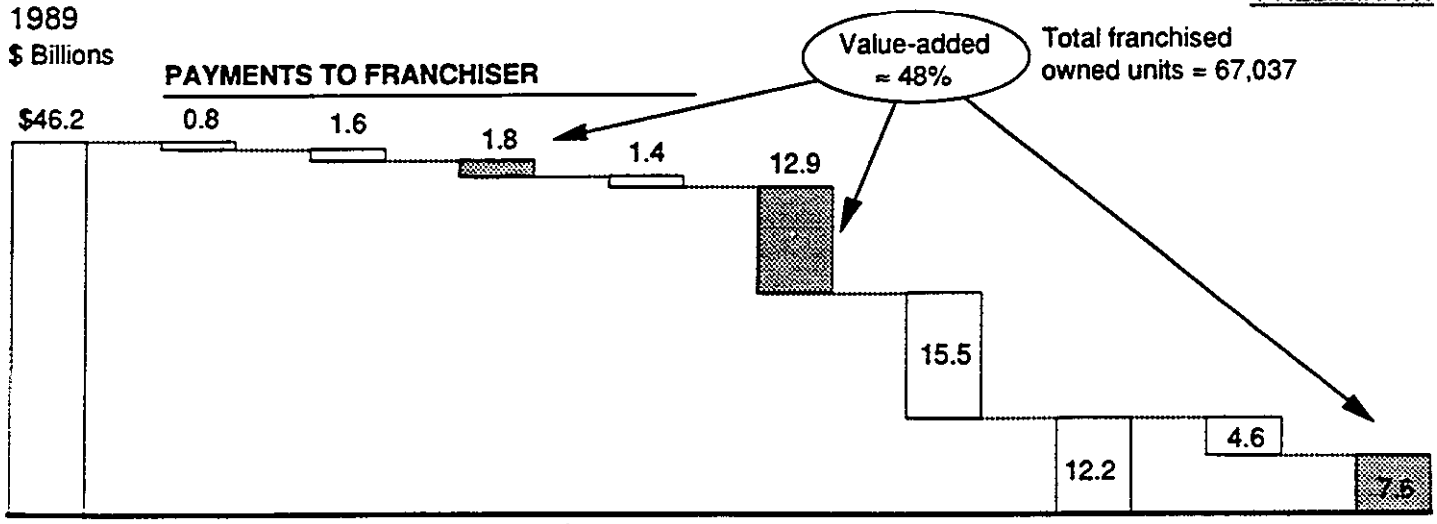
Exhibit 2C - 12

RESTAURANT FRANCHISEE ECONOMICS

1989

PRELIMINARY

$ Billions



1 Average royalty = 4%
2 Average advertising contribution = 3%
3 Estimated payroll costs = 29%
4 Estimated from McDonald's Annual Report

Source: Restaurant Business, March 1989

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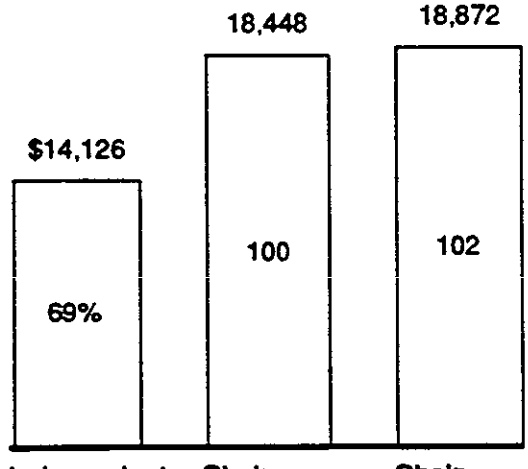
Exhibit 2C - 13

EFFECT OF CHAIN OWNERSHIP ON FAST FOOD PRODUCTIVITY – 1990

VALUE ADDED PER FTE



	Independent	Chain – company owned	Chain – franchise
Average sales $ Thousands	$360	327	740

Source: National Restaurant Association

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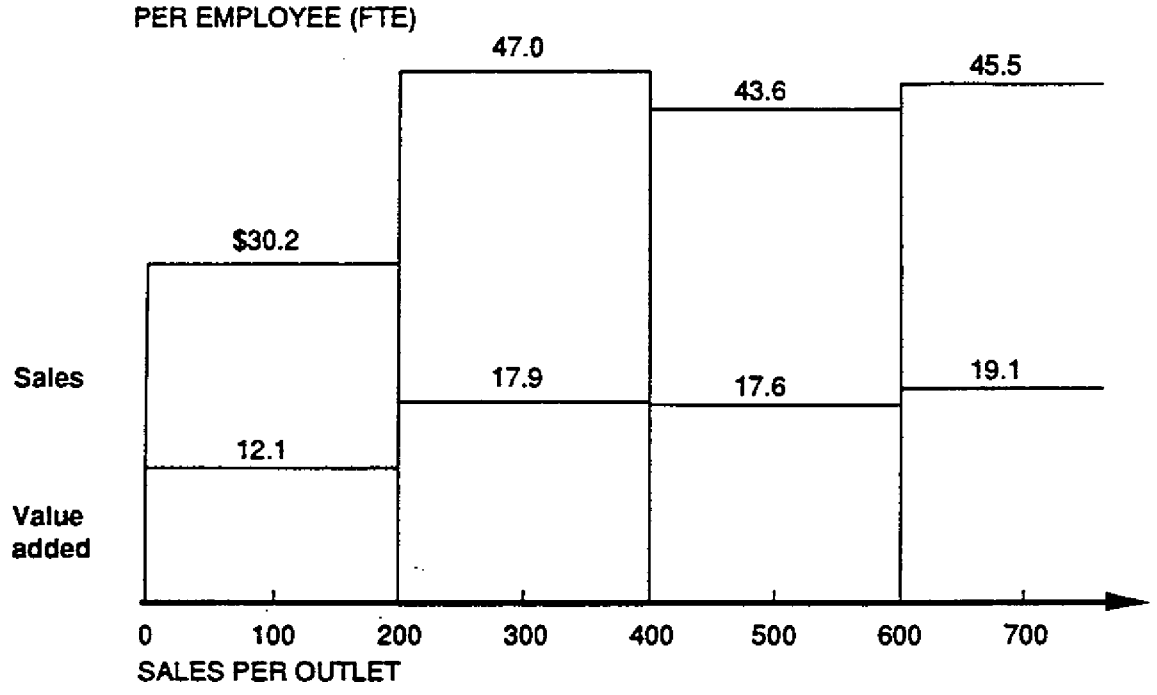
Exhibit 2C - 14

PRODUCTIVITY AND FAST FOOD RESTAURANT SIZE – 1990

U.S.

$ Thousands

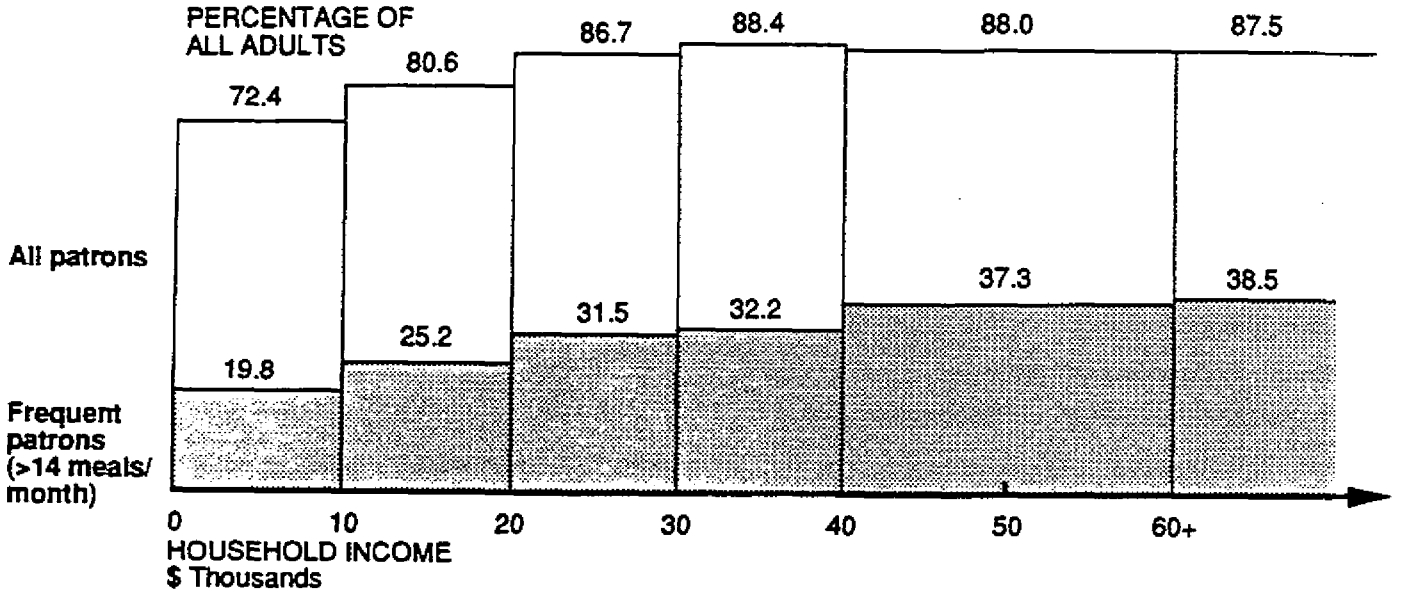


Source: National Restaurant Association survey

ZOE-119 455

Exhibit 2C - 15

FAST FOOD PATRONAGE AND INCOME – 1988



Source: Simmons Market Research Bureau

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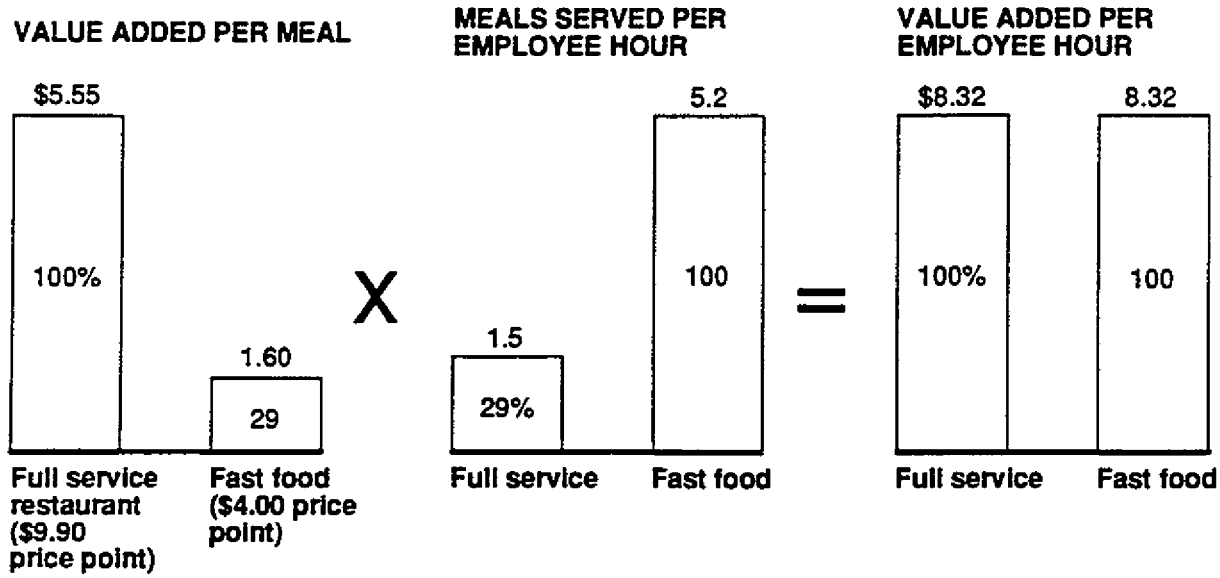
Exhibit 2C - 16

FORMATS DIFFER IN SERVICE AND THROUGHPUT – 1990



* Based on 52 weeks, 2,080 hours

Source: National Restaurant Association survey

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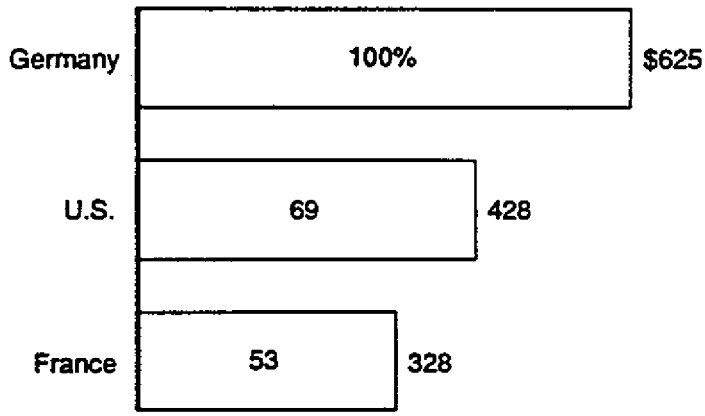
Exhibit 2C - 17

FAST FOOD SALES PER OUTLET

At Big Mac PPP*



* Conversion based on ratio of price of a McDonald's Big Mac sandwich

Source: Statistische Bundesamt; Department of Commerce; INSEE; *Economist*

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respectively. If we examine the distribution for San Francisco, we find that it is very similar to Washington, suggesting that diplomatic and lobbyist demand is not overstating the size of the shift. However, when we apply the average productivity for price point-defined formats from Exhibit 2C-11 to the differing shares described by this distribution, we find that only a 4 percent increase in productivity is attributable to this format shift. Therefore, while the income effect is real in full service restaurants, its overall impact is only about a tenth of the size of the income gap which created it.

¶ Fast food economics. Fast food formats are fairly similar in terms of the economics. They cluster around the $4 price point, and have similar material and labor costs. Exhibit 2C-12 shows the cost structure for all franchised fast food stores, which on average return almost 50 percent of sales as value added. However, the impact of chains and scale on fast food deserve some investigation because it has been suggested that they have some bearing on international comparisons. In addition, differences in income levels could have an impact on the size of the fast food market.

- Chain system impact on innovation and organization. Exhibit 2C-13 shows that chain restaurants are 30 percent more productive, on average, than independent operations in the same quality class. Chains have advantages because they can share traffic generating advertising and innovation in information technology, labor organization, and food preparation. Moreover, innovation is easier in chain restaurants because product standardization makes the production process simpler and more amenable to traditional means for engineering process improvements. Scale both makes it easy to fund productivity enhancement projects and offers massive leverage in the rewards of successful process innovation. As a result, chains can increase labor utilization and decrease labor intensity faster than they reduce prices. This creates a virtuous cycle that leads to increasing chain restaurant productivity advantages.

- Scale effects in fast food. Exhibit 2C-14 shows that the scale advantages in fast food are not nearly as pronounced as in full service formats. Efficient scale is reached at about $200 thousand in sales. The increase for restaurants above $600,000 seems to be mainly the result of purchasing economies, since the ratio of throughput to labor seems fairly constant. This means that efficient scale can be reached with as few as 6 full time employees and and that relatively small stores can achieve the same rate of labor utilization as large stores. This is consistent with the idea that the simplified nature of the production process allows effective division of labor on a very small scale in a way that would not be true for full service restaurants.

- Fast food customers. In spite of its low price point, consumers become significantly more likely to buy fast food as household incomes rise (Exhibit 2C-15). The reasons for this include both a greater ability to pay for what would otherwise be ordinary household services, combined with a greater premium placed on time. These conditions are especially pertinent when rising household income is a product of two income families and increasing female workforce participation. However, rising income does not necessarily increase the share of fast food. If we return to the Washington/Cleveland comparison, we find that the although fast food share in Washington was smaller (40 versus 48 percent), total spending on fast food was 52 percent higher per capita ($257 versus $159).

From our comparison of fast food and full service formats, it is clear that a full service restaurant must have an average price point of $8 to 10 and sales of about $500,000 before it can be as productive as the average fast food restaurant that delivers 100,000 meals per year. Exhibit 2C-16 decomposes the effects of service content and throughput to show that a fast food restaurant can produce a meal with less than one third the workers of a full service restaurant, but that this advantage is offset by quality differences.

If the same production processes and scale relationships hold in Europe, we can begin to make deductions about the sources of differences in measured productivity. We can summarize the results by saying that while the mix of fast food and full service restaurants contributes to a significantly higher U.S. level of throughput, it appears to have no overall impact on total service productivity. Quality effects in full service restaurants must explain substantially all of the international differences.

There are three reasons to believe that the productivity of fast food does not differ much across countries. First, fast food restaurants in Germany and France have sales that are roughly equal to or higher than sales in American outlets (Exhibit 2C -17). For all three countries the averages are above the minimum efficient scale for fast food restaurants. Second, the companies that dominate the U.S. market (McDonald's, Burger King, Pizza Hut) also dominate the French and German markets. In fact, most of Europe has considered fast food chain systems to be foreign and usually American. These companies make the transfer of their technology package a central part of their strategy. Third, fast food restaurants in Europe are almost always chain restaurants, so that we would expect to see very little in the way of productivity differences related to chain advantages.

If fast food restaurants are as productive in France and Germany as in the U.S., substantially all the productivity differences between countries must lie in the full service category. The share of fast food in Europe is so small that it hardly affects the French average, and is offset by low productivity snack bars in Germany.

This means that the differences between full service restaurants is about equal to the overall difference.

If our beliefs about the effect of scale on full service restaurants are correct, we would expect restaurants in Germany and France to suffer from substantial productivity disadvantages. This is not consistent with our results. One possible explanation is that the average quality of German full service restaurants is higher than in the U.S., or to put it in terms of a mix effect, higher than the average $8 to 10 price point restaurants. The average quality of restaurants in France must be higher than in Germany. Another possibility is that French and Germans place less of a utilitarian value on dining out and are prepared to accept slower service at about the same price, allowing high labor utilization in low volume restaurants. Finally, it is possible that restaurant sizes are similarly distributed so that almost all outlets are above the minimum efficient size.

Market Forces and Context

The argument about differences in the mix and quality of restaurants ultimately reflects differences in each national market environment, including the market forces and competitive context. We will investigate these differing conditions in terms of demand factors, factor cost differences, and policy differences. Our overall finding is that demand factors have a significant, but mixed effect on productivity differences, that factor cost differences explain something about the slower rate of evolution in the European industries, and that the effect of policy differences is mainly indirect.

¶ Demand factors. National demand factors related to income, urban development, and consumption habits are a major factor affecting the final mix of restaurants supported in any economy. In our case, income differences help explain the size of the national markets for full service restaurants, but format mix in this category has very little overall impact on productivity. Higher income also explains some of the much larger U.S. market for fast food.

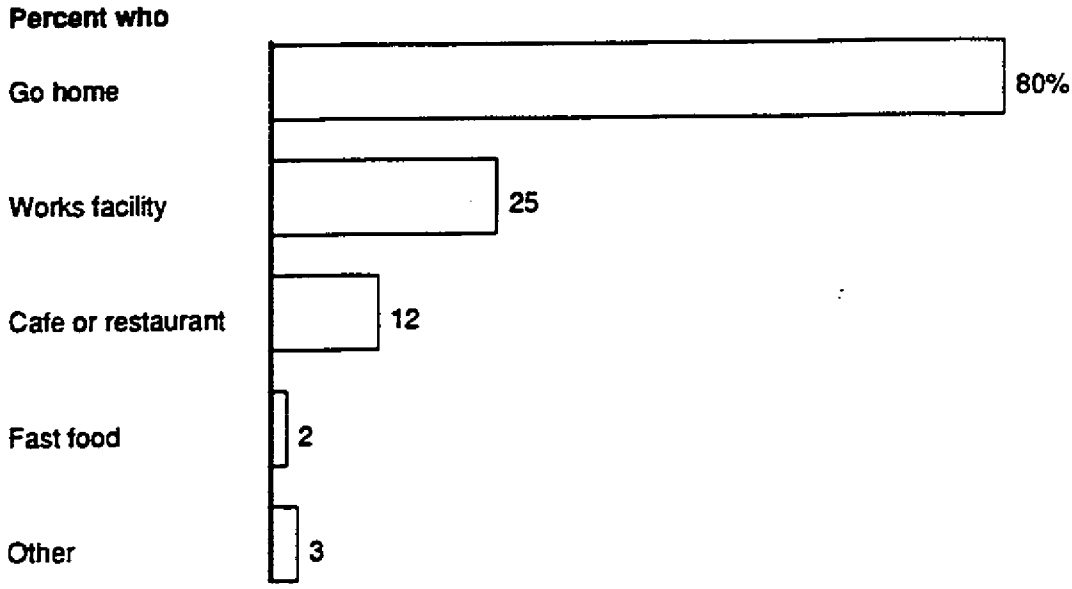
- U.S. factors. Americans have higher real incomes than their European counterparts and tend to eat more food away from home. However, this does not necessarily create a significant full service restaurant format mix shift that favors U.S. productivity. The national income differences are smaller than the differences between Cleveland and Washington, which suggested only a 4 percent difference. However, the combination of high income and high female workforce participation creates a strong incentive to substitute cheap, fast food for meals prepared at home with the result that the U.S. fast food market is massively larger.

Exhibit 2C - 18

FRENCH LUNCH HABITS

1989

Percent*



* Multiple responses allowed

Source: Salon Technique International de l'Equipment de la Gestion des Hotels, Restaurants, Cafes

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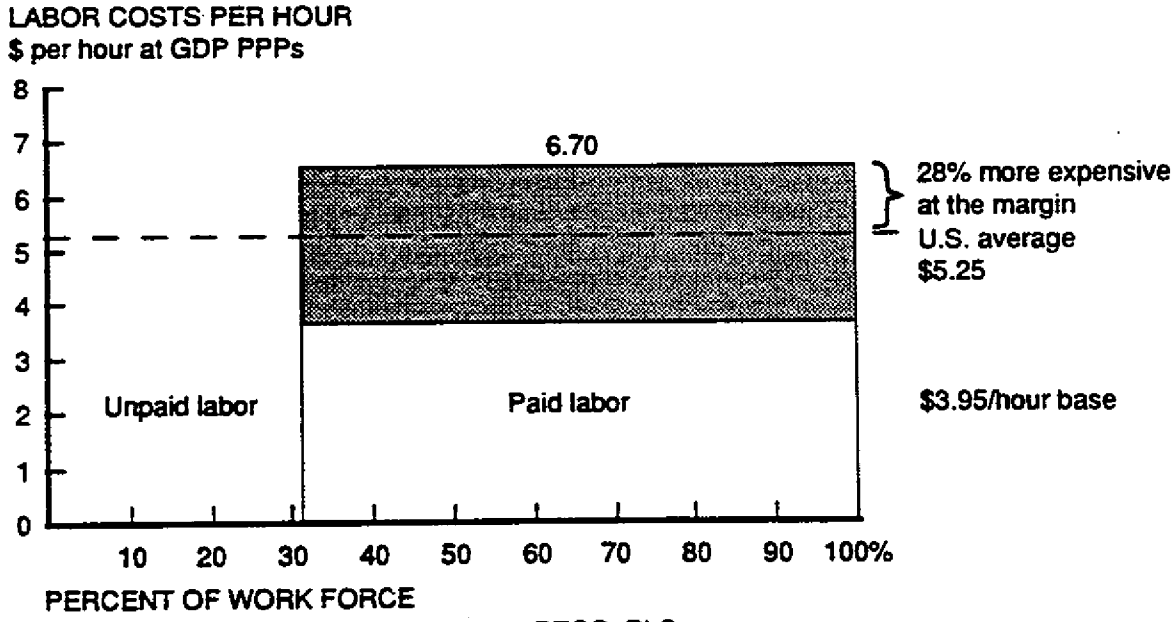
Exhibit 2C - 19

LABOR COSTS

U.S.VS. FRANCE



Source: Revue Technique des Hotels et Restaurants; OECO; BLS

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- European factors. There are a number of reasons why the European demand for food away from home is much smaller than that of the U.S., and perhaps smaller than we would expect, given differences in national income. It is very common to go home for lunch in France, because of longer lunch breaks and shorter commuting distances: only 12 percent report going to a cafe or restaurant for lunch. This is still six times as common as going for fast food (Exhibit 2C-18). In addition, there are indications that those who go to fast food restaurants in France tend to do so because they are fast, and not because they are cheap. In fact, fast food consumption is more characteristic of office workers, students, and middle management, who make up 83 percent of French fast food customers, than of factory workers make up only 2 percent. Part of the reason may be that employers effectively subsidize demand in a non-commercial channel by routinely providing company canteens. Finally, it may be the case that the high VAT rates in Europe (18.6 percent in France and 14 percent in Germany) discourage marginal consumption of food away from home.

¶ Factor cost differences. Restauranteurs in Europe and the U.S. face fundamentally different factor cost environment which help explain how the industry structure has evolved. At the margin, European costs for all factors are higher. While this has implications for competition and the rate of industry development, it has little net impact on productivity differences.

- Labor costs. The U.S. restaurant industry benefits from a large supply of minimum wage workers with relatively few employment rights. This substantially increases management flexibility. By contrast, established restaurants in Europe often benefit from the use of unpaid family workers, while the social charges and employment protection make paid employees very expensive at the margin. Exhibit 2C-19 shows that this true in France. French restaurants use 32 percent unpaid labor, but marginal paid workers are 28 percent more expensive than in the U.S. Clearly, the impact of the high marginal cost of labor in France is to give established restaurants using family workers a relatively large cost advantage.

- Land costs. Real estate development in the U.S. has systematically created overcapacity, with the result that rents are bid to the cash costs of the marginal supplier. In Europe, the relative shortage of development means that new sites are in short supply and rents are bid up to the level of value to the most productive user. Good sites are expensive and hard to find.

- Capital costs. Restauranteurs are mainly small entrepreneurs who depend on accumulated savings and bank credit for capital. The U.S.,

Exhibit 2C - 20

RESTAURANT START-UP BUSINESS CONSIDERATIONS

Consideration	U.S.	France
Land	Widely available due to real estate development	Relatively expensive
Labor	Adequate supply of minimum wage labor	High social charges and stronger worker protection raise costs and limit flexibility
Capital	Wealthy country with large wealth-holding classes, credit overcapacity	Less accumulated wealth, especially relative to higher start-up costs
Demand	Higher FAFH and still increasing	Smaller FAFH
Competition	Weak in new areas or of a complementary format	Low cost, with established customer franchise
Technology	Available through franchise package	Faces higher problem of differentiation
Implication	**Attractive franchise opportunity**	**Stronger concept required**

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as a result of its high income and long history of high incomes, has created wealth in the hands of a large middle class. The U.S. has also created overcapacity in its banking system. As a result, capital is more readily available for small entrepreneurs in the U.S.

- Broadcast media costs. European broadcasters tend to be state-owned and subject to more stringent limitations on the amount of advertising they can provide. As a result, air time tends to be bought by the producers for whom advertising offers the highest degree of market leverage--for example, soap and other consumer goods manufacturers. Distributors are much less likely to operate on a scale that would support broadcast advertising expenses. As a practical matter, this raises the standard at which advertising scale can be achieved and delays chain restaurant access to broadcasting on a current economical basis in Europe.

¶ Policy differences. Unlike other studies, there are very few direct policy implications for the restaurant industry. There are few legal barriers to entry or exit in any country, and state or private ownership is not an issue. We have argued that a number of indirect policies related to tax, compensation, and land use effectively reduce demand and create economic barriers for new formats seeking to enter the market. In addition, U.S. city development patterns continually create new living and shopping areas, which in turn creates new, under-served geographic market segments. This also has implications for the development of franchised formats, which we will discuss briefly in the next section.

INDUSTRY OUTLOOK

Restauranteur behavior reflects these different market contexts. Two entrepreneurs, one in France and one in the U.S., looking to enter their respective markets might go through the checklist shown in Exhibit 2C-20. The American would often conclude that he should become a franchisee of an established chain. The entrepreneur in France would conclude that prospects are not as favorable for expansion. In Europe, the commercial restaurant industry is smaller than in the U.S., and land, labor, and capital prices create higher barriers to entry. In addition, new entrants in a market typically encounter competitors with lower cash costs and an established customer franchise. By contrast, many of the new entries in the U.S. are entering new markets where there is little or no established competition, or where competitors are actually complementary in building traffic (e.g., a pizza restaurant locating near hamburger and chicken restaurants). The franchise fast food chain format is highly adapted to exploit such markets, because it offers both a proven technology package and instant customer recognition through branding and its supporting advertising. It is therefore not surprising that fast food chains have a

Exhibit 2C - 21

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES
RESTAURANTS

● Important
O Secondary
X Undifferentiating

External factors	
– Market conditions	
• Demand factors	X
• Relative input prices/ factor availability	X
– Policy and regulation	
• Competition rules and concentration rules	X
• Government ownership	X
• Labor rules and unionism	O
Management behavior	O
Production process	
– Output mix, variety, quality	O
– Economies of scale	O
– Capital (intensity and vintage)	X
– Skill of labor	X
– Organization of labor	X
Labor productivity	

higher rate of penetration in the U.S. than in Europe. Similarly, barriers to entry and exit help explain the relative lack of consolidation of European restaurant industries.

The implication of the strength of franchising in the U.S. context is that as the U.S. market continues to grow, fast food will take an even larger share of sales, as has occurred during the 1980s. Small, low-value full service restaurants will continue to become relatively less important in the overall mix. This will necessarily increase productivity at a higher rate than individual stores can achieve. By contrast, there is little reason to expect European factors to change in the near future. As a result, restaurants in Europe can be expected to suffer from a lack of innovation. Productivity growth, except in the fast food sector, will tend to suffer. As a result, we can expect throughput differences between restaurants in the U.S. and in Europe to widen rather than converging in the future. At the same time, the total service productivity difference between the U.S. and France will slowly decrease.

* * *

In examining the productivity of the restaurant industries in the U.S., France and Germany, the level of labor productivity in the French restaurant industry is 4 percent higher than in the U.S. and 12 percent higher than in Germany. When we measured throughput, restaurants in the U.S. showed a level of productivity 21 percent higher than in France and 16 percent higher than in Germany, primarily on the basis of a larger share of sales held by fast food restaurants.

When we examine our findings in light of our causality framework, we conclude that the very close results preclude identifying any significant differences in the importance of the causality factors. In terms of market forces and context, we see very little impact from government policy, with the exception of the indirect impact that labor regulations have on encouraging the use of unpaid family labor and on discouraging new competition. A new policy factor – taxation – may have a role in explaining why demand for food away from home in Germany and France is so small. Demand factors may play a role through European consumption of alcohol and small market size; but it is not clear that either of these factors explain much about productivity at the outlet level. Management behavior is again the rational link between the market context and the actual production processes, or formats, employed, but it is not clear in this case that managements' decisions contribute to significant productivity differences.

D – PRODUCTIVITY IN GENERAL MERCHANDISE RETAILING

In the world's leading economies, distribution trades make up about 20 percent of total employment. Even after excluding food, fuel, and other non-durable goods, the retailing industry is the largest employer in the service sector in the advanced economies. In the U.S. and Japan, general merchandise retailing accounts for about 10 percent of all employment; in European countries such as Germany, general retailing provides between 8 and 10 percent of all jobs. Significant differences in retail productivity between countries therefore have a major impact on overall productivity, and an even greater impact on relative service sector productivity. The results of our case study on general merchandise retailing productivity lead to three conclusions:

- ¶ General merchandise retailing in the U.S. has higher overall productivity than in any other country, with the possible exception of Germany
- ¶ Differences in retailing productivity reflect differences in national income and industry organization
- ¶ Prospects for future productivity growth depend on overall national income growth and on liberalization of retailing regulations.

GENERAL MERCHANDISE RETAILING MORE PRODUCTIVE IN THE U.S.

The overall finding of this case study is that the U.S. retailing industry is more productive than the British, German, French, or Japanese industries. This part of the study summary contains a discussion of the reasoning and analysis that led us to conclusions at the national aggregate level. The first two subsections are technical in nature and deal with the problems of choosing a useful productivity measure and study methodology for national aggregates. They contain references to notes in the appendices which elaborate on certain points of the argument omitted here for the sake of brevity. The third section presents national results for labor, capital, and total factor productivity.

Defining a Productivity Measure

Applying the concept of productivity to manufacturing is clear in principle, if problematical in practice: a company produces tangible goods (tons of steel, automobiles, widgets) per unit of input, typically per worker-hour. The problem of measuring productivity in retailing is a good example of how services are different. There are a number of plausible answers to the question, "What is output in retailing?" Each of these answers involves a particular way of looking at the

Exhibit 2D - 1
WHAT IS OUTPUT IN RETAILING?

Study	Recommendation	Rationale
Carey and Otto (1977)	Physical product throughput index	Measuring physical surrogates avoids market distortions from pricing
Ingene (1982) and others	Sales	Long-term equilibrium of competition makes sales a good surrogate for volume
Ingene (1984)	Gross margin	Margin is meaningful to store managers and can be compared with total cost structure
Goodman (1983), Bechman (1957), Oter (1973)	Conventional value-added	Product of retailing should be adjusted for value created earlier in the supply chain
Achabal, Heineke, and McIntyre (1984)	Capability of the organization to meet demand	Product of retailing includes a vector of service attributes and is independent of any market transaction
Ingene (1984)	Customer productivity	Creation of a customer surplus is a typically unmeasured output of retailing

Exhibit 2D - 2
CUSTOMERS VALUE MORE THAN DISTRIBUTION

Service dimension	Service attribute	Comments
Services		Includes all aspects of a customer's buying experience, including information sharing, counseling, presentation, and decisions made o customer's behalf
- Merchandise selection	Sourcing, customer targeting	
- Information	Staff, signage	
- Customer	Delivery, returns and repairs	
Product distribution	Number of product categories	
	Depth of product offering	
Size and location	High Street	Includes convenience and ambiance
	Neighborhood	
	Mall (urban, suburban, regional)	
	Strip mall, local parade	
	Free-standing	
	Ex-urban	

retailing function and a point of view about the optimal structure of the industry. The question of input is more straightforward, but not clear cut. We therefore assessed different definitions of productivity in the retailing industry, and arrived at value-added per full-time equivalent employee (FTE) as the best single-factor productivity measure for the purposes of international comparisons.

- ¶ Output of the retailing industry. Academics have identified at least six major ways to measure the output of a retailing system (Exhibit 2D-1). These measures can be thought of as forming a spectrum that ranges from a focus on tangible goods sold to an analysis of very conceptual measures of customer utility. Each measure has both advantages and disadvantages, and there has been no consensus among academics about which is best. These measures fall into three groups: throughput, customer surplus, and financial. In an ideal world, we could measure the consumer surplus that retailers generate. Practically speaking, consumer surplus is not measurable; and in any event, retailers are compensated for their services by the margins customers are willing to pay. These retailer services extend, in most cases, beyond simple distribution to other dimensions of customer service, including convenience, ambiance, and a cluster of sales floor services that make the customer's shopping experience more efficient and effective (Exhibit 2D-2). From our point of view, the best proxy for measuring the quantity and quality of services delivered is value added at factor cost. Appendix A discusses alternative measures in more detail. We recognize at the outset value added is not, however, a perfect output measure. Two objections suggest themselves. First, countries may vary in their degree of vertical integration in the retailing industry. Second, oligopolistic behavior may artificially inflate margins. The key issue here revolves around our assumption that competition adequately forces prices to the level where they reflect the marginal value of service to the customer versus other uses of his money. We propose to use the value-added measurement and subsequently assess whether and in which directions local practices may tend to distort the measure.

- ¶ Inputs to the retailing industry. Depending on the question you wish to address, a case can be made that either capital or space or labor is the most important input factor for measuring productivity. It is clear that each store format weighs the importance of its input mix elements differently. From our perspective, it is both meaningful and practical to use full-time equivalent workers (FTE) as the primary single factor input. At the national level, we will use inventory as a proxy for merchandising assets because it represents the bulk of a retailers non-financial, non-real estate assets. For a discussion of other inputs, see Appendix B.

Methodology

In order to make comparisons of national aggregate data, we were forced to make a number of decisions regarding methodology. This section details our decisions to limit the scope of the investigation, a note on some special characteristics of the industry, a note on the sources of our data, and the reasoning behind our decision to make international comparisons using Household Consumption Purchasing Power Parities from the OECD.

¶ Scope of this investigation. To maximize comparability across countries, we limited the scope of the study to stores that sell consumer durables and semi-durables, excluding automotive goods. This includes retailers selling clothing, consumer electronics, home appliances and home furnishings, and specialty retailers selling jewelry, cameras and other goods. This group can be broadly thought of as consisting of department stores, other general merchandisers, and their key competitors. The home improvement (do-it-yourself or DIY) specialist and hypermarket formats have been excluded for the purpose of maintaining comparability. Henceforth, we will refer to retailers collectively as the retailing industry.

¶ Special characteristics of the retailing industry. In every country, the retail industry has many thousands of participants. Unlike telecom and banking, retailing is not directly regulated with respect to investment and pricing. As a result, functional data about the retailing industry has never been collected systematically. Furthermore, the industry is made up of companies that are dissimilar in very fundamental ways, and a large part of any analysis must involve the comparison of dissimilar formats and business practices. Consequently, we adopted an objective of finding a balance between measuring productivity differences and explaining their causes.

¶ Data sources. The raw data for the comparisons of productivity on the highest level come from official surveys and inquiries by the five countries, which track industry conditions and employment. However, these surveys do not distinguish between formats as retailers understand them. At best, they distinguish between multi-category retailers (e.g., department stores) and specialists, and distinguish among specialists on the basis of the kinds of goods they sell, for example, between shoe stores and furniture stores. A discussion of data sources and currency conversions is found in Appendix C.

¶ International comparison and conversions. In making international comparisons of financial measures, we encounter the problem of comparing output expressed in different currencies. The basic issue is whether to use market exchange rates or Purchasing Power Parities (PPP). In keeping with our basic concerns that the volatility of exchange rates distorts the non-traded activities in an economy, we believe that using a

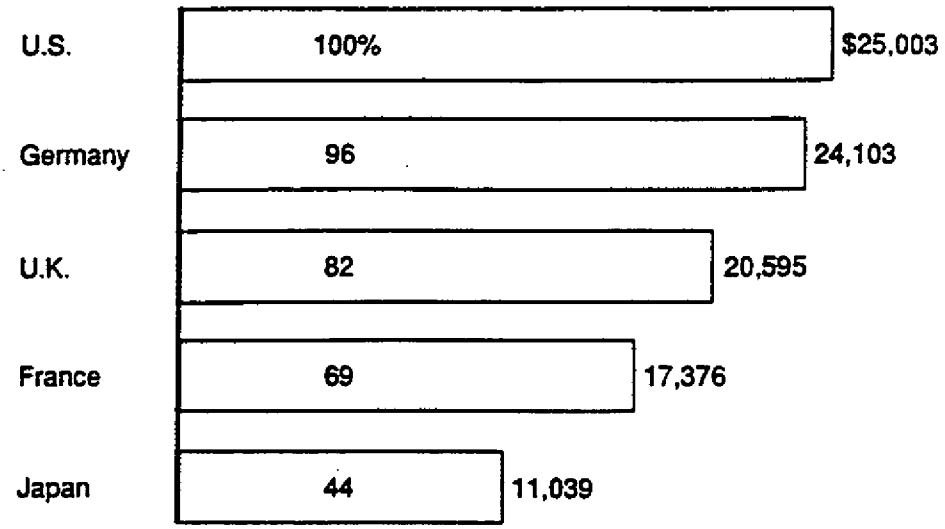
Exhibit 2D - 3

LABOR PRODUCTIVITY IN GENERAL MERCHANDISE PRODUCTIVITY – 1987

VALUE ADDED PER EMPLOYEE, CONVERTED AT PPP

Dollars

ESTIMATE



Source: U.S. Census of Retail Trade; Japan Census of Commerce; INSEE; Deutsche Statistische Bundesamt; U.K. Central Statistical Office

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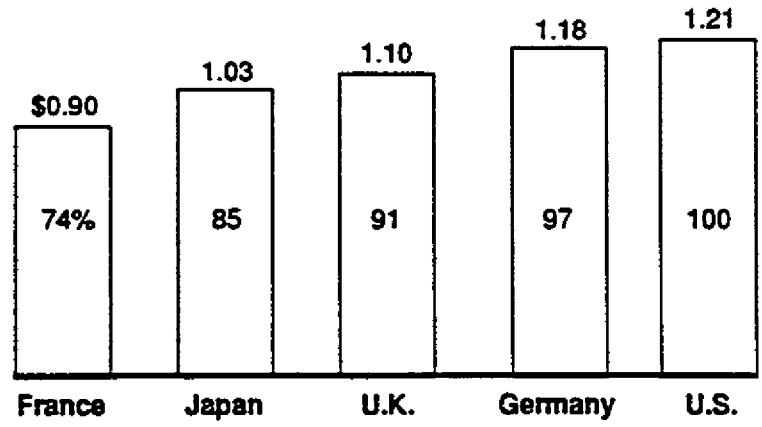
Exhibit 2D - 4

CAPITAL PRODUCTIVITY – 1987

VALUE ADDED PER UNIT INVENTORY

$ At household final consumption PPP



Source: McKinsey analysis

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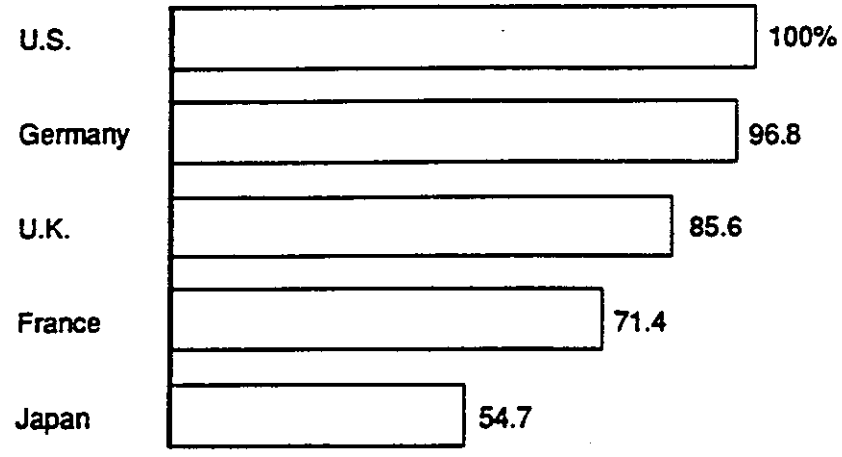
Exhibit 2D - 5

TOTAL FACTOR PRODUCTIVITY

Indexed values, 60% labor weighting



	Labor ranking	Capital ranking
U.S.	1	1
Germany	2	2
U.K.	3	3
France	4	5
Japan	5	4

Source: McKinsey analysis

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purchasing power measure increases comparability. However, this invites the question of whether to use the PPP for the whole economy or the PPP for household consumption. The former equals the value of income of retailing sector expressed in terms of claims on the whole economy. The latter measure represents value given up by consumers in exchange for retailing services and is slightly preferable. We have chosen to make our comparisons using the final household consumption PPP exchange rates. We have not conducted double deflated translations (i.e., at both the retail and wholesale level) to this point because appropriate wholesale PPPs are not available.

Aggregate Productivity Results

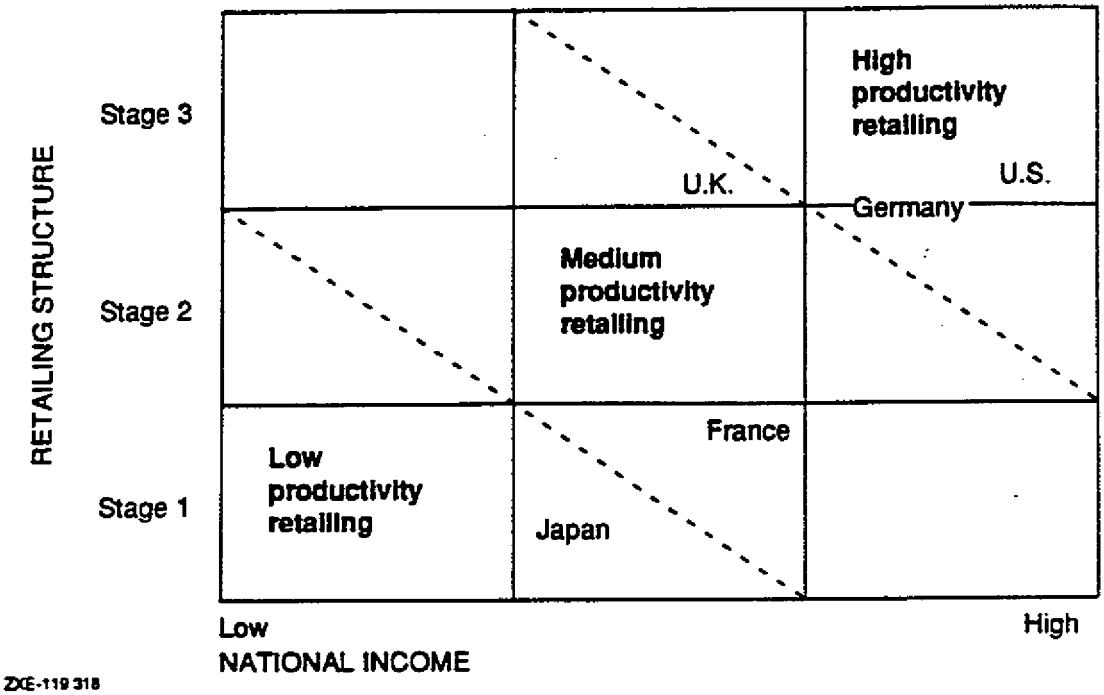
The aggregate results of our analysis of national statistics show that the general merchandise retailing industry in the U.S. has higher productivity than the industries in any of the other leading economies in terms of labor productivity, capital productivity, and total factor productivity. In labor productivity, the difference ranged from only 4 percent in the case of German retailing to more than 50 percent in the case of Japan, with the productivity levels of U.K. and French retailers lying between these extremes (Exhibit 2D-3). Although experienced observers expected to discover low productivity in Japanese retailing, the magnitude of the Japanese retailing labor productivity gap was surprising. In capital productivity, measured by value added per unit of inventory, results showed the same general pattern (Exhibit 2D-4), although Japanese retailers appeared to be more efficient at leveraging inventories than their French counterparts. The differences between U.S. and German capital productivity levels is even smaller than the labor differences, and U.K. retailers appear to be relatively more productive with capital than with labor.

We calculated total factor productivity by constructing a weighted average of the capital and labor productivity values. We used a simple weighting scheme based on the proportion of labor in Japanese retail value added, which is approximately 60 percent. This calculation gives a relatively heavy weight to capital productivity, compared with using the German or U.S. labor weighting of about 70 percent. Nevertheless, the overall rankings are identical to the labor productivity rankings (Exhibit 2D-5) and we began to see that the U.S., Germany, and the U.K. form a relatively close grouping, while Japanese and French retailing produces similarly low total factor productivities.

The 4 percent difference between the U.S. and German productivity levels is very small, and it raises an issue about interpreting this finding. Relatively large degrees of uncertainties inherently arise from the use of aggregate data, the PPP conversion factors, and employment statistics. We conclude therefore that the case for stating that retailers in the U.S. have higher productivity than in Germany is relatively weak and would need to be demonstrated on the basis of other analysis.

Exhibit 2D - 6

NATIONAL INCOME AND RETAILING DEVELOPMENT



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PRODUCTIVITY DIFFERENCES REFLECT DIFFERENCES IN NATIONAL INCOME AND INDUSTRY ORGANIZATION

Two fundamental forces appear to influence retailing productivity. First, a structural evolution occurs in retailing in which more productive store formats replace less productive formats. However, the speed at which this format mix shift can occur is constrained or spurred, as the case may be, by national income effects and by regulation. Exhibit 2D-6 summarizes the combined effects of national income and retail industry development in creating high productivity retailing. The U.S. enjoys an 18 percent lead in retailing labor productivity over the U.K. (U.S. = 100), primarily on the basis of income effects, a 56 percent lead over Japan, and a 31 percent lead over France, because of both income and format mix. The U.S. has a very small lead of 4 percent over Germany because an adverse format mix (a high share of employment in general merchandisers) offsets some of the income effect and because a relative lack of competition in Germany may allow retailers to increase value-added margins while limiting services, such as longer opening hours. Our measure of German productivity is thus possibly overstated.

The international productivity comparison indicates that the U.S. is more than a generation ahead of Japan and also leads, to a lesser degree, France in the progress of this shift. Implicitly, the potential improvement is more substantial in these countries, and we should expect to see evidence of powerful trends toward reorganization and consolidation in French and Japanese retailing. We can explain this process and its effect on productivity in terms of the existing market forces and context in the different countries, management behavior and the production processes management chooses, and a model of industry evolution.

Market Forces and Context

One of the obstacles that has tended to frustrate attempts at international retailing has been the fact that different countries offer very different market environments. These differences are rooted in differences in demand factors and regulation. We will discuss differences in land costs when we assess their proximate effects on productivity.

¶ Demand factors

Demand factors include the effects of the level and distribution of income on consumer purchasing patterns. We have also included the implications of changes in buying patterns related to branding of consumer goods.

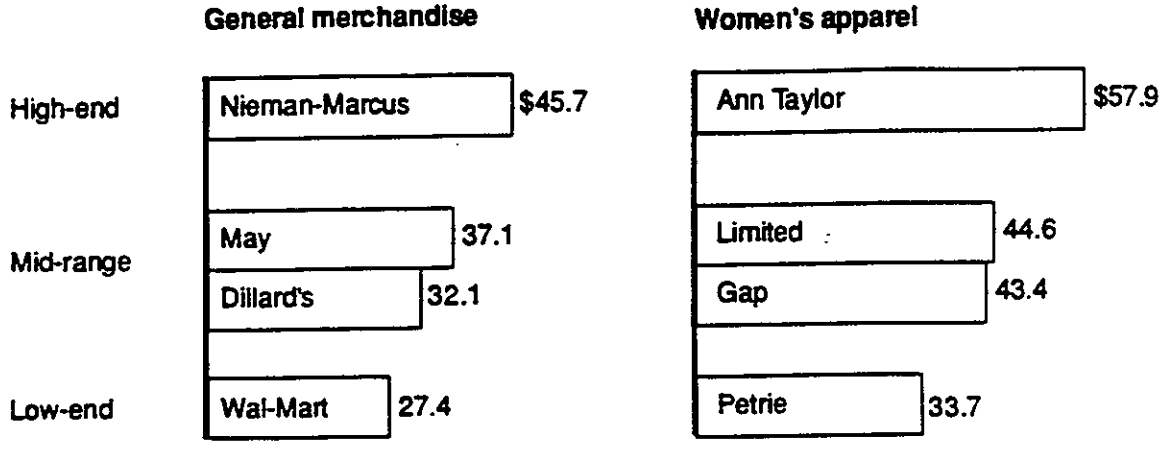
- Income effects. Overall national income differences may play a role in explaining differences in measured productivity. First, increasing median income is associated with an increasing share of spending directed away from groceries and purely functional semi-durables and

Exhibit 2D - 7

PRODUCTIVITY BY MARKET SEGMENT – 1990

VALUE ADDED PLUS RENT PER EMPLOYEE

$ Thousands



Source: Annual reports; McKinsey analysis

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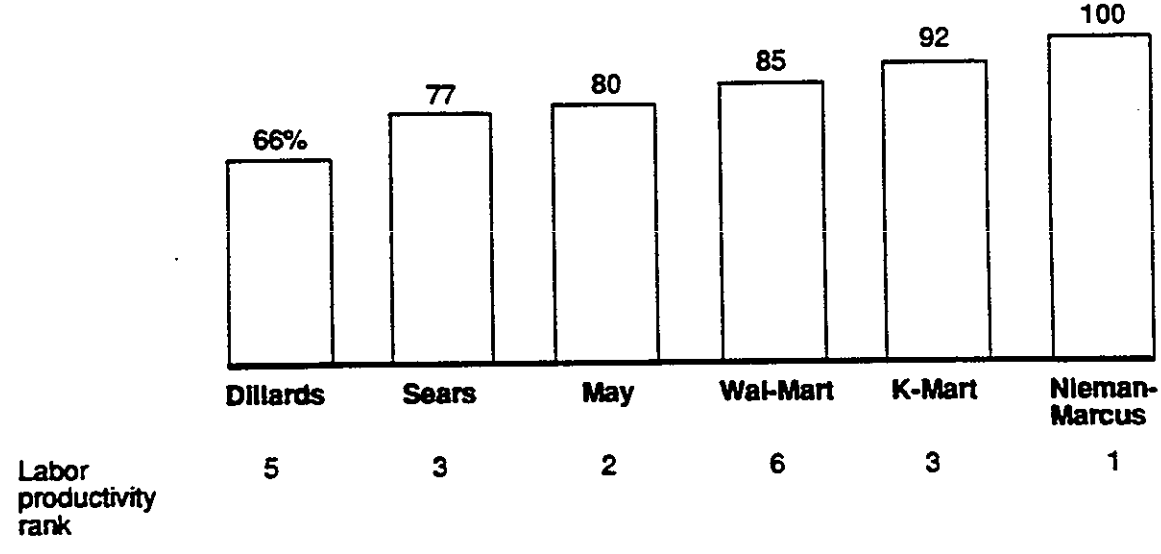
Exhibit 2D - 8

GENERAL MERCHANDISER

TOTAL FACTOR PRODUCTIVITY – 1990

INDEX OF LABOR AND CAPITAL PRODUCTIVITIES

Percent



Source: McKinsey analysis

ZXE-119506

durables as customers begin to place a higher value on convenience, fashion, and other less utilitarian attributes. Most academic inquiries have found a correlation between income growth in an area and increasing retail productivity. Second, a wide income distribution can stimulate the relative level of sales of luxury goods, which have very high margins and value added. This appears to be the case in the U.S. and the U.K.[1] The overall effect would be to shift sales towards more expensive, experiential, culturally significant goods. A customer at Saks or Harrod's or Mitsukoshi pays for and expects more comfortable surroundings, a more convenient location, more ornate fixturing, more personal attention from more highly trained staff, and a choicer selection of merchandise than her counterpart at KMart. A comparison of a sample of general merchandisers and women's apparel specialists in the U.S. supports the conclusion that the stores who deliver these higher value services generate a higher level of value added per employee (Exhibit 2D-7).

- Devalued demand for certain retailing services. In the U.S., consumer branding for certain kinds of goods has removed the value that consumers place on store-based product information and most of the merchandising service. For these goods, the combination of massive advertising support for relatively few SKUs, and the availability of fully comparable product information, based on either an active user literature (where unit costs are high) or direct experience (where unit costs are low), means that a customer knows what he is going to buy and what its price will be within close limits before entering a store. When this happens, the only remaining services required are distribution and general customer convenience; competition is likely to become more nearly a price game. Department stores are finding it difficult or impossible to compete under such circumstances, which are perfect for such category-killer retailers as Toys R Us and Circuit City, and for highly efficient multi-category discounters such as Wal-Mart. These new formats have adapted their operations to this environment by changing their input factor mix to achieve superior financial results. Despite its low labor productivity, for example, Wal-Mart has outstanding capital productivity and total factor productivity well above its mid-range competitors (Exhibit 2D-8), as well as superior profitability. The ability of low cost retailers to shift more product categories into category killers and discount channels tends, on average, to reduce measured U.S. labor productivity per transaction.

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[1] We can conclude from measures of inequality in the distribution of consumption that consumption was already less equal in the U.K. than in France, Germany, or the U.S. at the start of the 1980s. Bulletin of Economic Research (44: 1, 1992).

Exhibit 2D - 9

INTENSITY OF LEGISLATIVE RESTRICTIONS REGARDING DISTRIBUTION – 1989

Many restrictions
Some restrictions
No restrictions

Restrictions \ Country	Germany	U.K.	France	Japan	U.S.
Opening hours					
Opening days					
Store openings					

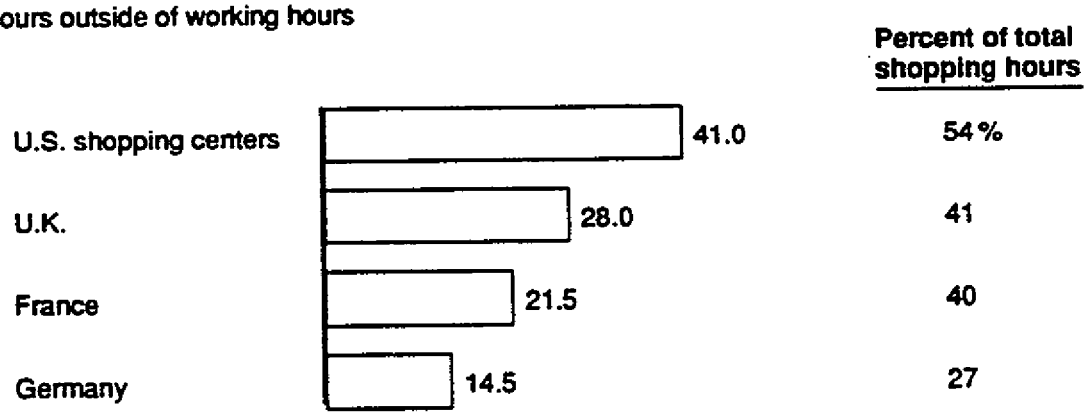
Source: McKinsey analysis

ZOE-119 348V

Exhibit 2D - 10

STORE OPENING HOURS PRACTICE

Shopping hours outside of working hours



Source: Eisenhower Center, Columbia University

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¶ Regulation and market development. While retailing is typically considered an unregulated industry, international comparisons reveal that government regulation powerfully affects the structural options retailers can choose. Many governments outside the U.S. have been extremely active in regulating the operating conditions of retail trade (Exhibit 2D-9). Therefore, in advanced economies, government store opening and competition policies have a decisive effect on the pace of evolution in the retailing industry.

- Store opening policy. Governments can protect small retailers by preventing retailers with new, more productive large-scale formats from entering the market. Why small retailers feel the need for such protection will be discussed in the next section. France and Germany have regulated against new large scale formats, while grandfathering existing department stores. Japan's Large Scale Retail Store Law effectively prevented consolidation and protected mom-and-pop stores in very large numbers until its recent liberalization. By contrast, the U.K. and U.S. regulate retailing store openings loosely and indirectly through land use planning at the local level, and new stores have benefited from a bias to allow openings in both countries. It is worth noting that as the result of the adverse impact discounters and discount specialty stores are having on traditional town centers, Britain is reversing its presumption in favor of allowing new, large-scale formats in space not already zoned for retailing.

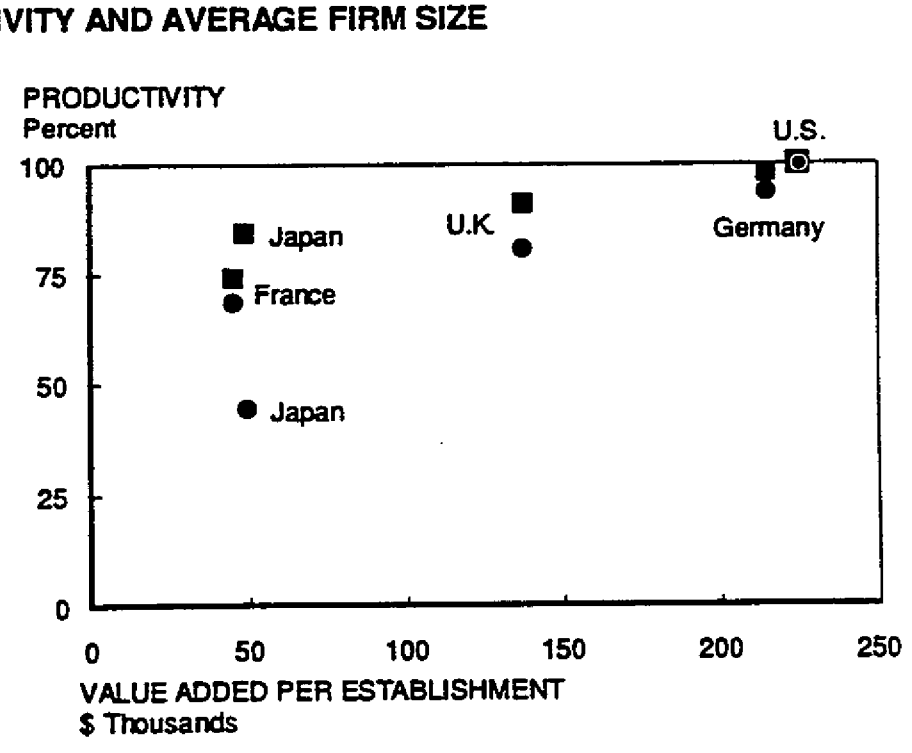
- Other competition policies. Government can adopt a range of policies regarding competition and inter-firm relationships in the supply chain. The U.S. attempts to maximize the consumer surplus by prohibiting resale price maintenance and price discrimination within the supply chain. This effectively strengthens the negotiating power of retailers in general at the expense of producers. But this type of regulation also increases inter-channel competition among distributors by diminishing the ability of producers to protect small outlet systems against large outlet discounters. By contrast, resale price maintenance and price discrimination are commonplace in Japan.

  Germany reduces the opportunities for retailers to compete by regulating the frequency of sales events and store opening hours. For example, less than 30 percent of German shopping hours are outside of office business hours (Exhibit 2D-10). American shopping centers offer nearly three times as many evening and weekend shopping hours, and British stores offer nearly twice as many. This restriction has the effect of making it much more inconvenient for German customers to shop outside of urban centers and high streets, which in turn discourages new competitive entrants in general, and large scale entrants in particular. The net impact of these policies in Germany is to encourage

Exhibit 2D - 11
INTERNATIONAL FORMATS IN JAPAN

Company	Quote
HMV	"Our Ichiburo store has 87 FTEs, compared with 78 at a similarly-sized London store; but the Japanese stores are open 364 days per year and have longer opening hours."
Tower Records	"Labor as a percent of sales is identical in the U.S. and Japan and wages in Japan are slightly higher. I don't see any differences in labor productivity."
Benetton	"Benetton retailers are getting the same 45% margin all over the world. In my judgement, there are no organizational or productivity differences at the franchise level."

Exhibit 2D - 12
PRODUCTIVITY AND AVERAGE FIRM SIZE



Source: McKinsey analysis

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a kind of stalemate among retailers and to reduce the opportunities for new channels in new locations. As a result, we would expect a somewhat lower level of innovation and competitive intensity in German retailing.[2]

Management and Production Process

Since the retailing industry contains so many competitors, we do not believe that it would be useful to try to make high level distinctions between management behavior at the national level. Our study leads us to believe that managers have similar production processes available to them, and that any given store format will generate similar output in any of the advanced economies. Aggregate differences thus depend upon the mix of formats in the industry. We find that the other aspects of the production process – scale, capital intensity, and skill of labor – are less important than industry structure and output mix for explaining national differences.

¶ Format to Format comparisons. There is little evidence of productivity differences between countries at the format level. Department stores show similar productivities and processes in all five countries. Results from McKinsey's benchmarking study of European department stores suggest that sales per employee are relatively constant and that sales per square meter depends largely upon the density of personnel. Comparisons with staffing patterns in Japan show that the Japanese department stores maintain levels of staffing density that have no equal in the Western economies. Interviews with specialty retailers suggest no productivity differences within a company across the Triad countries (Exhibit 2D-11).

¶ Scale effects. Large outlets enjoy scale advantages over small stores in the same product categories and service class for several reasons. On the cost side, big stores can leverage the fixed costs of administration over a large sales base. Researchers have found that large stores should be able to achieve productivity improvements for both labor and capital. Our national comparisons show this expected effect in Exhibit 2D-12. As average store size increases, both labor and capital productivity increase. This scale effect allows big stores to build traffic through lower prices and better selection. This advantage, coupled with the ability to support large advertising spending, ensures that large stores enjoy top-of-mind awareness with customers and become the destination where customers

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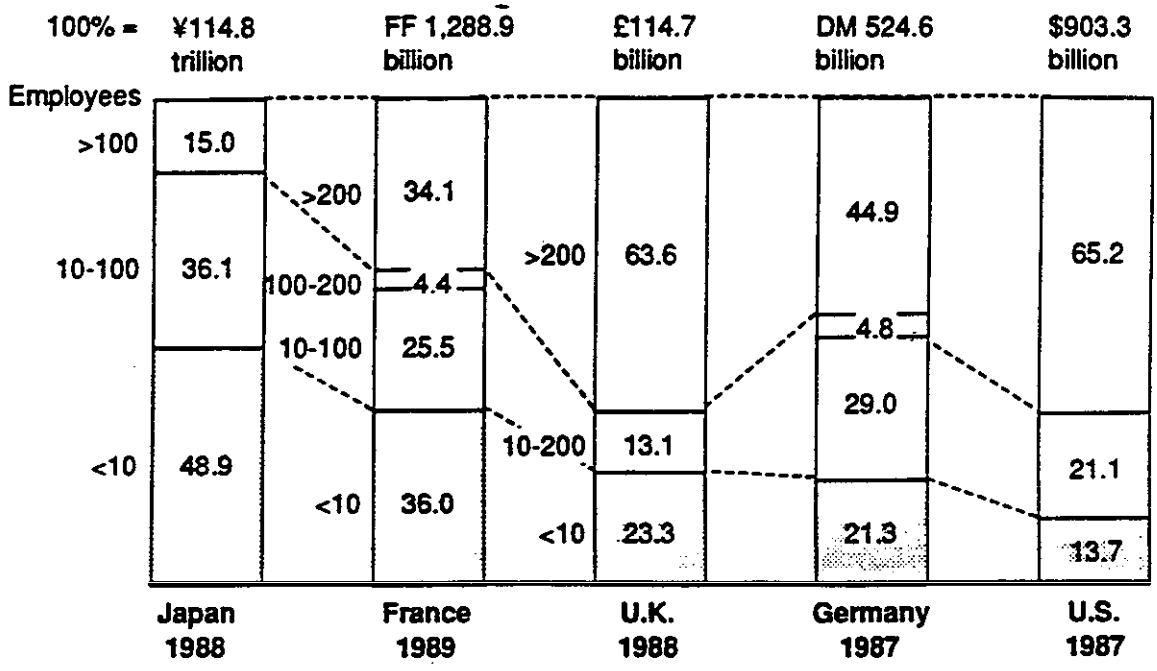
[2] It has been suggested that reducing sales events might reduce demand surges and thus allow more level capacity planning. Shortening opening hours, on the other hand, would tend to increase daily demand surges, mitigating the benefits of more level unlikely demand and greater hourly throughput on labor utilization.

Exhibit 2D - 13

CONCENTRATION IN RETAILING

Sales by firm size



Source: Euromonitor; Business Monitor; INSEE

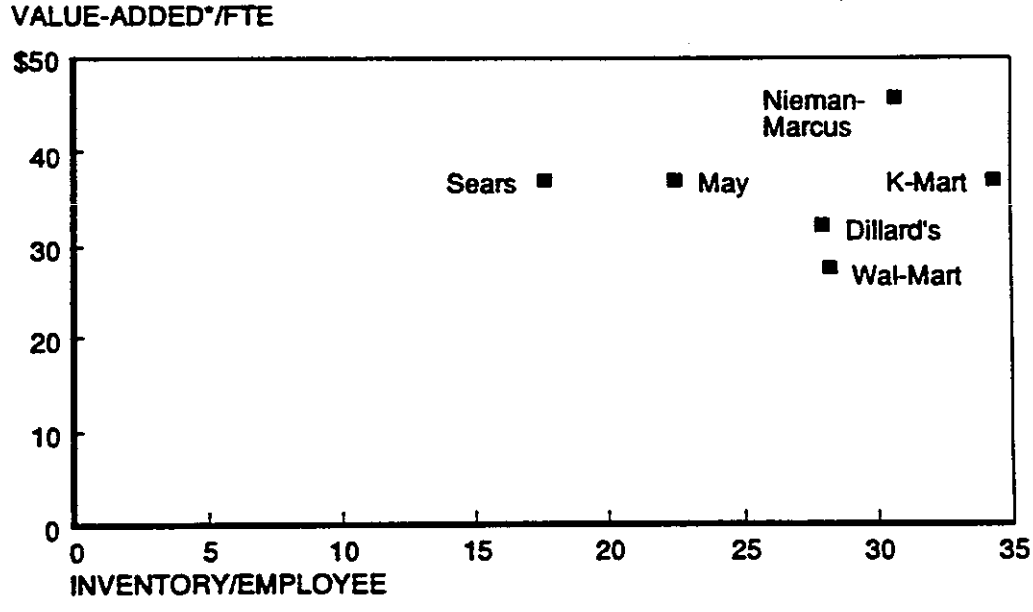
ZXE-119 278

Exhibit 2D - 14

EMPLOYEE PRODUCTIVITY AND INVENTORY LEVELS – 1990

GENERAL MERCHANDISERS

$ Thousands



* Including rents

Source: Annual reports

ZXE-119 510

believe they will have the highest probability of finding goods they want at attractive prices. The resulting higher traffic levels reinforce faster inventory throughput and more efficient utilization of labor, which, in turn, lowers costs. Exhibit 2D-13 shows that a decreasing market share held by small retailers means increasing productivity. In the U.S. and U.K., the market share held by bigger firms is very large. However, relevant scale varies widely by store format, and can be offset to a large degree by clustering individual stores in high traffic areas, for example in urban high streets and regional shopping malls.

¶ Information Technology and capital intensity. The issue of capital in retailing is more complex than in other service industries, because there are three fundamentally different types of capital involved: information technology assets, real estate assets, and inventory. While advances in IT have been critical to the commercial success of many formats and firms, we have not found differences in national applications of IT that are separate from format mix differences. With respect to the importance of real estate, we have reached the somewhat unexpected conclusion that the effects of real estate do not explain labor productivity differences. Finally, we conclude that inventory does not leverage labor in a way that explains differences in labor productivity.

- Space Costs and Labor Productivity. It has been argued that high costs for space in Europe and Japan lead to lower labor productivity, because retailers take on increasingly marginal labor to generate additional sales to pay the rent. From a store manager's perspective, however, rent is a mostly fixed cost. By contrast, labor is a variable cost. Profits can be maximized in a given space by adding labor until the marginal contribution of labor equals its marginal cost. This means that retailers will seek the optimal employee density (based on their format and value proposition) on the basis of contribution of employees. This ought to be true regardless of the cost of space. We therefore do not believe that high rents lead to higher employee density and thus lower labor productivity. Further discussion of the relationship between space costs and labor productivity can be found in Appendix D.

- Inventory and labor productivity. When we observed higher labor productivity in high end stores, we hypothesized that differences in capital intensity might explain some differences. We have already discussed the impact of real estate on labor productivity. Therefore, we are left with explaining the impact of non-real estate assets on productivity. Of these, the most important is inventory. Exhibit 2D-14 shows that for a sample of general merchandisers in the U.S., there is little if any relationship between the amount of merchandise in inventory per employee and the total output per employee. KMart has

Exhibit 2D - 15

LABOR COMPENSATION AND PRODUCTIVITY – 1990

U.S. RETAILERS

$ Thousands

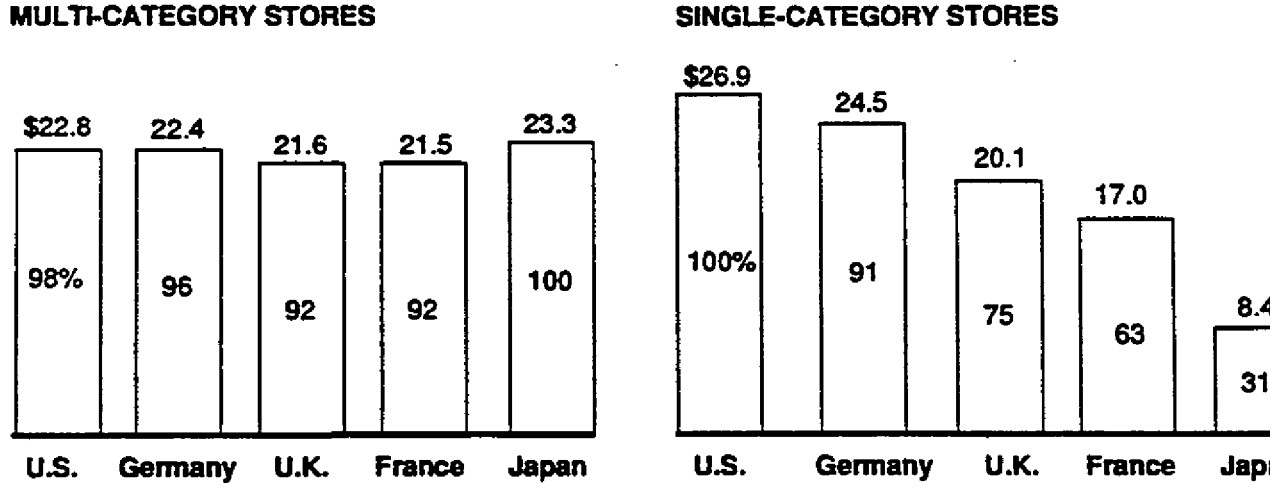
Source: Annual reports, McKinsey analysis

ZXE-119.507

Exhibit 2D - 16

PRODUCTIVITY OF GENERAL MERCHANDISE AND SPECIALTY STORES – 1987-88

$ Thousands per FTE



Source: U.S. Department of Commerce; INSEE; U.K. Central Statistical Office; Deutsche Statistische Bundesamt; MITI

ZXE-119.367

twice as much inventory as Sears, but they generate the same value added per employee.

¶ Organization and skill of labor. Our case study has yielded no evidence to support the proposition that national differences in labor organization and skill, separate from store format, are a significant source of national productivity differences. We have found that there is much more formal training for sales clerks in France than in Britain or the U.S. However, the technical burdens placed on the bulk of retail workers, especially in the stores, are relatively simple. This is not to belittle the importance of training as a key to commercial success, or the quality of labor as a key determinant of labor productivity. Exhibit 2D-15 shows this relationship between the cost of labor and labor productivity for a sample of retailers in the U.S. For us, the more important part is that apparent equivalence of formats suggests that companies are able to achieve equivalent technical training, and that national differences are not significant.

Evolution of Industry Organization

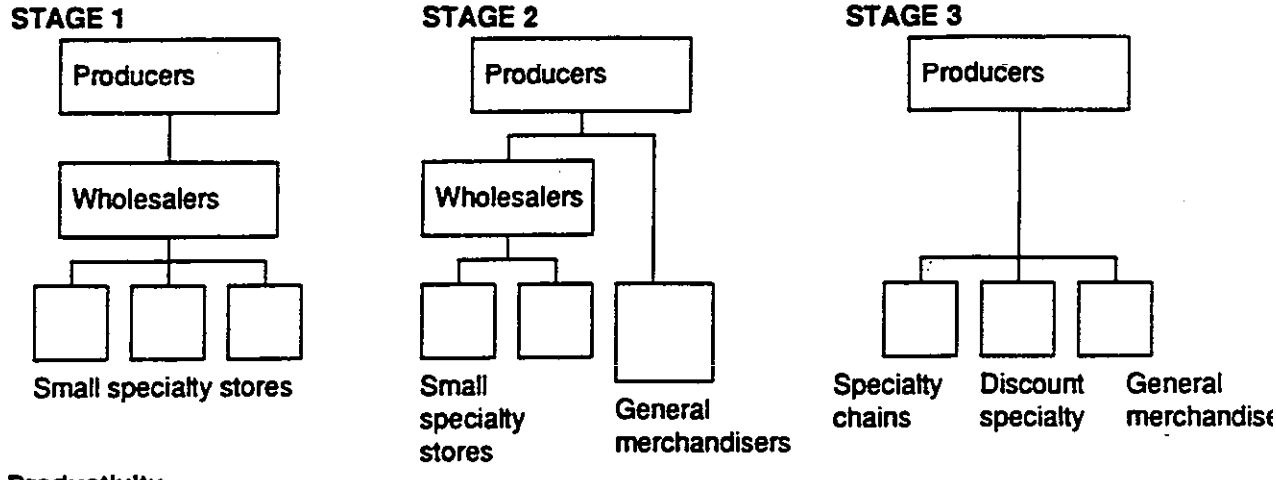
If the mix of formats is the primary determinant of national productivity, the conditions under which the mix changes over time are an important issue. In this section, we first discuss simple mix effects between multi-category stores and specialists. Second, we discuss the role of relative productivity among head-to-head competitors as a driver of mix changes. Finally, we describe the similarities in the evolution of the retailing industry across countries.

¶ Impact of category mix. The most fundamental mix issue revolves around the role of mixed retailers ("general merchandisers") versus specialty stores. Exhibit 2D-16 shows overall productivity disaggregated into these two basic categories. An effectively functioning labor market would shift employment over time from less productive sectors to more productive sectors as successful firms demand more labor and unsuccessful firms go out of business. This mix shift in employment would therefore explain an increase in average productivity. At the highest level, this story is unfolding in our case study of retail industries, for example, in the U.S. and Japan. According to employment statistics, the weakness of multi-category stores in the U.S. is not merely an accident of the current business cycle, but part of a long-term trend to redeploy labor more productively. The employment share of U.S. multi-category retailers has fallen from 56 percent of general merchandise employment in 1972 to 46 percent in 1986. By contrast, Japanese employment in multi-category stores continues to increase.

¶ Labor productivity and commercial success. It is worth remembering, however, that managers are not seeking higher productivity for its own sake, or large scale labor market effectiveness, but higher profitability and

Exhibit 2D - 17

STRUCTURAL SHIFTS EXPLAIN SOME PRODUCTIVITY DIFFERENCES



Productivity

Low, not relevant | Favors general merchandisers | Favors specialty stores in many categories

Country point of development

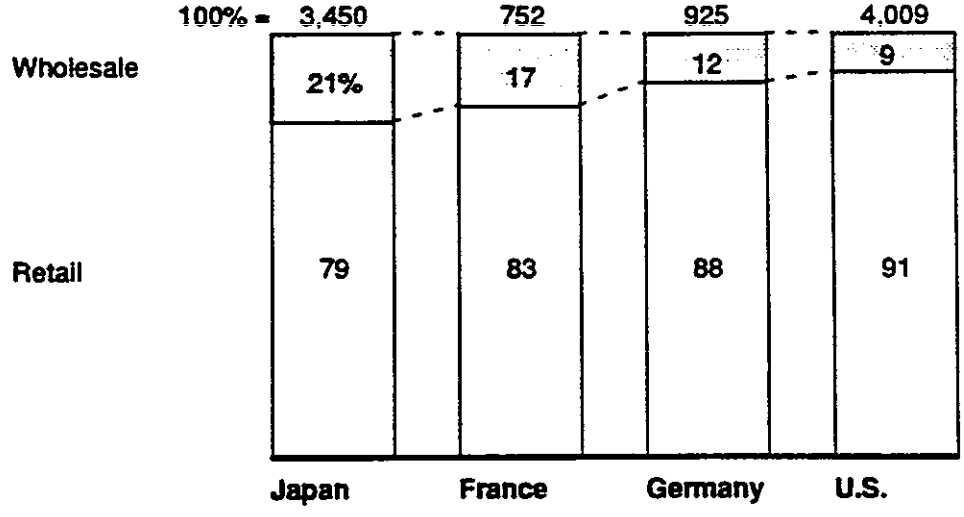
Japan, France | U.K., Germany | U.S.

ZXE-119.295

Exhibit 2D - 18

GENERAL MERCHANDISING WHOLESALE EMPLOYMENT

Thousands of FTE, share of combined employment



	Japan	France	Germany	U.S.
Retail employees per wholesale employee	3.8	4.9	7.3	10.1

Source: MITI; INSEE; Statische Bundesamt; Department of Commerce

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commercial success. Having high labor or even total factor productivity is not a guarantee of commercial success. Poor cost control can undo the benefits of high productivity, and formats that require very little capital per employee are in a good position to achieve high levels of return to capital. There is also the issue of competitive segmentation. We would expect higher productivity to be significant when stores compete head to head for the same customers with the same products. This helps us to understand the Wal-Mart anomaly. Despite epitomizing the concept of "productivity" for industry insiders, Wal-Mart appears to have lower labor productivity than some department stores and mass merchandisers, who offer a more robust mix of services. The discount general merchandiser is by definition a low service format. We should note here that categorizing a format as low service does not mean they do not give good, or even exceptional, service relative to their price position. But Wal-Mart has not competed head-to-head with advanced, metropolitan stores. Historically, it focused instead on reorganizing retailing in rural areas. Based on its productivity, Wal-Mart is well positioned to dominate urban discounters, but not, we believe, urban category killers and chain specialists. The Wal-Mart story is also being replayed in the competition now going on in Japan between general merchandise stores (GMS) and the traditional mom-and-pop stores.

¶ Despite differences in input costs – most notably in real estate costs – among the sample countries, retailing industries appear to pass through a series of evolutionary stages of structure, characterized by two critical transformations (Exhibit 2D-17). Each of these transformations involves a shift from less productive formats to more productive formats.

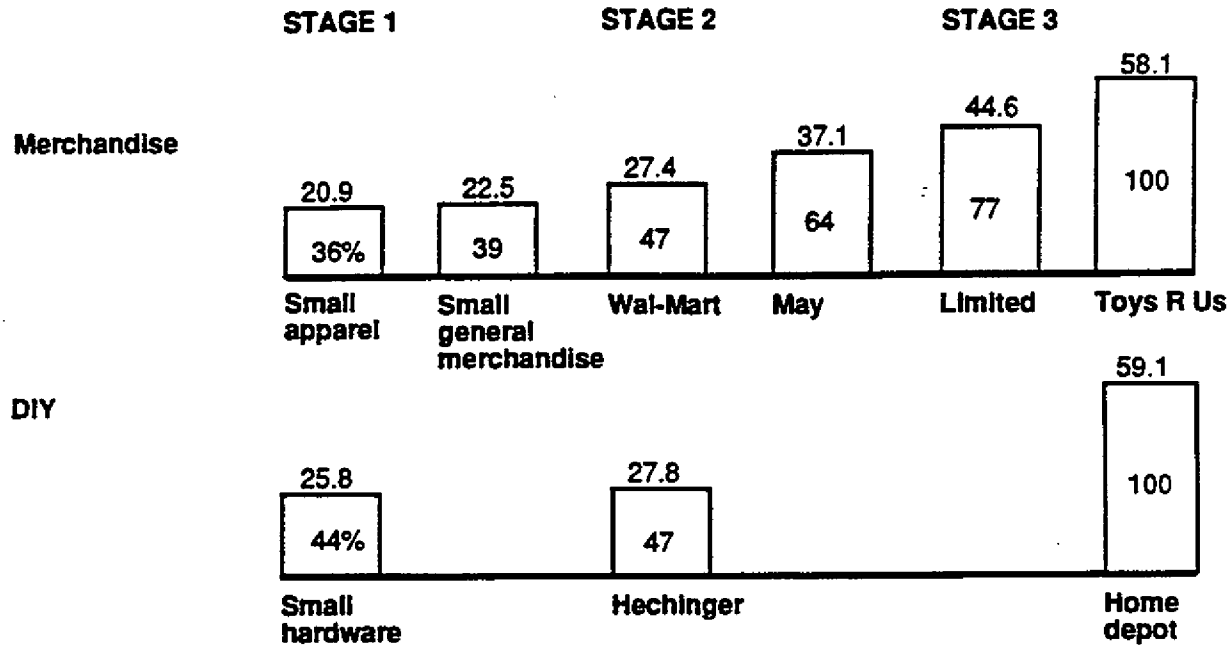
- Stage II retailing. Increases in middle class incomes create an opportunity to consolidate retailing in large general merchandise stores, moving business away from small retailers and their supporting distributors (Exhibit 2D-18). At this point, the general merchandiser has a productivity advantage because of its lower costs, achieved through rationalization and standardization of the intermediate distribution functions. This phenomenon is occurring in Japan, where Ito-Yokado and its GMS imitators are in a race to exploit liberalization of the Large Scale Retail Store Law by expanding stores, increasing locations, and rationalizing distribution. Wal-Mart is effecting this stage of consolidation in rural areas of the United States. In France, the success of the hypermarket format is an example of this migration to more productive general formats.

- Stage III retailing. A second transformation, to Stage III retailing, occurs as specialty stores begin to combine systematized distribution and advanced merchandising, to the disadvantage of general merchandisers. In essence, specialists are able to undertake

Exhibit 2D - 19

LABOR PRODUCTIVITY INCREASES WITH EVOLUTIONARY STAGE

ADJUSTED VALUE ADDED OF MID-RANGE
U.S. RETAILERS PER FTE – 1990



Source: Annual reports; IRS

ZXE-119 514

intermediate distribution, but at a lower cost due to lower product complexity (fewer SKUs), while offering more targeted, higher value services at the retailing end. Smaller formats are grouped into malls, where they enjoy the same traffic-building "destination shopping" convenience that large scale department and specialty stores enjoy, with an even higher level of store variety. The U.S. is clearly going through this transformation, as seen by the rise of discount specialty formats such as Toys R Us and chain specialists such as The Limited. The same kind of format innovation is occurring in the U.K. – though not typically in a shopping mall context – where high income segments exist. In Germany, consolidation in retail chains is very advanced, and specialists show a pronounced productivity advantage over generalists.

The productivity improvements associated with these industry transformations can be seen in Exhibit 2D-19. In general merchandise, department stores have a 75 to 80 percent labor productivity advantage over the small mom and pop stores which still remain in the U.S. It is easy to see how Wal-Mart could have a decisive labor productivity advantage over its local competitors, while trailing mid-range department stores; and its well-known capital productivity advantage makes its overall cost advantage dominant. At the same time, labor productivity in specialty Stage III retailers such as The Limited and Toys R Us is 30 to 50 percent higher than comparable Stage II general merchandisers. The same pattern applies to the DIY home improvement industry, although the transition from Stage I to Stage II is apparently less abrupt in terms of productivity differences. Stage III project specialist Home Depot has a commanding productivity advantage over large, traditional hardware and lumber stores.

PROSPECTS FOR FUTURE GROWTH

Our findings suggest that the retailing industries in all five countries is, or should be, in a process of structural change, although in different directions. The Japanese and French have the strongest incentive to speed consolidation, while the U.S. has a strong interest in completing the next phase of retail evolution. The magnitude and timing of the change depends on national income growth, and in some cases regulatory change.

- ¶ Increasing income. International retailing is becoming a reality. Anecdotal evidence shows that mangers can successfully transplant their business systems across international borders. Examples include IKEA, Toys R Us, and merchants of popular culture such as Tower Records. It is arguable that transplanting truly high productivity formats from overseas could create a two stage jump, increasing output per capita without respect to overall increases in national income. However, the experience of U.K. retailing suggests that this is unlikely. By our measures, British retailing has successfully completed the organization of its retailing system and is an innovator along some dimensions toward a higher-value specialty

structure. However, it is not clear that moving employment between categories could have much effect on overall productivity. Except for tourist trade (of which London has a strong share), domestic retail trade services are tied to stores and typically cannot be exported. Therefore, it is unlikely that the value captured by retailers can systematically increase faster than the spending power and demand of the host country. Most academic observers have noted the powerfully positive effect that income growth has on productivity in retailing.

¶ Regulation. Liberalizing laws against the establishment of large stores speeds consolidation of the retail industry, and has been opposed by small retailers for exactly that reason. Japan's relaxation of its Large Scale Retail Store Law has created a dynamic environment in which Japanese general merchandisers are rushing to build and expand stores, and to capture the value controlled by wholesalers. By contrast, European protection of small merchants has slowed the development of French and German retailing.

Policy Implications of the General Merchandise Retailing Case Study

Government policies regarding economic development, supply chain relationships, and allowable retailing practices work together to create the different structures of retailing distribution that we actually observe. In many cases, these policies have created restrictions to retail industry development, and these restrictions must be removed before retail productivity convergence can occur. However, it is unlikely that city development policy can be altered to much effect in the short run. The effects of altering supply chain relationships vary with the supply and distribution structure of each industry. Therefore, the best opportunities for increasing productivity lie in the liberalization of anti-competitive retailing regulations. We conclude that such liberalization, in and of itself would probably be sufficient to start a process that would close most of the productivity gap.

¶ Development policy. It is worth discussing the impact of government developmental policies in order to understand their relationship to more specific retailing policies. We have argued that income distribution policy has a direct effect by changing the level and quality of demand for retailing services. An important indirect effect comes from the zoning and transportation infrastructure policies related to city planning, land use, agriculture and the environment. Governments exert a great deal of influence on population densities, the availability of new building sites, traffic patterns, and real estate costs. These in turn affect the costs of entering a market and thus the rate of new entries and competitive pressure. The development pattern of high density, high traffic, and high marginal real estate costs in Germany and Japan, and perhaps to a slightly lesser degree in France, has slowed the introduction of new, high productivity formats. However, it is beyond the scope or ability of this

report to make recommendations about policy in these fundamental, complex and interrelated areas.

¶ Supply chain policy. In the area of supply chain policy, on the other hand, the U.S. has taken the lead in establishing two important principles. First, the U.S. tries to maximize competition between alternative distributors by prohibiting discrimination not based on costs. While U.S. retailers typically regard the Robinson-Patman Act as an anti-trust law which is mainly honored in the breach, foreign observers view it as an important balancing mechanism between the power of suppliers and corporate customers. New retailing companies in the U.S. can count on receiving reasonably competitive prices from producers. Second, the elimination of almost all resale price maintenance prevents producers from protecting existing distributors from the effects of price competition with new, low cost formats. The combination of these policies increases direct competition between retailers, forces producers to stand apart from the contest, and gives producers an incentive to take advantage of new, more productive distribution channels, even at the expense of old and valued customers.

¶ Retail regulations. Governments in Germany, France, and Japan have seen fit to protect existing retailers and their suppliers and wholesalers by preventing retailers with new, more productive formats from entering the market. The best tools for this discrimination are laws limiting opening of large scale stores and the regulations limiting store opening days and hours. That governments view these regulations as necessary is instructive on two counts. First, it suggests that the impediments created by restrictive development policy and unregulated supplier relationships are not sufficient to prevent the widespread entries of new competitors. Second, it implies that shopping in small, expensive, high service stores is not a cultural preference; consumers in these countries could be expected to patronize large, cheap stores if they had the choice. These regulations are not deeply rooted in history: the *Loi Royer* and other European restrictions on large stores only date from the early 1970's. We believe that removing the restrictions on shopping hours, in Germany for example, would increase the ability of stores, including new formats, away from employment centers to attract traffic. This in turn would cause a shakeout among existing retailers, lower real estate prices in the city centers, and create lower barriers to entry for new formats at the best locations. Relaxing restrictions on large scale retailers, subject to zoning restrictions, will also have the effect of forcing evolution in product categories where there is a low degree of cultural sensitivity, such as consumer electronics, appliances, housewares; this process is already underway in toys (Toys R Us), furniture (IKEA), and home improvement goods (Castorama).

Exhibit 2D - 20

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES
GENERAL MERCHANDISING

● Important
O Secondary
X Undifferentiating

External factors	
– Market conditions	
• Demand factors	●
• Relative input prices/ factor availability	X
– Policy and regulation	
• Competition rules and concentration rules	●
• Government ownership	X
• Labor rules and unionism	X
Management behavior	●
Production process	
– Output mix, variety, quality	●
– Economies of scale	O
– Capital (intensity and vintage)	O
– Skill of labor	X
– Organization of labor	X
Labor productivity	

* * *

After measuring productivity in general merchandise retailing according to value added per full-time equivalent employee, we found labor productivity differences between retailers in the U.S. and in Germany of 4 percent, of 18 percent compared with British retailers, of 31 percent compared with French retailers, and of 56 percent compared with retailers in Japan. Differences in national incomes and in the mix of formats retailers use account for the bulk of these differences in productivity (Exhibit 2D-20). Whether productivity grows in the retailing industries in these countries will depend on growth in national incomes and in changes to regulations affecting the formats available to retailers.

APPENDIX A

OUTPUT OF THE RETAILING INDUSTRY

Academics have identified at least six major ways to measure the output of a retailing system (Exhibit 2D-1). These measures can be thought of as forming a spectrum that ranges from a focus on tangible goods sold to an analysis of very conceptual measures of customer utility. Each measure has both advantages and disadvantages, and there has been no consensus among academics about which is best. These measures fall into 3 groups: throughput, customer surplus, and financial. After considering these options, we believe that value added at factor cost is the best proxy for the quality of services that customers value.

¶ Throughput. At one end of the analytical spectrum, output is the number of physical goods that pass through the retailing system. This view treats retailing as a purely distributive function and asserts that productivity is a matter of efficient throughput. It may be possible to discuss changes in productivity in specialty stores that sell only one kind of good. However, the problem of comparability becomes insurmountable when analyzing multi-category stores, not to mention entire sectors of heterogeneous stores selling a fundamentally different mixes of goods.

¶ Customer surplus. At the other end of the analytical spectrum, observers have pointed out that customer surplus could be considered the real output of the retailing system. This surplus is a utility measure that would ideally quantify the convenience, information, and even pleasure customers gain from the shopping experience. This measure is attractive in that it conceptually addresses standard of living issues. A slightly less intangible customer value would measure the capability of a retailing organization to meet demand, that is to say, the level of demand a certain configuration could meet. The problem is that definition would measure capacity rather than true output. In addition, both of these customer surplus measures have serious drawbacks in terms of the cost and time required to collect and evaluate meaningful data on an international scale.

¶ Financial measures. Between these two extremes lies the approach of applying financial measures that retailers commonly use. The two classes of financial outputs are sales throughput, and margin and value-based measures.

- Sales throughput. Sales is a very common measure of output, and one that retailers typically use for their internal planning and control. It has the merit of being relatively simple, easy to understand, and in wide practical use. It is logical for individual retailers to use sales-based

measures because sales are the ultimate source of cash and profits. Moreover, within a format, sales, margins, and fixed costs enjoy a relatively consistent relationship. However, sales represent the sum of all producing and distributing functions to that point, rather than a pure output of retailing. This limits the usefulness of the sales measurement in comparisons between countries that have fundamentally different retailing industry structures. Furthermore, the use of a Purchasing Power Parity exchange rate for consumer goods to make international comparison has the effect of reducing sales to a measure of relative throughput.

- Margin and value-based measures. Gross margin and value-added share a number of characteristics that make them useful. First, they do not include value created by suppliers, which allows us to compare countries with different distribution structures. Second, margins begin to address the issue of quality differences quite directly: retail managers are forced to make a trade-off between quality (associated with high margins) and quantity (throughput) in order to maximize the product of margin and throughput. Third, margin and value-based measures reflect the fact that most retailer spending is not directed at throughput, but instead is used to deliver a mix of services including product information, convenience, and merchandise selection. In aggregate, margin represents the value that consumers have assigned to all retailing services purchased. There are, however, important differences between gross margin and value added that lead us to prefer value added.

  - Gross margin. Total gross margin, expressed in nominal currency units (not in percent), is meaningful to managers because it is equal to the cost structure a retailer can support. However, gross margin implicitly includes costs – such as rent, utilities, and advertising – which are purchased services.

  - Value Added. Value added excludes such external charges, which are properly the output of other industries. We focus on value added at what is called "factor cost." This measure excludes net indirect taxes – such as U.S. sales taxes and international VAT taxes–and subsidies. These taxes do not affect relative cost position.

    Including consumption taxes would introduce measurement differences that are purely a function of government tax policy. Using this value-added measure focuses on pre-tax returns to capital and labor. Returns to capital take the form of operating profits (Earnings Before Income Taxes) and capital consumption allowance (depreciation). Returns to labor include all forms of compensation, including fringe benefits and social charges.

APPENDIX B

INPUTS TO THE RETAILING INDUSTRY

A case can be made for either capital or space or labor as the most important input factor for measuring productivity. It is clear that each store format weighs the importance of its input mix elements differently. From our perspective, it is both meaningful and practical to use full-time equivalent workers (FTE) as the primary single factor input.

- ¶ Capital. Measured in traditional terms, retailing has low capital intensity. Even the most capital-intensive format has only 50 to 60 cents of capital for every $1 of sales. However, almost no one would say that capital productivity is not important to retail companies. Like all businesses, they need to manage capital carefully in order to stay in business. Furthermore, the very low capital requirements of stores like Wal-Mart make it possible to earn superior returns on capital and capture value for shareholders, even with low margins. We will use capital as an explanatory variable in interpreting the outcome of labor productivity.

- ¶ Space. Retailers typically consider space as the most precious input. This is rational, because store managers consider space as the limit to their capacity. Most fixed costs are related to the space a store occupies, and measuring output against capacity makes sense for store managers within a company. It is not clear, whether comparing space productivity across formats or internationally is useful. Accurate measures of aggregate retailing space are not available.

- ¶ Labor. Retailing is very labor intensive, and labor plays a dominant role in the retailing cost structure, even in high property cost markets. Using labor immediately relates our findings to the overall project's understanding of national productivity differences, which are labor-based. Data is generally available in all countries, even though it is not always as strictly comparable as we might like. We use Full Time Equivalent (FTE) workers because of differences in the usage of part-time labor. Therefore, we have made adjustments based on national samples that indicate the use and hours of part-time versus full-time workers.

APPENDIX C

DATA SOURCES AND CURRENCY CONVERSIONS

The raw data for the comparisons of productivity on the highest level come from official surveys and inquiries by the five countries, which track industry conditions and employment. However, these surveys do not distinguish between formats as retailers understand them. At best, they distinguish between multi-category retailers (e.g., department stores) and specialists, and distinguish among specialists on the basis of the kinds of goods they sell, for example, between shoe stores and furniture stores.

- ¶ Industry Conditions. Every 5 years, the U.S. Department of Commerce conducts a census of retail trade. It collects information on establishment sales and cost structure, and organizes its aggregate data by Standard Industrial Classification (SIC) code. The last census was in 1987. MITI performs a similar survey for Japanese retailers on a triennial basis, and published its most recent results in 1988. The British Central Statistical Office performs a biennial inquiry. Neither the Japanese nor British efforts collect cost structure information in anything like the detail of the U.S. Census. The German Statistische Bundesamt and INSEE in France conduct more regular surveys.

- ¶ Employment data. With the exception of the Japanese census, the national statistics distinguish between full-time and part-time workers. EC surveys on average hours worked in the distributive trades have shown that in Germany, France, and the U.K., part-time workers averaged about 20 hours per week, compared with about 40 hours for a full-time worker. Therefore, we treat part-time EC workers as equal to one-half FTE. The concept of full- and part-time in Japan refers more to status in the organization and fringe benefits than to actual hours worked. Japanese retailers stated in interviews that part-time workers, or arubeito, typically work a 40-hour week. We therefore treat Japanese employment totals as equal to the number of FTEs. In the U.S., the Bureau of Labor Statistics performs annual surveys of establishments to establish numbers of employees and average working hours, again arranged by SIC code. We therefore multiplied total employment by average working hours divided by 40 to estimate U.S. FTEs by SIC code.

- ¶ Company-specific data. As we probed beneath the national statistics, we were forced to rely industry statistics and more anecdotal evidence. We used industry sources, such as, the National Retailing Federation's annual financial results survey of the U.S. department store industry and the Corporate Intelligence Group's survey of U.K. retailers. We developed

samples based on the annual reports of publicly-traded companies believed to be representative of different formats. We built upon previous McKinsey studies of the economics of different formats and benchmarking studies of department store performance. To develop a point of view about industry evolution and the role of inter-format competition, we supplemented this data with interviews of experienced retailing consultants and retailing executives, especially in Japan. By necessity, we have avoided relying too heavily on such data in the measurement phase of the project. Specifically, we have not attempted to perform a statistically compelling analysis that might link overall industry productivity with the mix of particular formats.

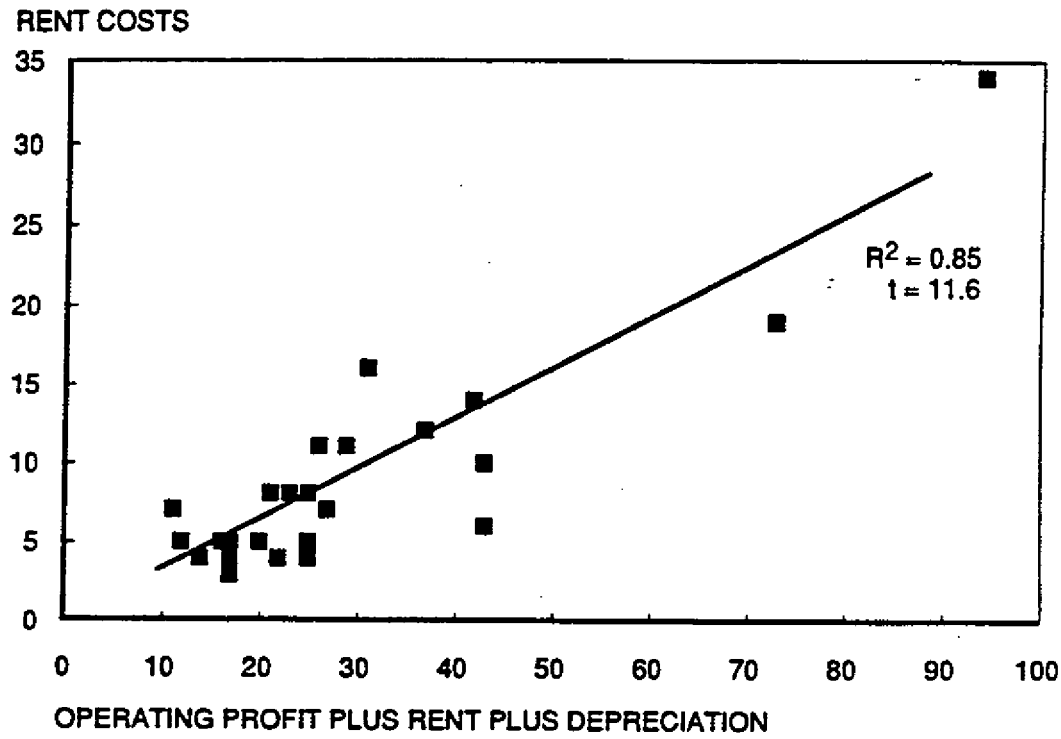
Currency translations in this study are based on GDP PPPs from the 1990 OECD benchmark study. National GDP deflators are used to estimate PPPs for 1987 to 1988. These PPPs are applied to change all currencies into U.S. dollars of equivalent spending power.

Exhibit 2D - 21

RENT VS. RETURNS TO CAPITAL AND REAL ESTATE

U.S. RETAILERS, 1985 AND 1990

$ per square foot



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APPENDIX D

SPACE COSTS AND LABOR PRODUCTIVITY

It has been argued that high costs for space in Europe and Japan lead to lower labor productivity, because retailers take on increasingly marginal labor generate addition sales to pay the rent. From a store manager's perspective, however, rent is a mostly fixed cost. By contrast, labor is a variable cost. Profits can be maximized in a given space by adding labor until the marginal contribution of labor equals its marginal cost. This means that retailers will seek the optimal employee density (based on their format and value proposition) on the basis of contribution of employees. This ought to be true regardless of the cost of space. We therefore do not believe that high rents lead to higher employee density and thus lower labor productivity.

The ability of retailers to generate profits drives the rental value of a given location, and rents cannot be sustained above near the rent-free profits by the most productive retailer. In the long run, increases in retail space productivity cause increases in rent, not the other way around. Exhibit 2D-21 shows that rents are a function of space productivity for a sample of U.S. retailers. This implies that a better measure of the productivity of labor at the company level would adjust value added to correct for real-estate market distortions, such as above- or below-market rents caused by long-term contracts, or the under valuation of owned property purchased long ago. However, this is simply a matter of making the adjustment to improve measurement rather than a fundamental economic trade-off. Uncounted rent in our aggregate statistics ranges from 13.5 percent of value added in the U.S. to 14.2 percent in Germany to 15 percent in Japan. Including rent in value added would make no difference in overall rankings or in the magnitude of the measured productivity gaps.

E – PRODUCTIVITY IN THE TELECOMMUNICATIONS INDUSTRIES – COMPARISON OF THE U.S., JAPAN, FRANCE, GERMANY, AND THE U.K.

Until recently, the telecommunications industry was one of the last worldwide bastions of regulated, mostly state-owned national monopolies. But the 1980's brought dramatic regulatory changes in several countries. British Telecom was (partly) privatized in 1981 and the old U.S. AT&T was broken up into eight pieces in 1984. Japan liberalized its telecommunications market in 1986. In Europe, the European Commission has shown increasing regulatory leadership and major changes in ownership and regulation are under discussion.

Despite this common thrust towards deregulation, privatization and competition, however, different countries are still pursuing different national strategies and the discussion about which way and how far to go is certainly not settled among the members of the European Community. We think that a better understanding of the relative performance of the telecommunications industries will help in this discussion. As the telecommunications industries internationalize, a sound point of view on the relative performance of telecom companies becomes increasingly important in developing corporate strategy, as well.

This case study can contribute to this discussion in two ways.

- First, our measures of labor and capital productivity give the first top level insights into the relative performance of the telecommunications industries. Our results show that the U.S. telecommunications industry has a higher capital productivity than Japan and the major European countries. In terms of labor productivity, however, the differences between the U.S., Japan, and France disappear.

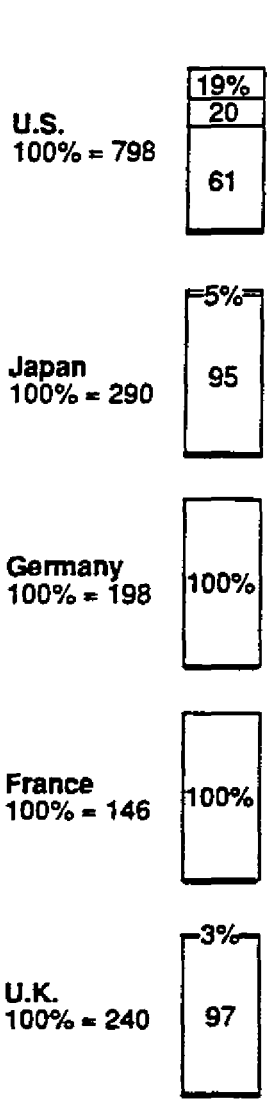
- Second, our causality analysis suggests that differences in organization of labor are the most important proximate reasons for the measured differences in labor productivity. Those differences in how labor is applied ultimately have their root in the various objectives and incentives that managers face. We conclude that in the absence of competitive or regulatory pressure to reduce costs and increase productivity, the efforts of the current monopolies and dominant competitors generally have not made much effort to change and increase productivity.

We start our analysis with a definition of and brief introduction to the telecommunications industry. In the two major parts of this case study, we first measured productivity and productivity differences among telecommunications

Exhibit 2E - 1

DEFINITION OF THE TELECOMMUNICATIONS INDUSTRIES – 1989

1,000 full-time equivalent employees*



	SCOPE OF INDUSTRY	EXCLUSION/ADJUSTMENTS
U.S. 100% = 798	Long distance carriers (AT&T, MCI, Sprint) Independent local exchange carriers 7 regional Bell Holding Companies (RBHC)	Equipment manufacturing (AT&T, GTE) Call completion services (about 5% of employment)
Japan 100% = 290	KDD and other telecom companies (type I carriers) NTT and telecom related subsidiaries	Value-added network services provided by type II carriers
Germany 100% = 198	DBP Telecom	Cable TV business
France 100% = 146	France Telecom	Cable TV business
U.K. 100% = 240	Mercury, Kingston British Telecom (BT)	

* Part-time workers converted to 0.5 full-time employees

Source: FCC; annual reports; McKinsey analysis

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industries, then analyzed the causal factors of productivity gaps. We have also drawn some conclusions about the implications of our findings.

DEFINING THE TELECOMMUNICATIONS INDUSTRIES

The telecommunications service industry in each country studied is highly concentrated and can easily be defined by the monopoly or competitors which form it (Exhibit 2E-1). In our definition, the telecommunications industries encompass the major telephone service providers in each economy, which are roughly comparable to (former) national telephone monopolies such as France Telecom or Deutsche Bundespost Telekom. Even in the U.K. and Japan, the national carriers British Telecom and NTT account for at least 95 percent of the employment in the industry. Compared to the industries in the other four countries, the U.S. industry appears almost fragmented. But even in the U.S., the local exchange carriers, which account for about 80 percent of industry employment, operate as regional monopolies in their core business, the "plain" telephone service. Only in the long distance segment did we observe competition for telephone services in the U.S.

The telecommunications industries in our definition capture about 1 percent of the employment in the economies.

Given the common past of the industries as national telephone monopolies, the basic services provided and functions fulfilled by the industries are fairly similar. We made only a few adjustments to ensure sufficient comparability. All industries install, maintain and operate various networks (e.g., voice, data, cellular, paging, telex and other networks) and offer a range of network services to business and residential customers. We adjusted, however, for equipment manufacturing, cable TV and call completion services (the "U.S. operator") to obtain a more homogeneous business system sample among the industries. In the U.S., Japan and the U.K., we did not try to capture all the privately owned networks, bypass and value-added network providers which are permitted to operate in these countries.

Before we turn to the productivity analysis, we will briefly discuss the nature and main characteristics of the telecommunications industry. Telecommunications is still a highly regulated, capital intensive fixed cost business with extremely high barriers to entry.

- ¶ Even after the wave of deregulation and privatization in the 1980s, the telecommunications industry remains one of the most heavily regulated industries in all countries, although the degree of regulation and government intervention varies (Exhibit 2E-2). The U.S. and Japan are the most deregulated and competitive industries, followed by the U.K. Competition, however, still does not go very far. As Exhibit 2E-3 shows, over two-thirds of the U.S. employment is still hired by the strictly monopolized local exchange carriers or their holding companies. On the other hand, more than 19 percent of U.S. telecommunication labor works

Exhibit 2E - 2

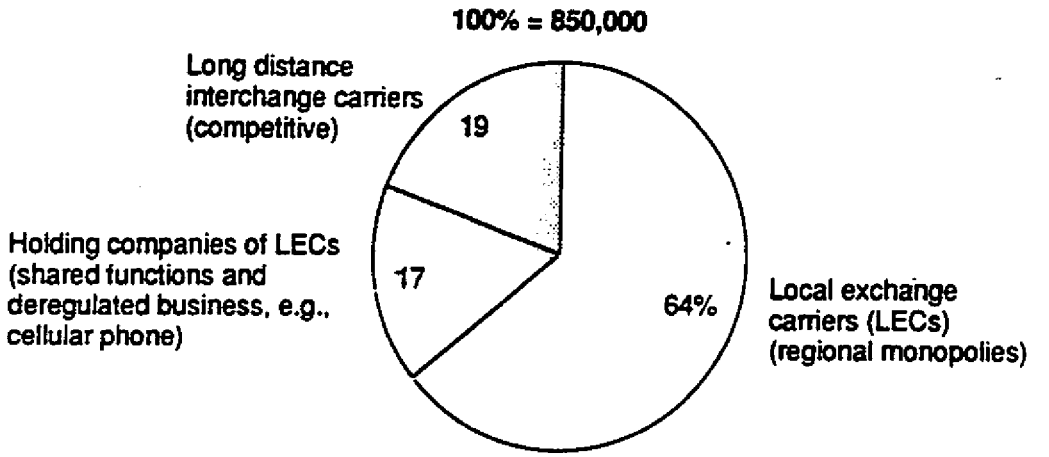
REGULATORY AND COMPETITIVE ENVIRONMENT IN 6 TELECOMMUNICATION INDUSTRIES

	UNITED STATES	JAPAN	GERMANY
Regulation	Independent, government-regulated monopoly prior to 1984 Open competition for long distance services since 1984 Regional monopolies for local service	Open competition since 1983 Primary competitor government owned (under privatization)	Government-owned monopol
Competition			
Local	1 local monopoly in all locations Some competition in urban areas in data services	Primarily monopoly, but competition arising	Monopoly
Long distance	3 major carriers and several hundred minor carriers and resellers	Many competitors	
International			
Data	Many competitors		
Mobile	2 carriers in each metropolitan area	1 or 2 carriers in each location	Besides DBP Telekom 1 new competitor
Private networks	Open to competition	Open to competition	Monopoly

	FRANCE	UNITED KINGDOM
Regulation	Government-owned monopoly	Government-enforced monopoly until 1985 when one competing carrier was allowed
Competition		
Local	Monopoly	Primarily monopoly 2nd player insignificant
Long distance		
International		3 competitors
Data		Many competitors
Mobile		
Private networks		Open to competition

Exhibit 2E - 3

U.S. TELECOMMUNICATION INDUSTRY EMPLOYMENT (FTE) BY REGULATORY ENVIRONMENT – 1989



Source: FCC; McKinsey analysis

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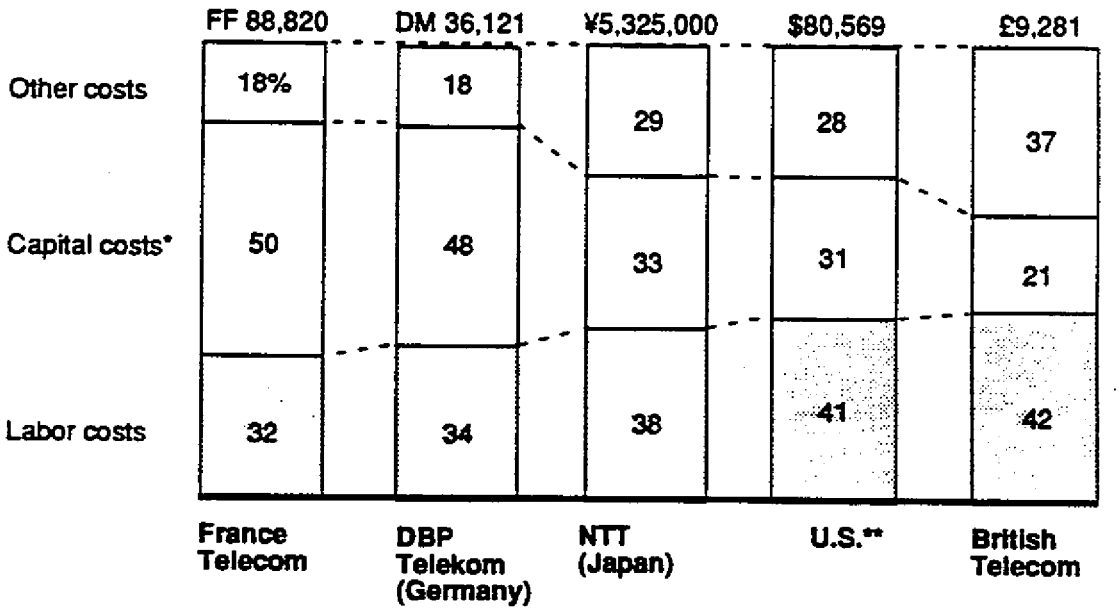
Exhibit 2E - 4

COST STRUCTURE OF TELCO'S – 1989-90

Million national currency



* Depreciation and interest expenses

** Local exchange carriers and AT&T as reported to FCC

Source: Annual reports; FCC

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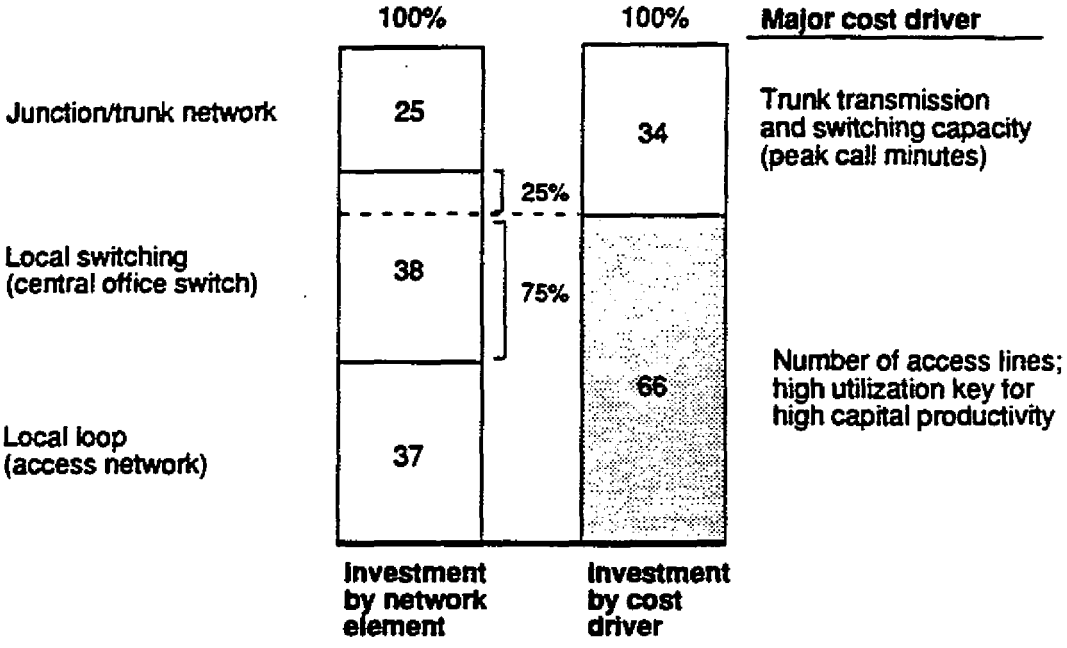
Exhibit 2E - 5

NETWORK INVESTMENTS OF TELCO'S BY ELEMENT AND COST DRIVER

Percent



Source: Rand Corporation; McKinsey analysis

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in a competitive market environment, in contrast to the monopolized state-owned strongholds in Germany and France.

- Telecommunications is an extremely capital intensive business. While the labor costs as a percentage of total costs range from 32 to 42 percent, capital costs (depreciation plus interest expenses) account for up to 50 percent (Exhibit 2E-4). About 75 percent of the capital expenditures is spent for the local network, i.e., for access lines (the local loop from the customer to the first switch) and for local switching (the central office switches) (Exhibit 2E-5). The major driver of investments and costs is therefore the number of access lines in the network. About two-thirds of total capital expenditures is related to this part of the network. A high utilization of the access lines in terms of calls per access line is key to an economical utilization of the invested capital.

- High capital intensity means high fixed costs in the telecommunications industry. Labor costs are fairly fixed, as well. Even in the long term, we estimate that only about 15 percent of the U.S. labor costs varies with the traffic (i.e., calls) in the network (Exhibit 2E-6). About 85 percent of labor costs are fixed costs related to extending and maintaining the network and to extending and maintaining the customer base. The cost or output driver in these functions is proportional to the number of access lines, rather than to the traffic in the network.

- Even without regulatory barriers, the capital intense and high fixed cost nature of this business create high entry barriers to any potential new competitor. This is why at least the residential telephone business, for example, is still widely perceived as a "natural" monopoly which, for economic reasons and for the benefit of the consumer, can only be run by one company under the close supervision or even ownership of the government. Technology, however, is about to challenge this conventional wisdom. With the improving performance and economics of (digital) radio technology, it is foreseeable that most households could choose from at least two providers of local telephone exchange services if regulatory barriers came down.

This background information will be helpful in the following discussion of the relative productivities of the telecommunications industries and the causes of the observed differences.

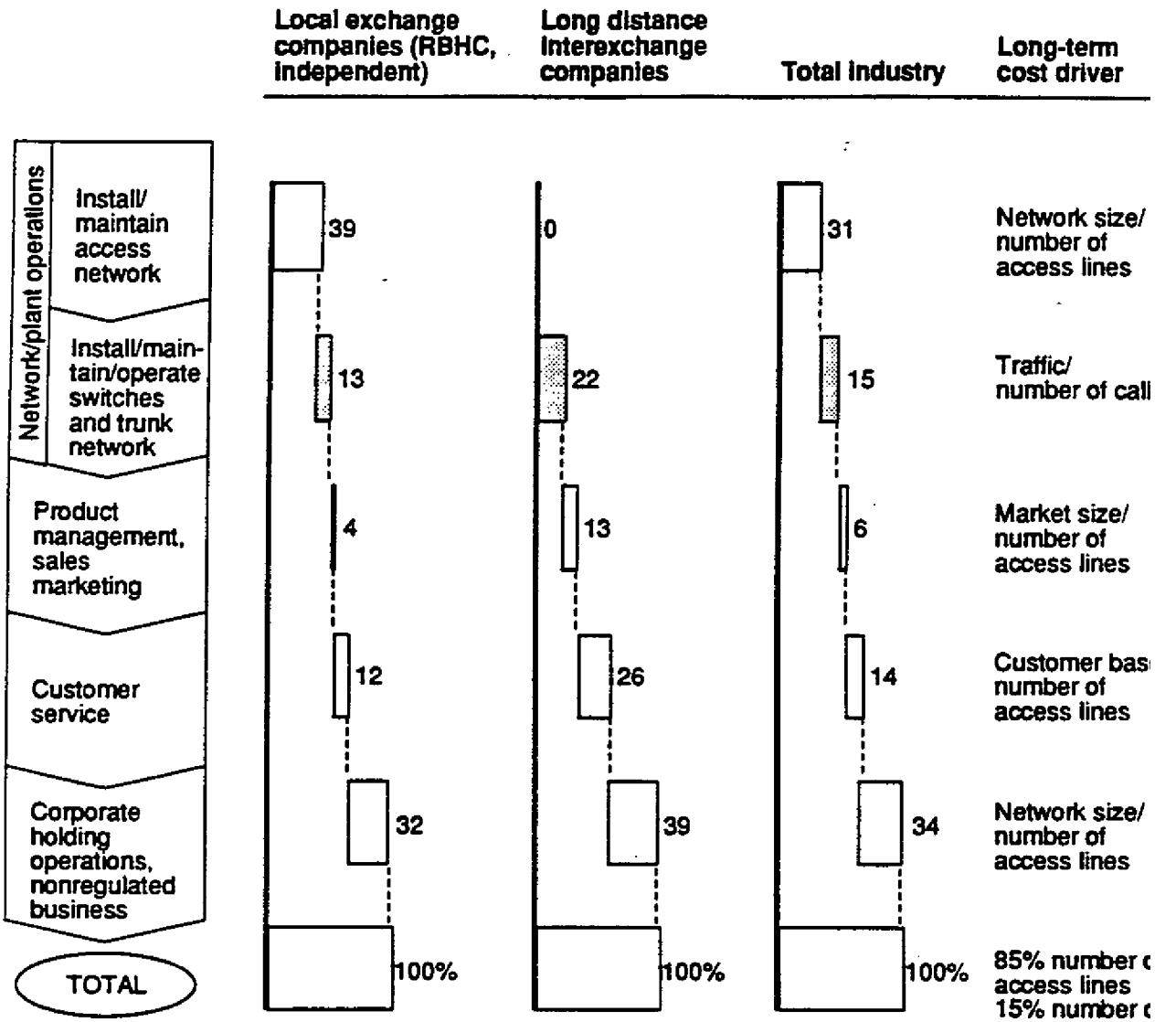
MEASURING LABOR PRODUCTIVITY IN THE TELECOMMUNICATIONS INDUSTRIES

Any productivity analysis first has to answer the basic question of what the

Exhibit 2E - 6

LABOR COST STRUCTURE U.S.- TELECOMMUNICATIONS INDUSTRY BY ELEMENT OF BUSINESS SYSTEM – 1989

Percent of labor costs



* Including number service (3.3% of total); call completion services excluded (additional 5% on total)

Source: FCC; McKinsey analysis

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questions we will discuss the measured productivities and attempt a first interpretation of the results.

The Concept of Productivity in the Telecommunications Industry

When it comes to measuring productivity, the telecommunications industry shows a peculiarity which distinguishes it from other industries. This peculiarity lies in the output of the industry: for good reasons, customers and producers might have different notions about the output of the industry. Depending on what you perceive as the "real" output, you might have a different input concept for measuring productivity, i.e., with either labor or capital as the most important input of the industry. We will argue, however, that the producer and the customer points of view can be reconciled by applying the concept of total factor productivity.

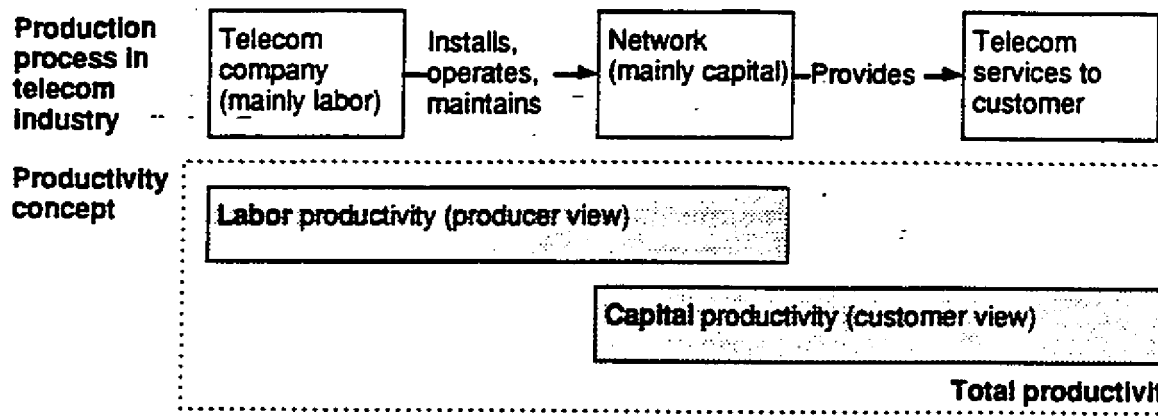
For most industries, the customer can answer the question of what the output is. In the case of the telecommunications industry, the residential customer will reckon that he understands "making calls" as the service of the telephone company for which he pays. He might add that "being accessible" is a service, too, and the business customer might bring up the aspects of data transmission and faxing. However, they will say that traffic is what they perceive as the service of the telephone company.

Now, ask the producer, i.e., anybody who works in the telephone company. He does not produce calls nor does he transmit data. The employee will probably state that he serves the customer directly when he or she needs information, has questions regarding the bill or a problem with the line. As Exhibit 2E-6 showed, however, it is more likely that the employee is engaged in installing and maintaining the network or working in management and overhead functions. In other words, the employees are creating and maintaining a network or system which allows customer to make calls. But they are not directly involved in the final stage of service delivery as it is viewed by the customer.

Exhibit 2E-7 summarizes in a simplified way these customer and producer views of the production process of the telecommunications industry and the implications for measuring productivity. Labor is producing the network and providing direct customer service. When measuring labor productivity, the output has to be measured along these dimensions. The number of access lines of the telephone network appears to be a good proxy for the approximately 85 percent of employees who are engaged in the access network of the system and in maintaining the customer relationship (compare Exhibit 2E-6). For the approximately 15 percent of labor deployed in the traffic related parts of the system (e.g., maintaining and operating the switches or providing directory service), we concluded that the

Exhibit 2E - 7

PRODUCTIVITY IN THE TELECOMMUNICATIONS INDUSTRY



Output	Install, operate, and maintain network and provide customer service measured by - Number of access lines for network- and customer-related activities - Number of calls for traffic-related activities	Network services as perceived by customer, e.g. - Number of calls - Number of calling baskets	Provide network and network services
Input	Labor (own and contracted) Capital only in support function	Capital stock of network measured in value ($) or quantities (e.g., access lines)	Labor and capital
Our productivity measure	Weighted indices of access lines per FTE (85%) and calls per FTE (15%)	Number of calls per $ capital stock in network	Weighted average of telecom and network productivity (labor and capital productivity)

Source: McKinsey analysis

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This capital is used by the customer at his demand when he or she makes a call. With the exception of call completion services, which we excluded from the productivity comparison, the usage of the network and the service delivery to the customer does not require any further labor input. From the customer point of view, the primary service of the telephone company is provided solely by the network. Measuring capital productivity by using a traffic measure as output (e.g., calls) and a capital measure as input (e.g., network capital stock) reflects the productivity of the telecommunications industry from the customer point of view.

In the end, however, both concepts of productivity have to be reconciled. The production process of a telephone company is a two-step function: labor creates capital and capital provides services. But the telecommunications industry as a whole can only be productive if both production processes are effective and efficient. In other words, telecom employees "should" build an effective network which provides services customers want and the telephone company "should" do this efficiently so that the customers are also willing to pay the price to buy these services. Both aspects can be captured when labor and capital productivity are combined in a total factor productivity measure of the telecommunications industry. Total factor productivity takes both outputs (the network and the network services) and both inputs (labor and capital) of the telecommunications industry into account. We computed total factor productivity as the factor cost-weighted average of labor and capital productivity.

What is different about the telecommunications industry that caused us to diverge from the approach we followed in the other case studies, in which we applied the concept of pure labor productivity and did not explicitly take the capital input into account? It is not just that the telecommunications industry is very capital intensive. The airline industry is, too. It is that in the telecommunications industry, pure labor productivity does not reflect the service output as it is perceived by the customer. This has been always the case in the other industries we looked in which labor – at least in some functions – is always involved in the delivery of the final service to the customer. We think that measuring productivity in a market economy should take this customer perspective into account, since the customer is the final judge of the ultimate economic value of the output delivered by the industry.

Exhibits 2E-8a-b show the output and input measures used for the productivity comparison in this case study and based on the rationale discussed above and summarized in Exhibit 2E-7. Not surprisingly, in terms of access lines, the U.S. telecommunications network exceeds the size of the networks in the other countries. The traffic intensity in the U.S., however, is also remarkable. While the U.S. is roughly twice as large as Japan and about four time as big as the European countries, the number of calls made is higher than in Japan by the factor of 7 and higher than in the European countries by the factor of 14 to 20. The two input measures we used are full-time equivalent employees for labor and the capital stock invested in the telecommunications network for capital. This measure was

Exhibit 2E - 8a

OUTPUT OF THE TELECOMMUNICATIONS INDUSTRIES – 1989

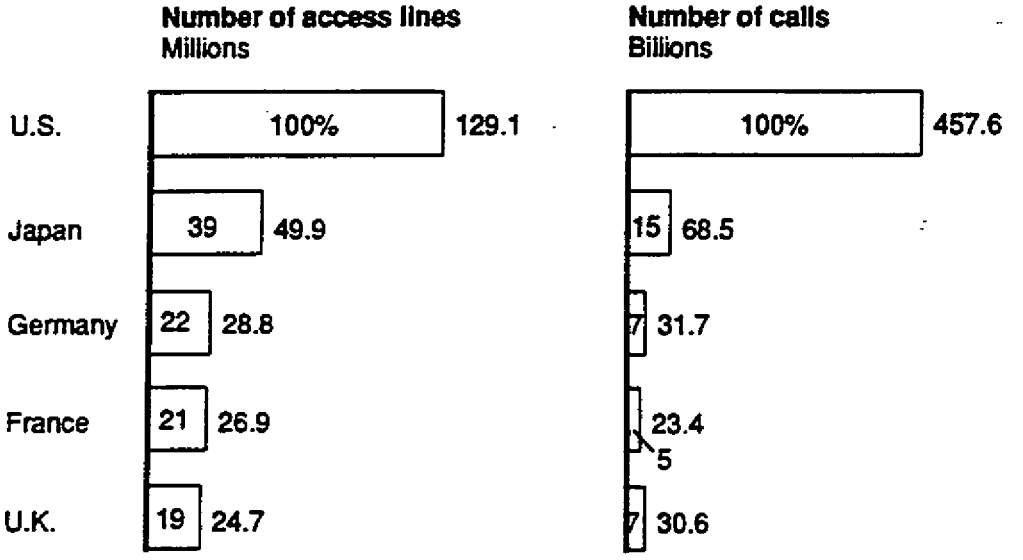
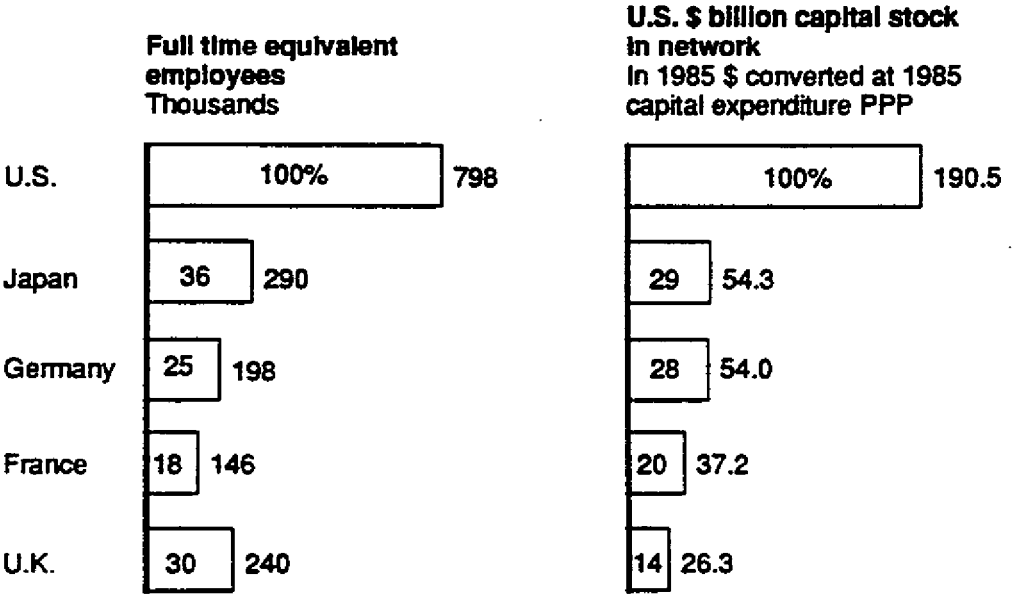


Exhibit 2E - 8b

INPUT OF THE TELECOMMUNICATIONS INDUSTRIES – 1989



Source: FCC; ITU; annual report; McKinsey analysis

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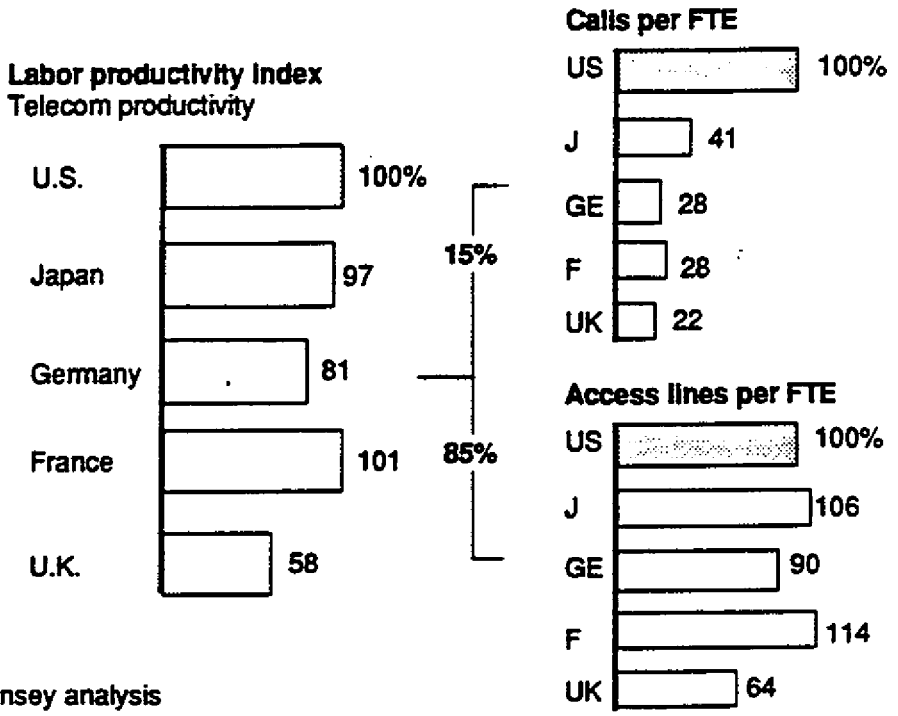
Exhibit 2E - 9

LABOR PRODUCTIVITY IN TELECOMMUNICATIONS INDUSTRIES – 1989



Source: McKinsey analysis

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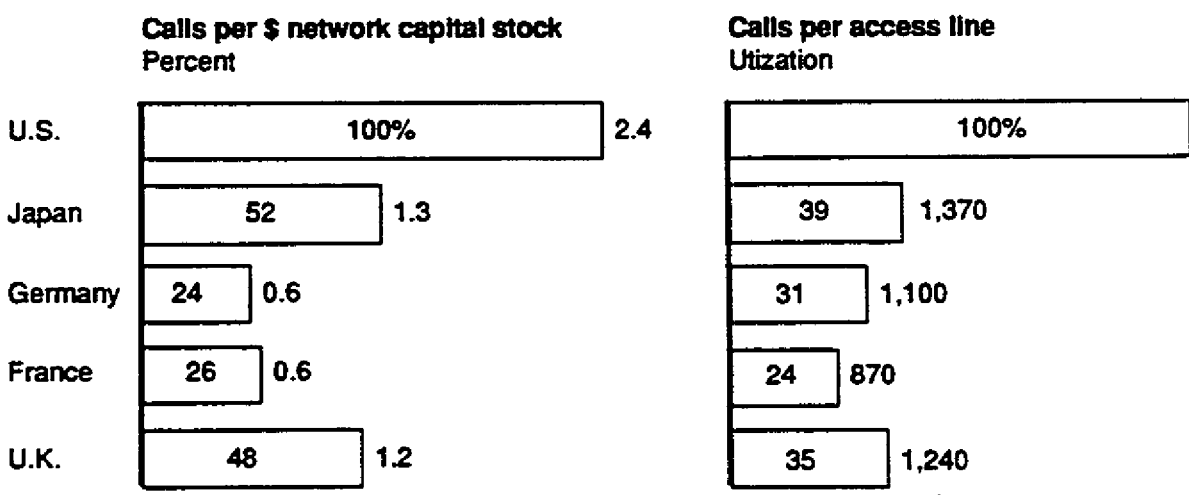
Exhibit 2E - 10

MEASURES OF CAPITAL PRODUCTIVITY – 1989



Source: ITU; McKinsey analysis

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calculated by accumulating the capital expenditures for plant and equipment between 1980 and 1989 (without depreciation) and converting it into 1985 U.S. dollars by using the 1985 PPP for capital expenditure. A combination of these four output and input measures results in the labor, capital, and total factor productivities for the six countries, which we will compare.

Differences in Productivity Among the Telecommunications Industries

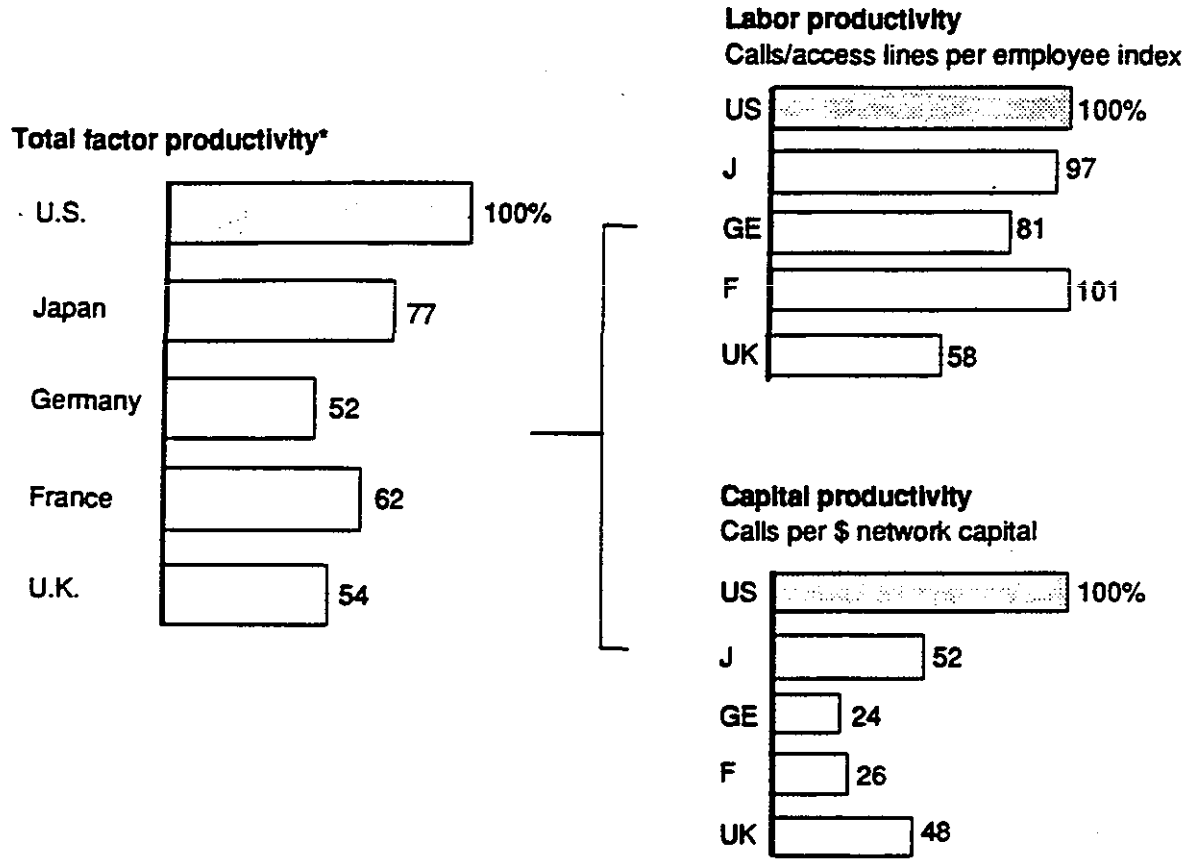
Our productivity analysis of labor, capital, and total factor productivity in five countries reveals that the U.S. telecommunications industry has a higher capital and total factor productivity than Japan and the European counterparts. In terms of labor productivity, the productivity difference is somewhat smaller; comparing the U.S. with France and Japan makes the differences disappear.

- The labor productivity index is based on two labor productivity measures: calls per full-time equivalent employee (FTE) and access lines per FTE (Exhibit 2E-9). As discussed earlier, more employees work in access line or customer-related functions. Based on the U.S. cost structure, we weighted the access line measure as 85 percent and the call measure as 15 percent when we computed the labor productivity index. The telecommunications industries in France and Japan show basically the same levels of labor productivity as the U.S. The relative position of Germany and the U.K. match the pattern we found in other case studies.

- Exhibit 2E-10 shows two measures of capital productivity. Both measures use calls as an output. Measuring the input, however, is more problematic, since it requires measuring the capital invested in the network to provide the calls. Especially for international comparisons, an easy-to-use measure of the network capital could again be the number of access lines. The resulting measure "calls per access lines" (which can also be interpreted as utilization of the network) assumes that the network capital increases with the number of access lines. While this is certainly directionally correct, the measure falls short of capturing the aspects of network structure or modernization. We therefore used a dollar measure of invested stock of network capital as input for our capital productivity measure, as discussed earlier with Exhibit 2E-8b. The resulting capital productivity, measured in calls per dollar of invested network capital, demonstrates a higher U.S. level in capital productivity of about 50 percentage points versus Japan and the U.K. (U.S. = 100 percent). By this measure, capital productivity in France and Germany is only at about a quarter of the U.S. level. The major reason for the low capital productivity in the European countries and Japan is the relative low call intensity or network utilization in these countries. The output (calls) in the capital productivity ratio is much higher in the U.S. Different investment patterns and relative equipment prices on the input side

Exhibit 2E - 11

TOTAL FACTOR PRODUCTIVITY IN TELECOMMUNICATIONS INDUSTRIES – 1989



* Average of labor and capital productivity weighted by cost relations of labor and capital

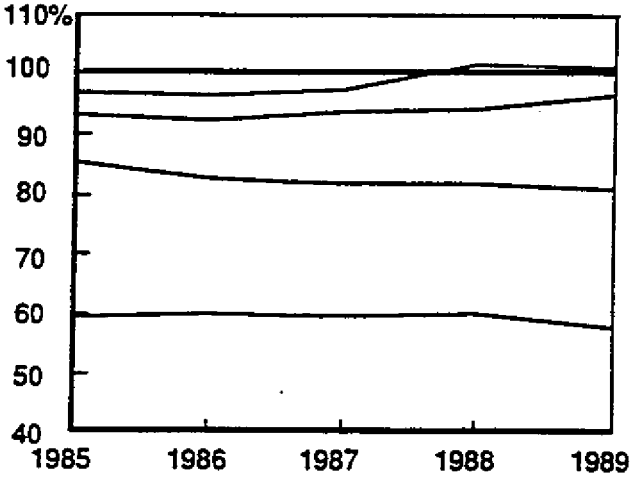
Source: McKinsey analysis

ZXE-119421

Exhibit 2E - 12

LABOR PRODUCTIVITY IN TELECOMMUNICATIONS INDUSTRIES – 1985-89

Index access lines (85%) and calls (15%) per full-time equivalent employee



	Growth 1985-89	
	Access lines	Employme
France	17%	-6%
U.S.*	13	-5
Japan	10	-11
Germany	13	0
U.K.	18	3

* Employment series based on AT&T and 7 RBHCs

Source: ITU; FCC; annual reports; McKinsey analysis

ZXE-119437

Exhibit 2E - 13

CAUSALITY OF PRODUCTIVITY DIFFERENCES IN THE TELECOMMUNICATIONS INDUSTRYS

External factors	Management	Production process	Productivity
Different size of demand leverages capital invested in access network Heavily regulated industry, partly government-owned - Market entries prohibited - Regulation of prices - State-controlled monopolies Relatively lower compensation of labor in Europe	With the exception of few competitive markets, low incentives to improve labor productivity In the absence of regulatory or competitive pressure no interest in cutting costs	Difference in organization of labor major explanatory factor Secondary importance of network technology and other technologies Difference in variety and quality rather to the disadvantage of the U.S. No network scale affects on labor productivity, traffic scale effects on capital productivity	U.S. lead in to productivity an productivity 20 percentage po (U.S. =100%) U.S. labor pro advantage vs. and U.K. Same labor pr as Japan and

Source: McKinsey

probably contribute to explain the differences in capital productivity. Overall we think that the capital productivity figures in Exhibit 2E-10 show a realistic pattern of relative capital productivity among these countries.

¶ We created an index of total factor productivity by calculating a weighted average of the labor and capital productivity indices (Exhibit 2E-11). The weights are based on the cost relationship between capital and labor (Exhibit 2E-4 for the relative weight of labor and capital cost in the different countries).[1] The higher U.S. level in total factor productivity over Japan and France is based on higher capital productivity in the U.S. Germany's total factor productivity is significantly lower than its labor productivity due to Germany's very low capital productivity. The relative position of the U.K. versus the U.S. remains much the same whichever productivity measure you look at. Taking both the producer and customer perspective into account, we can state that U.S. total factor productivity in the telecommunications industry is about 20 to 50 percentage points higher than the productivity of Japan and the major European counterparts (U.S. = 100 percent).

When we track labor productivity over time we observe that the relative productivities after 1985 have remained basically unchanged, with the exception of France Telecom, which exceeded the U.S. industry in measured labor productivity in 1988 (Exhibit 2E-12). The German and U.K. relative productivity continued to slowly decline. Also Japan's productivity growth did not exceed the U.S. rate. We will now take a closer look at the possible causes of the observed productivity differences.

CAUSES OF THE OBSERVED PRODUCTIVITY DIFFERENCES

Exhibit 2E-13 summarizes our view on the causes of the productivity differences between the telecommunications industries. In our causality analysis we will first take the producer point of view and analyze more thoroughly the possible causes of the observed labor productivity differences on the level of the production process. Then we will turn briefly to the question of why capital productivity differs among the countries. While the causal factors for the labor and capital productivity

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[1] Since the relationship of labor and capital costs differs from country to country we calculated first two indices of total factor productivity: the first using the U.S. labor/capital ratio and the second using the labor/capital ratio of the other country (bilateral comparison). The final total factor productivity figure in Exhibit 2E-11 is the average of the two results.

differences are not the same, they have common underlying reasons. These reasons are the determinant factors of management behavior, namely the regulatory and competitive environments in which the telecommunications companies operate. The objectives and incentives that an industry environment places before management cause management behavior that fosters or impedes the development of a more productive and innovative industry. We will discuss these issues at the end of this chapter.

Labor Productivity: Causes on the Level of the Production Process

On the level of the production processes of an industry, we identified four general categories of possible causes: economies of scale and capital differences, and differences in output mix and organization of labor. We will argue that output mix and organization are the main proximate factors of labor productivity differences.

¶ As far as the effects of scale and network technology are concerned, it is believed that the following network characteristics might impact the labor productivity of the telephone carriers.

- Network scale measured in access lines: Given the huge number of employees in managerial and overhead functions, we hypothesized that there are economies of scale in the telecommunications business.

- Network growth measured in net growth of access lines: Using a stock measure of output (access lines) could put faster growing carriers at a disadvantage when they allocate more of their workforce into expanding, rather than maintaining and operating, the existing network.

- Network density measured in access lines per mile of cable[2]: It is widely hypothesized that providing telecommunications services in rural areas with lower population densities involves inherently lower productivity.

- Network topography measured in access lines per central office switch: Network architecture and concentration should be a driver of the labor input for maintaining and operating the switches and trunk network and should thus affect labor productivity.

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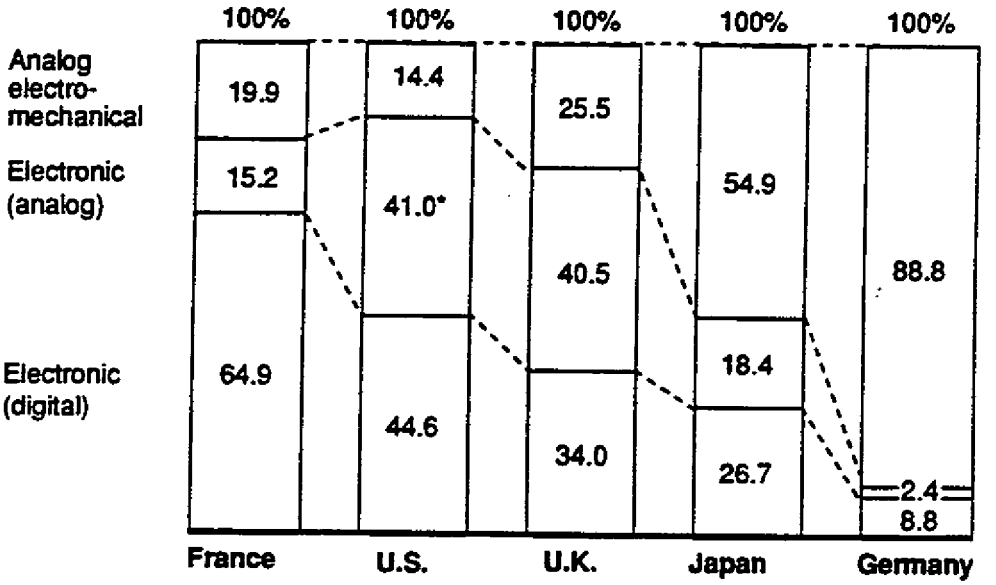
[2] This measure seems to be superior to an access lines per square mile measure since it takes automatically only populated areas into account.

Exhibit 2E - 14

CENTRAL OFFICE SWITCHES BY TYPE OF TECHNOLOGY – 1989



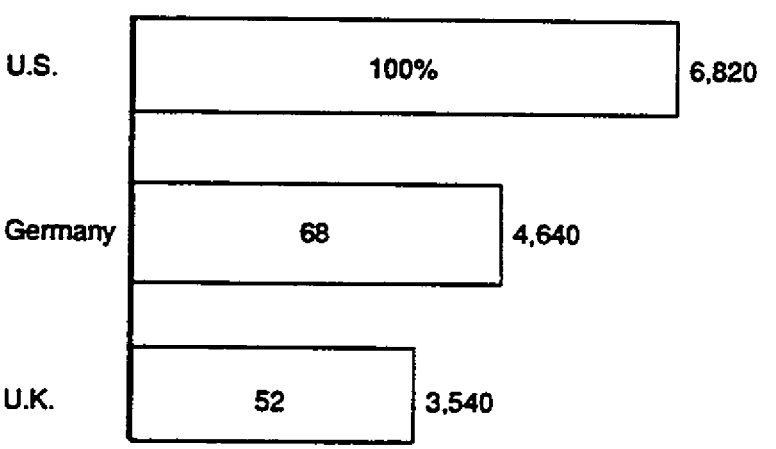
* Estimate

Source: Northern Business Institute; McKinsey estimate

ZKE-119457

Exhibit 2E - 15

AVERAGE ACCESS LINES PER CENTRAL OFFICE SWITCH – 1989



Source: Siemens

ZKE-119461

Exhibit 2E - 16

MULTIPLE REGRESSION ANALYSIS – 1989

50 U.S. LOCAL EXCHANGE CARRIERS

Coefficient and standard error of regression equation*

	Independent variables	Dimension	Regression 1 Access lines per total employees	Regression 2 Access lines per operational employees	Regression 3 Access lines per cash costs
C_1	Scale	Million access lines	-4.2	-8.8	0.6
			(1.8)	(5.8)	(0.6)
C_2	Growth	Basis points average access line growth (1988-90)	-0.2	6.9	0.5
			(2.0)	(6.5)	(0.6)
C_3	Density	Access lines per mile of cable	-0.8	-1.6	-0.2
			(0.6)	(1.9)	(0.2)
C_4	Topography	1,000 access lines per switch	4.7	5.1	1.9
			(2.3)	(7.6)	(0.8)
C_5	Technology (analog)	Basis points of switching expenses spent on analog electronic services	1.4	7.9	-0.1
			(0.4)	(1.2)	(0.1)
	Y intercept		178.5	340.4	30.7
			(14.9)	(48.3)	(4.8)
			0.46	0.64	0.36

* Productivity = C_1 * scale + C_2 * growth + C_3 * density + C_4 * topography + C_5 * technology + Y intercept
Standard error in ( )

Source: McKinsey analysis

Exhibit 2E - 17

MULTIPLE REGRESSION ANALYSIS – 1989

50 U.S. LOCAL EXCHANGE CARRIERS

Explanation of average productivity by average value of independent variables in %

Independent variables	Dimension	Regression 1 Access lines per total employees	Regression 2 Access lines per operational employees	Regression 3 Access lines per cash costs
Scale	Million access lines	-5%	-5%	4%
Growth	Basis points average access line growth (1988-90)	0	5	4
Density	Access lines per mile of cable	-12	-11	-12
Topography	1,000 access lines per switch	17	8	35
Technology (analog)	Basis points of switching expenses spent on analog electronic services	14	35	-5
Y intercept		86	62	74
		100%	100%	100%
Average productivity		208	501	42

- Network technology measured by the share of electronic (digital and analog) or electro-mechanical switching technology in operation: It is commonly believed that digital switching technology is more labor efficient than the prior technology generations.

The countries in our comparison vary quite significantly as far as these factors are concerned. While the U.S. has the largest network and an average net growth of access lines, the U.S. also has by far the lowest average density measured in access lines per square mile. Exhibits 2E-14 and 15 show significant differences in switching technology and topography. Based on the international data by country, however, the power of a factor analysis to identify the explanatory importance of these factors seems limited. Besides data restrictions, the environmental factors under which the national telecom companies operate appear to be too different to be separated from the scale and technology factors. However, the U.S. industry structure gives us a small "laboratory" in which we can test the effect of scale and technology. About 50 local exchange carriers (LECs) operate in the U.S. under comparable regulatory environments. The LECs differ, however, very much as far as our scale and technology factors are concerned (the number of access lines ranges from 160,000 to 14 million, for instance). Given the detailed information each LEC files with the U.S. Federal Communications Commission (FCC), we were able to run a multiple regression with independent variables measuring the factors mentioned above and several productivity measures as the dependent variable.

Exhibits 2E-16 and 2E-17 summarizes the results of this analysis and Exhibits 2E-18 to 2E-22 support the findings with some additional single variable correlation. A first look at the R-squared reveals that only in the case of the second regression (access lines per operational employee) do the five independent variables yield a satisfactory correlation. And the standard errors are fairly high for most of the independent variables. However, we can draw some conclusions from this analysis.

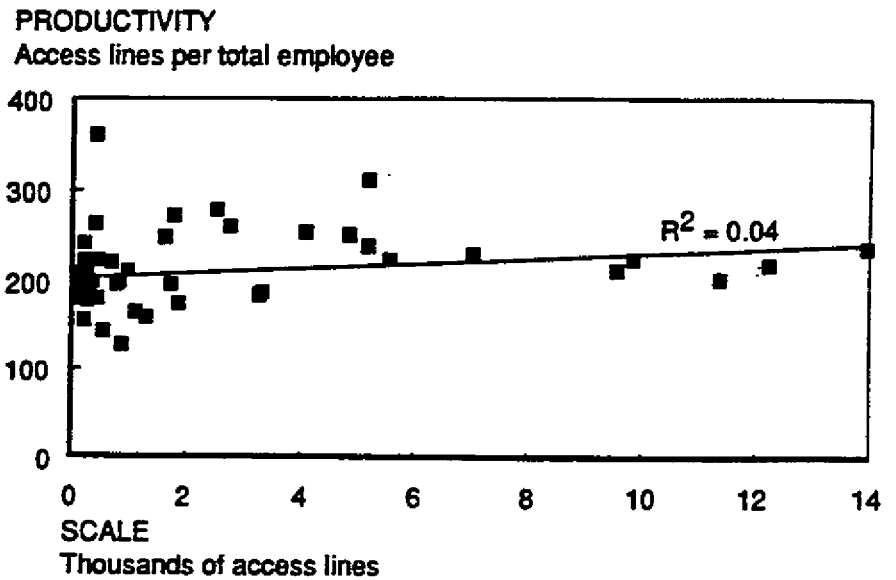
- Network scale does not seem to have any positive impact on labor productivity. All LECs have a fairly stable ratio of access lines and employees (Exhibits 2E-18 and 2E-19).

- Network growth does not explain the productivity differences we measure among the U.S. LECs.

- Network density also has almost no explanatory power. Given the very high standard error, the negative impact as indicated by the multiple regression is probably meaningless. And a simple regression between density and productivity leads to the conclusion that density does not matter very much when it comes to labor productivity (Exhibit 2E-19).

Exhibit 2E - 18

IMPACT OF NETWORK SCALE ON LABOR PRODUCTIVITY OF 50 U.S. LOCAL EXCHANGE CARRIERS – 1989

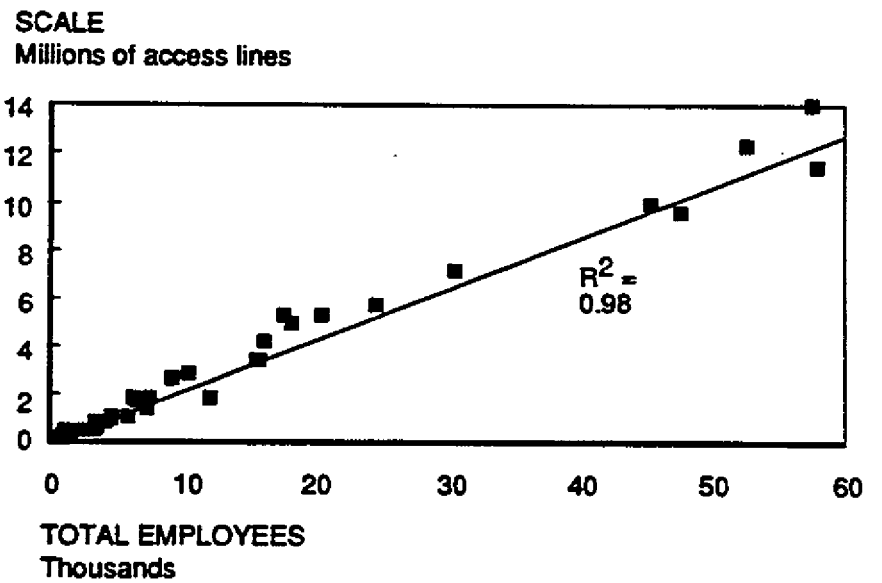


Source: FCC; McKinsey analysis

ZXE-119.425

Exhibit 2E - 19

RELATIONSHIP BETWEEN SCALE AND EMPLOYMENT FOR 50 U.S. LOCAL EXCHANGE CARRIERS – 1989

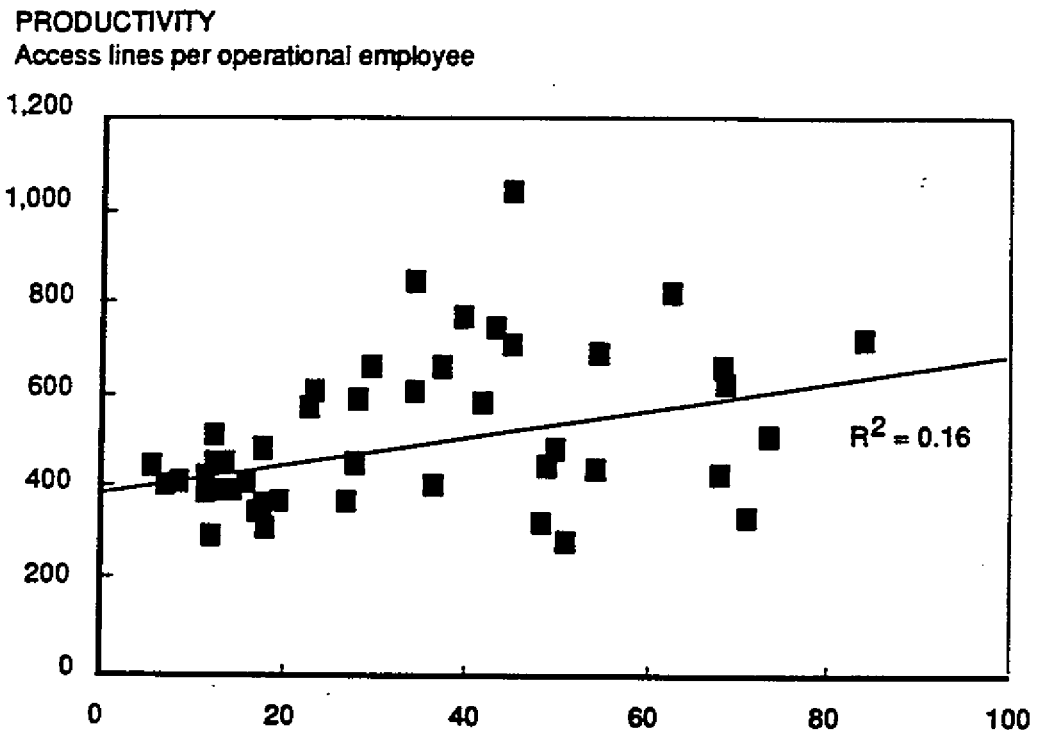


Source: FCC; McKinsey analysis

ZXE-119.424

Exhibit 2E - 20

IMPACT OF NETWORK DENSITY ON LABOR PRODUCTIVITY OF 50 U.S. LOCAL EXCHANGE CARRIERS – 1989

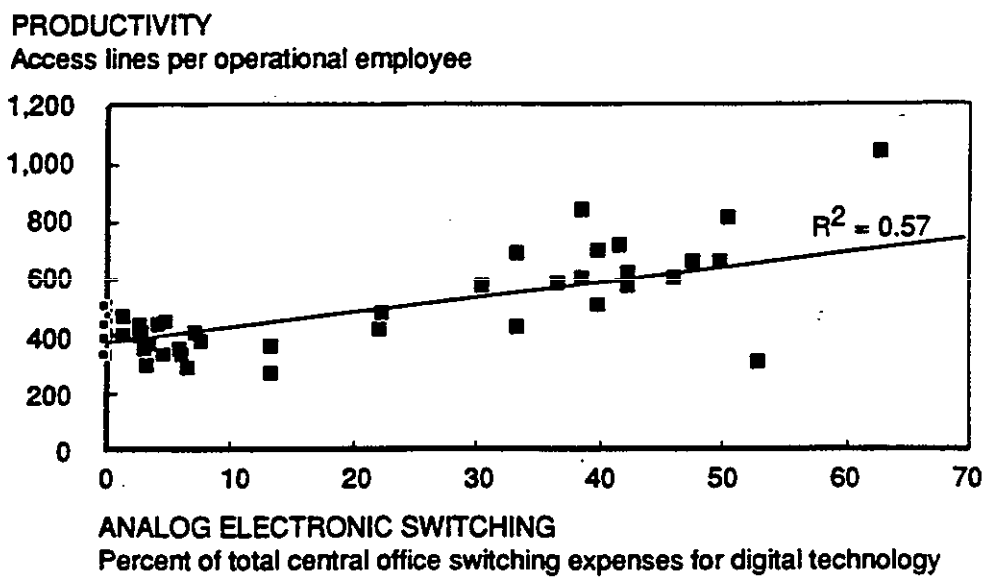


Source: FCC; McKinsey analysis

ZOE-119426

Exhibit 2E - 21

IMPACT OF ANALOG ELECTRONIC SWITCHING ON LABOR PRODUCTIVITY OF 50 U.S LOCAL EXCHANGE COMPANIES

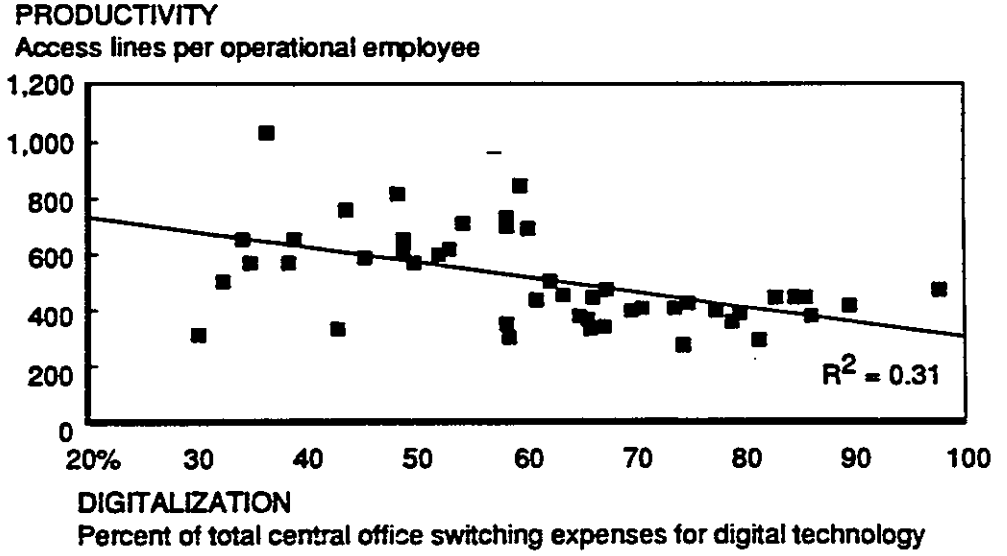


Source: FCC; McKinsey analysis

ZXE-119 459

Exhibit 2E - 22

IMPACT OF DIGITALIZATION ON LABOR PRODUCTIVITY OF 50 U.S. LOCAL EXCHANGE CARRIERS



Source: FCC; McKinsey analysis

ZXE-119.423

- Two of the three multiple regressions indicate that the network topography has a positive impact on productivity. When productivity is measured in terms of access lines per cash costs, network topography is the major productivity driver. The importance of the network topography to labor productivity, however, remains unclear, since it does not show a strong effect in regression 2, although we would expect that the operational personnel is most affected by the network structure.

- The single most important factor for labor productivity seems to be network technology. In the first place, this confirms our hypothesis that technology matters. The result, however, is counterintuitive in that we measure a positive effect of analog electronic switching technology, while the impact of digital technology (and not surprisingly, the impact of electro-mechanical technology) on labor productivity is negative rather than positive (Exhibits 2E-21 and 2E-22). We do not have an explanation for this finding at the moment and it could be a coincidence. However, the regression shows analog electronic switching technology as the single most important factor in explaining productivity differences among the LECs in the U.S.

While the regression analyses do not make a convincing positive case about the causes of labor productivity differences, we can draw the negative conclusion that neither of the scale and technology variables analyzed are likely to explain the productivity differences we measured in our international comparison.

Our regression analysis, however, did not cover all aspects of technology used in the telecommunications industry. We did not look at nor do we have any evidence of different usage of office technologies or planning and organization tools for management. Given the number of office and clerical workers in telecommunications, this could be a significant source of productivity differences. Due to lack of data, however, this is no more than a hypothesis at this point. We therefore have to look for other explanations, such as differences in variety and quality of services provided in the different countries.

¶ The output mix, i.e. quality and variety of services provided, differs among the telecommunications industries in several respects. This could affect our measured productivity and the productivity differences we observe since our output measure does not take all aspects of variety and quality into account (although we made some adjustments in employment as far as call completion services and cable TV are concerned). We think, however, that these shortcomings in our productivity measures work somewhat to the disadvantage of the measured productivity in the U.S.

Exhibit 2E - 23

VARIETY OF TELEPHONE SERVICES – 1992

		U.S.	Japan	U.K.	France	Germany
Pricing	Flat rate and call charge	√	√	√	√	√
	Unlimited local calls	√				
	Volume discount	√	√*	√	√*	
Billing	Collect call	√	√	√		
	Credit card call	√	√	√	√	
	Prepaid card call		√	√	√	√
	Third party billing	√	√			
	Toll free line	√	√			√
Operator service	Directory service	√	√	√		√
	Call completion service	√				
	Other operator assistance**	√				
Functional services	Call waiting	√	√	√	√	
	Speed dial	√	√			
	3-way calling	√	√	√	√	
	Call forward	√				√
	Priority call	√				
	Call block	√				
	Repeat call	√				
	Call trace	√		√		
	Other functional services***	√				

* Business customers only

** Call verification (operator-assisted call, person-to-person call, etc.)

*** Caller ID, tone block, return call, home intercom, ultra forward

Source: Telephone books

ZXE-119438

Exhibit 2E-23 points out that the output variety of telephone services is significantly higher in the U.S. than in the other countries in our comparison. The wide range of functional services which require sophisticated intelligence in the network exceeds the services available elsewhere. This reflects the worldwide lead of the U.S. in innovation in telecommunications during the 1980s. The U.S. industry has also shown a consistent pattern of leadership in other telecommunications services, like cellular phones, and therefore enjoys a higher penetration of mobile phones and pagers, for instance. While the wider output range of the U.S. is not captured by our output measure, we were not able to exclude the input necessary to provide these services. Our labor productivity measure therefore underestimates the output, or overestimates the input, of the U.S. industry relative to other countries with more limited service offerings.

International indicators of relative service quality are very limited and do not seem to be very reliable. However, we indirectly conclude from the high penetration of analog and digital electronic switching equipment in the U.S. that the U.S. service quality is in no way inferior to the quality in other countries. The U.S. does not buy high productivity (relative to Germany or the U.K., for instance) at the expense of lower service quality.

¶ In our causality analysis so far we have looked at scale, network technology and service quality and variety. None of these potential causes has turned out to be a major causal factor for the observed labor productivity differences. This means that, as a residual factor, differences in organization of labor have to explain most of the productivity differences we measured between the U.S., France and Japan on the one hand and Germany and especially the U.K. on the other hand. In other words, a thorough reorganization of their businesses and changes in the responsibilities, processes, and tasks of their employees should allow U.K. and German management to close most of the productivity gap.

Could British Telecom work with 140,000 instead of 240,000 employees? We do not know the answer. It is true, however, that France Telecom runs a slightly bigger network than British Telecom with about 150,000 employees and that even NTT operates a network double the size of the U.K. network with only 20 percent more employees. Based on these observations, we hypothesize that higher staffing levels mainly explain the very low productivity of British Telecom and – to a lesser degree – the low productivity of the German Telekom. In monopolies which have operated in a relatively stable environment under little pressure and with few incentives to increase productivity this is not an implausible finding.

Capital Productivity and Demand

We argued earlier that capital productivity is a crucial ratio in the telecommunications industry. It measures how much service the telecommunications network provides to the economy and how effectively the invested capital stock is utilized. The differences in capital productivity we measured and showed in Exhibit 2E-10 can basically be explained by factors which cause either a lower/higher capital input (dollar network stock) or a higher/lower network output (calls).

- ¶ Keeping the output performance of the network fixed, our capital productivity measure can be lowered if relatively more investments were spent to build one network versus another. This can be the case if capital expenditures are allocated in a more or less efficient and effective manner or if we measure the capital accumulation during different stages of investment cycles. An investment policy, for instance, which gives priority to the expansion of the access network rather than to increasing the switching and trunk transmission capacity might not lead to an optimized output of the network if the switching and trunk capacity is the overloaded bottleneck in the whole system. While we observe this phenomenon in some developing countries, we did not find evidence that the telecom companies in our comparison have not harmonized their access, switching and transmission capacity of the network equally well. In the case of Germany and the U.K., the switch-intensive network topography might be one explanatory factor for their gap in capital productivity relative to the U.S. However, we think that differences on the output side of capital productivity are more important explanatory factors of differences in measured capital productivity.[3]

- ¶ In our view, the major drivers of differences in capital productivity are traffic economies in telecommunications. About two-thirds of the network investments are spent on the access part of the network. Access lines, however, have only a low average utilization and are not the bottleneck of the whole system. In order to leverage the capital invested in the access network, it is therefore key to ensure a sufficient capacity of the switches and trunk transmission and to spur demand and overall

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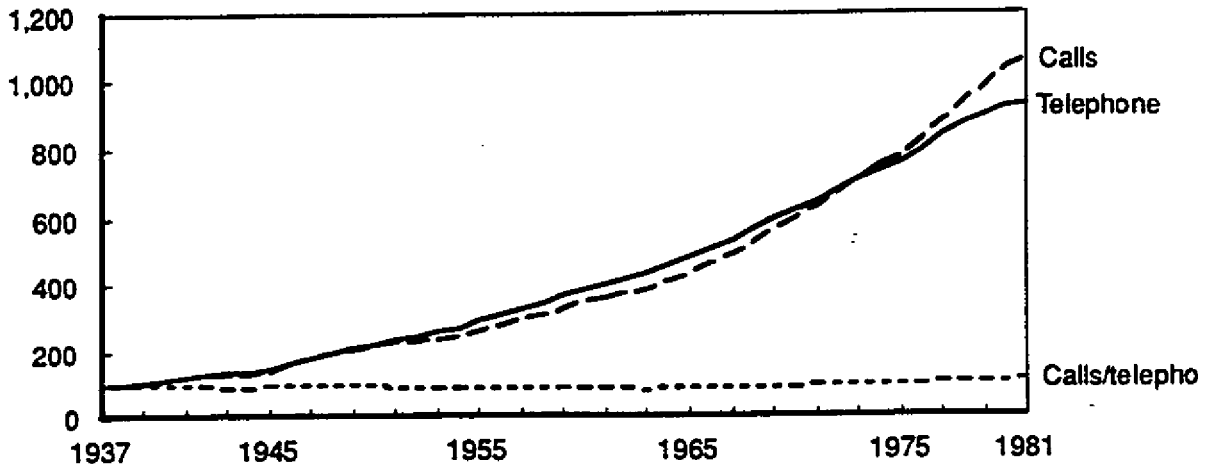
[3] There might be, however, a pricing effect which is not taken care of by the capital expenditure PPP which we used to convert cumulative investments from national currencies into dollars. Telecommunications equipment might be overpriced in countries, for instance, which have a less competitive equipment industry due to a traditionally very strong position of national equipment manufacturers (e.g., Alcatel in France or Siemens in Germany).

Exhibit 2E - 24

TELEPHONES, CALLS, AND CALLS PER TELEPHONE

U.S. BELL SYSTEM – 1937-81

Index 1937 = 100



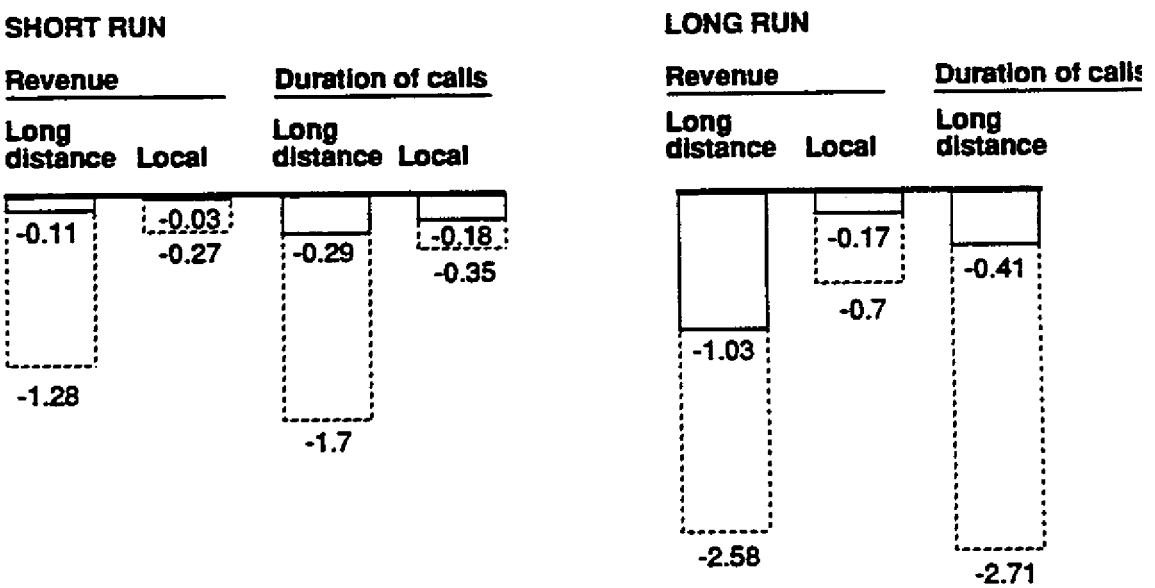
Source: FCC

ZXE-119 467

Exhibit 2E - 25

PRICE ELASTICITY OF DEMAND FOR TELEPHONE SERVICE

Range of results from different studies in percent



"When price **increases** by 1%, demand **decreases** by . . .%"

Source: Telecommunications Demand Survey; L. D. Taylor, University of Arizona

ZXE-119 431

traffic in the network. Due to these utilization economies between fixed investments and traffic, we expect that countries with a high traffic, i.e., calls per customer, have the highest capital productivity.

As the comparison of calls per access line showed, the U.S. has the highest demand per access line, which is causal for the high U.S. capital productivity (Exhibit 2E-10 earlier). This raises the question of why demand is higher in the U.S. than in other countries. We see basically two possible explanations.

- First, one might reckon that different countries have different customs and that people in Europe just use their telephone less often than U.S. citizen because European communication needs and preferences are different. The fact, for instance, that U.S. households move twice as often as European households indicates a different need for long distance communication. From this point of view, calls per access line and overall network utilization would be lower in Europe because customers do not demand more output from the network. They are content with the amount of service provided by the network and are willing to pay the higher price for each output unit caused by the lower utilization of the system. What we measure as a difference in network productivity would then simply be a reflection of consumer autonomy and the decision to consume less telephone service. This perception is supported by the finding that in the U.S. the number of calls per telephone has been fairly stable over a period of 35 years (Exhibit 2E-24). This implies that the scale of demand, and thus capital productivity, is a cultural phenomenon which cannot be managed. While we think that this might be true, we also believe that scale of demand for telecommunications services is not fixed but reactive to the price signals set by management.

- Within limits, managers can change the size of demand if they take advantage of the price elasticity of demand, the second explanatory factor of scale and capital productivity differences among economies. Several studies have looked at price elasticity of demand for telephone services in the U.S. Exhibit 2E-25 summarizes the results and shows the range of price elasticities found in different studies using different methodologies. Although the findings vary, we conclude from the pattern in Exhibit 2E-25 that U.S. demand for telephone services:

  - Is more elastic in the long run than in the short run
  - Is only elastic for long distance calls and not for local services
  - Reacts to lower prices with longer calls rather than with more calls (which might explain why the number of calls per telephone stayed almost flat in the U.S.).

These findings have important implications for price policy, profitability and capital productivity in the telecommunications industry. If management aims to maximize profitability and is not impeded by regulatory restrictions, then it is rational to cut prices for long distance services (assuming a price elasticity of -2.5, a price cut of 10 percent would in the long run increase revenues by 15 percent) and to increase prices for local service (assuming a price elasticity of -0.7, a price increase of 10 percent would in the long run result only in a decrease in demand of only 7 percent). This pricing policy would increase both profitability and capital productivity, since revenues and traffic would increase. After deregulation in the 1980s, both the U.S. and the U.K. industries followed this pricing strategy, which also abandoned cross-subsidies of local calls by long distance calls (Exhibit 2E-26).

Since demand for some telecommunications services is elastic, demand can be partly influenced and managed. Judging by the real revenues per long distance call in Exhibit 2E-27, the U.S. industry apparently recognized this and used pricing policy during the 1970s and after deregulation in the 1980s to increase demand. Compared with its counterparts, the U.S. industry seem to pursue a more aggressive pricing strategy to leverage its capital stock and increase its capital productivity.[4]

We have seen that differences in scale of demand not only reflect differences in consumption patterns and preferences, but are also partly the result of management decisions. Capital productivity is therefore to some extent controllable by management. Furthermore, capital productivity is not independent from labor productivity, but is linked by the cost/price mechanism. Low labor productivity in the end leads to higher labor costs per output unit. Since prices in the long run have to cover costs, a low labor productivity will thus lead to higher prices, which tend to depress demand and capital productivity. Management therefore should not treat capital and labor productivity independently.

We will now turn to the question of how policy and regulation affect labor and capital productivity in the telecommunications industry. This again leads to the question of how the industry environment motivates managers to pursue productivity enhancing, productivity neutral, or even productivity impeding strategies.

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[4] This is not the case for France Telecom, which reduced its prices even more aggressively than the U.S. between 1978 and 1988.

Regulatory Environment and Management Behavior

The outstanding characteristic of this industry is that we are not looking at a market industry, but at, in every country, a very regulated industry dominated by regional monopolists, which in some cases are even state owned. That means the market competition can fulfill only to a small degree, and sometimes not at all, its function as an incentive and control system for managers that fosters productivity and innovation. Market competition is instead replaced by government regulations, by an independent regulatory body like OFTEL, or by regulations of the telephone company itself. Incentives to run the telecommunications industry productively have to come from a regulatory body, and must simulate market forces just as the threat of entry or price competition would.

Regulation as a proxy for the market forces is, in the telecommunications industry, the driving force behind the production process created by management. *Regulation particularly affects the organization of labor, which we hypothesized to* likely be the single most important factor in explaining the labor productivity differences on the production process level. If our hypothesis is correct and there is a link in this industry between regulation or market forces and the production process, we should be able to hypothesize about at least two questions:

- ¶ Why is labor productivity in the U.S., Japanese and French industries on the same level?

- ¶ Why do we observe the productivity differences between the U.K. and Germany versus the other three countries?

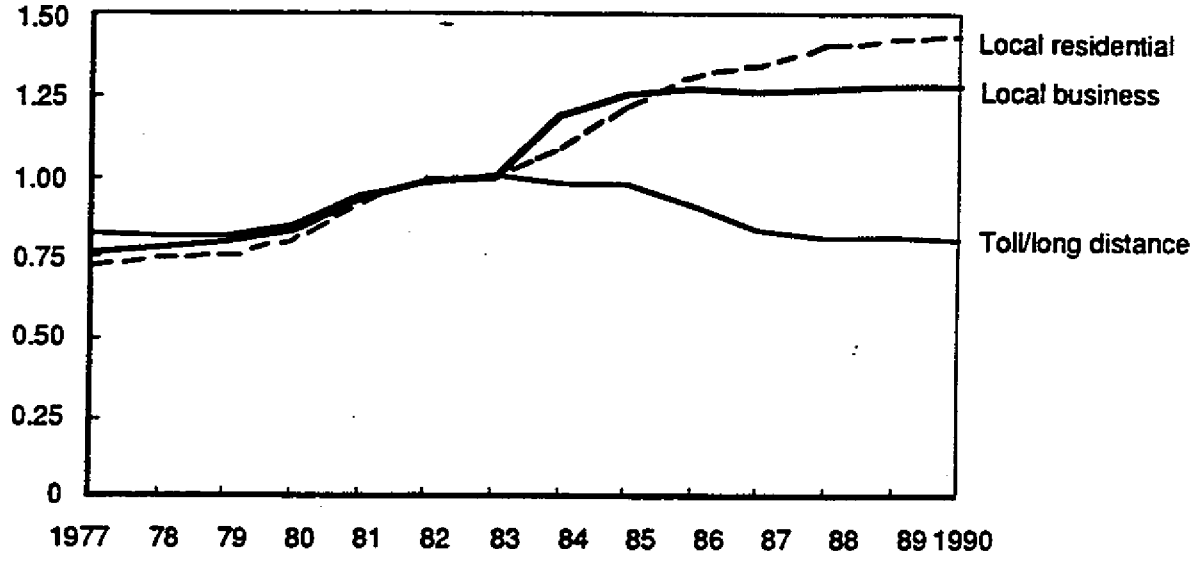
We discuss these two questions country by country and look for evidence of how regulatory forces fail to motivate or succeed in motivating management to be more productive.

- ¶ The main reason why U.S. labor productivity is not higher is that, in the biggest part of the industry, the pressure to change is still relatively low. Exhibit 2E-28 illustrates that although the U.S. has deregulated the telecommunications industry, about 70 percent of the industry's employees still work for regional monopolies, namely the Regional Bell Holding Companies. Japan and the U.K. are in roughly the same stage of deregulation. Another indicator that the productivity pressure has been relatively low for the lion's share of the U.S. industry is seen in the employment trend since deregulation in 1984 (Exhibit 2E-29). While AT&T, faced with competition from MCI and Sprint, reduced its employment by about 25 percent in 6 years, the seven Bell companies still have the same employment as before deregulation. Regulation does not allow competition in the local exchange areas and the rate-of-return regulation that was in force until recently did not encourage labor productivity improvements through cost cutting either. Given this

Exhibit 2E - 26

PRODUCER PRICE INDEX U.S. TELEPHONE SERVICES

1984 =100%



1989 local service revenues: $35.3 billion
1989 toll service revenues: $66.1 billion
Source: FCC

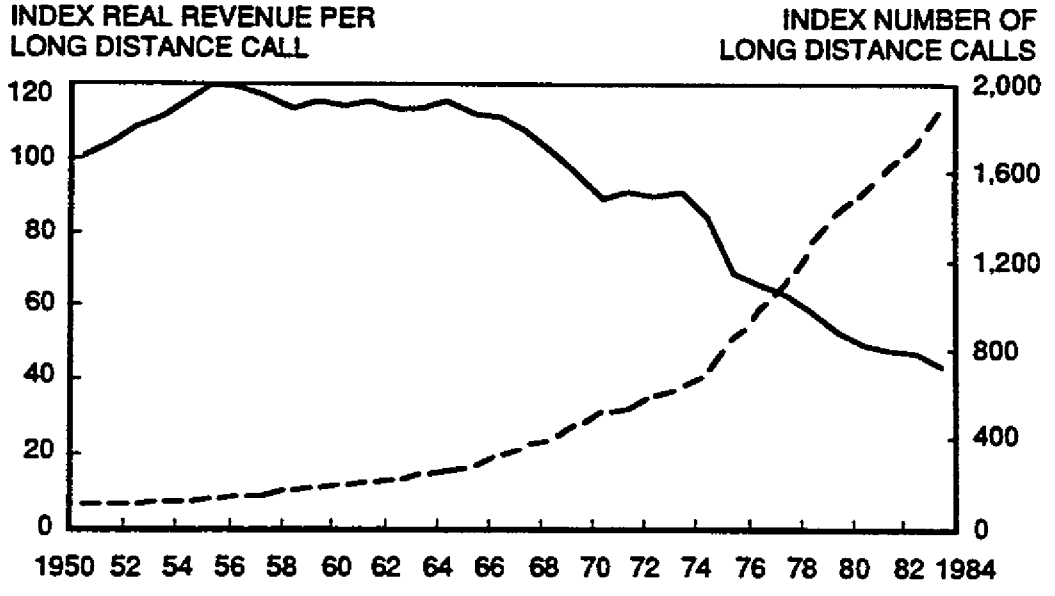
ZXE-119 188

Exhibit 2E - 27

REAL REVENUE PER LONG DISTANCE CALL AND NUMBER OF LONG DISTANCE CALLS

DEFLATED WITH CPI

Index 1950 = 100%

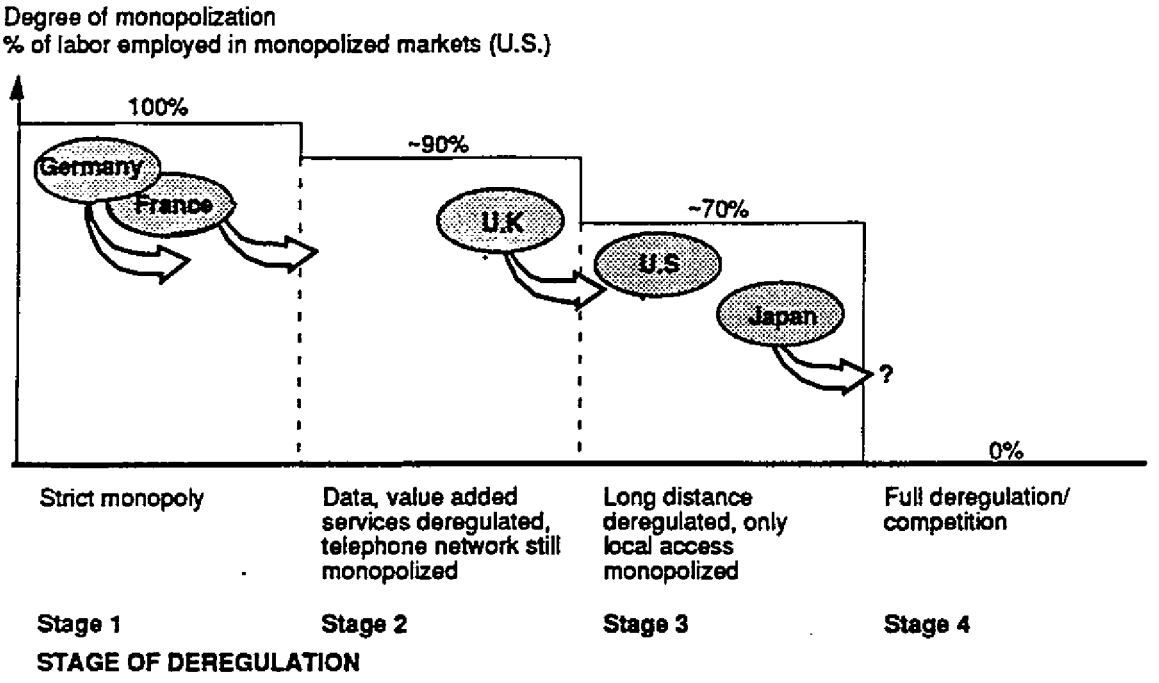


Source: FCC

ZXE-119 468

Exhibit 2E - 28

4 STAGES OF DEREGULATION IN TELECOMMUNICATIONS



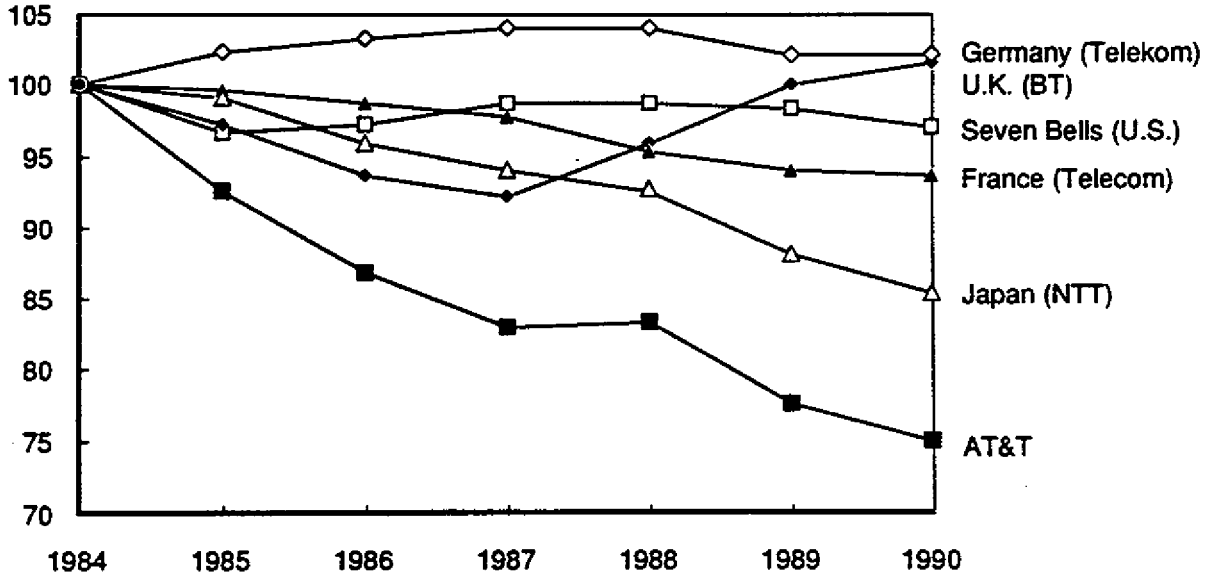
Source: McKinsey estimate

ZXE-119 466

Exhibit 2E - 29

EMPLOYMENT TREND

INDEX: 1984 = 100

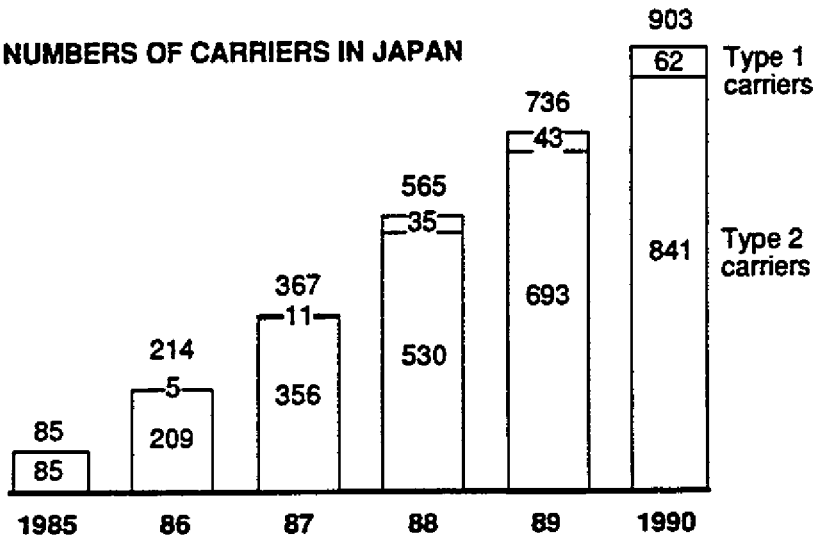


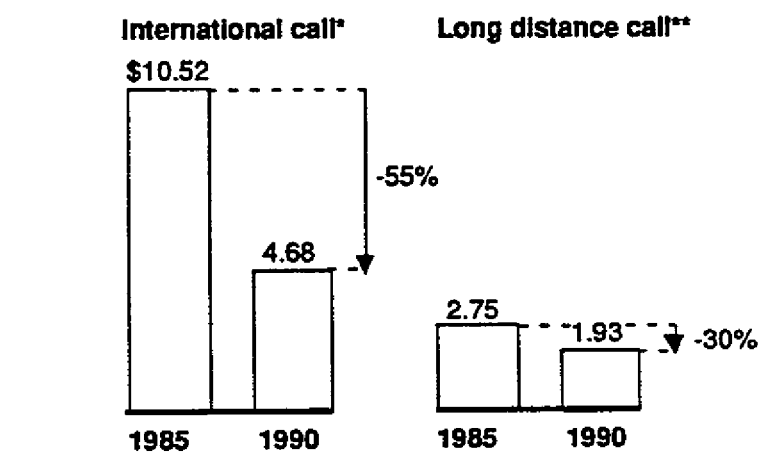
Source: FCC; annual reports; McKinsey analysis

ZXE-119 444

Exhibit 2E - 30

INDICATORS OF INCREASING COMPETITION IN JAPAN





* Rate for a call from Japan to the United States, direct-called
** Rate for a long-distance call between Japan and Osaka 3 minute in weekdays

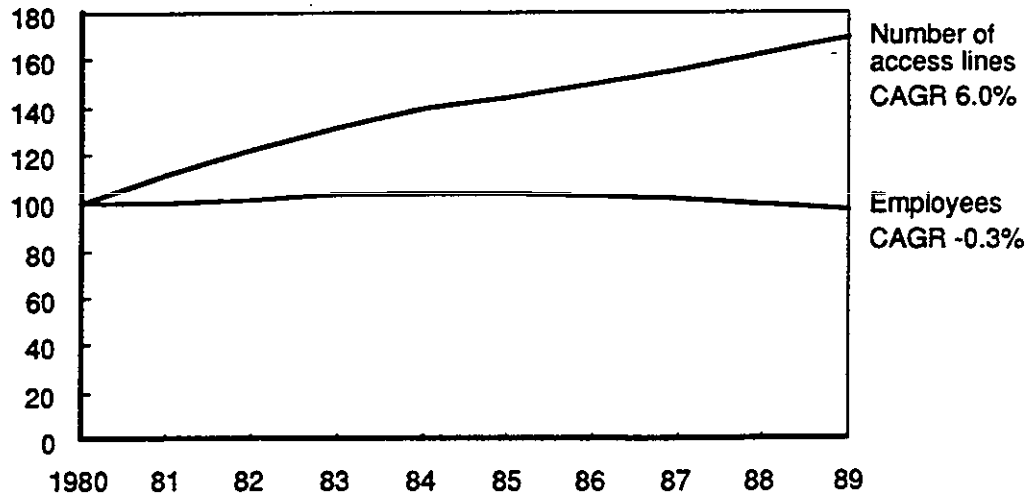
Source: IEEE Spectrum

ZXE-119485

Exhibit 2E - 31

EMPLOYMENT AND ACCESS LINES OF FRANCE TELECOM – 1980-89

INDEX: 1980 =100



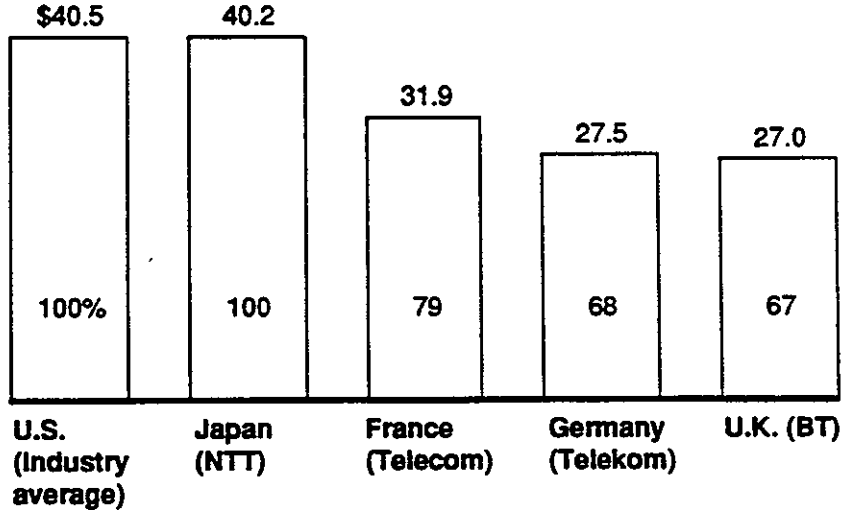
Source: International Telecommunications Union (ITU)

ZXE-119.445

Exhibit 2E - 32

AVERAGE LABOR COST PER EMPLOYEE P.A. 1989-90

U.S. $ Thousands (Converted at PPP)



Source: FCC; Annual Reports

ZXE-119.429

industry environment, we should not be surprised that the U.S. industry does not show a productivity lead in labor productivity as it does in the other case studies. As in the other industries, the U.S. telecommunications industry does not operate in a competitive market which provides incentives for improving productivity.

¶ The telecommunications industry is the only case study which shows Japan at the same labor productivity level as the U.S. The explanation can be seen in Exhibit 2E-30, which shows the growing while still low level of competitive intensity in the industry. More than 60 new Type -1 carriers with their own network facilities have entered the industry since 1985. Most of them, of course, specialize in market niches and do not yet compete in the main residential market. The emerging pressure was strong enough, however, to cause price reductions of 30 to 55 percent. The competitive position of NTT is also weakened by the regulator, NPT, which tends to keep NTT's prices (which need approval) high to give new competitors a clear competitive advantage. As a result, NTT has reacted by thoroughly restructuring its business.

¶ France Telecom made a big leap during the 1980s in terms of network scale and technology. It now leads the six countries in degree of digitalization. The network grew by 70 percent between 1980 to 1990 (Exhibit 2E-31) while real prices decreased by almost 8 percent per year. What made this leapfrog in technology and network base also a productivity jump is that France Telecom kept its employment flat during this time. We therefore think that two rather political decisions (modernizing the network and keeping employment down) helped France Telecom outgrow a lot of its inefficiencies during the 1980s. This example shows that even a state-owned monopoly can change if the political will and leadership exist.

¶ Until 1989, the DBP Telekom was part of the Ministry of Post and Telecommunications and was headed by that Minister. Telekom had no pricing authority and politics and lobby groups made any changes in the pricing structure extremely difficult. Today about 50 percent of employees are still civil servants, and the unions are very strong. German Telekom had no incentives and – in an extremely political environment – only limited means to increase its productivity.

¶ The low productivity level of British Telecom can only be explained by higher staffing levels, as we discussed earlier. Although British Telecom reduced its staff between 1984 and 1987, employment went back up again until 1990. Surprisingly, the price cap regulation in Britain so far has not succeeded in increasing productivity. One explanation, however, could be that the relatively low labor costs per employee in the U.K. allowed British Telecom to cushion the cost pressure of the price cap regulation with lower compensation instead of with less labor input (Exhibit 2E-32).

We have discussed the different regulatory regimes and the different market context country by country. We found that regulation and market context place different incentives and pressures on management to increase labor productivity. It can be argued that the labor productivity differences we measured are mainly explained by a combination of the external factors, management behavior and differences in organization of labor.

OUTLOOK FOR THE FUTURE OF THE TELECOMMUNICATIONS INDUSTRIES

We see three major dimensions along which the telecommunications industries are going to change in the next decade.

- ¶ Deregulation and privatization are likely to proceed in Europe. But the U.S. also has high potential for liberalizing its telecommunications regulations and bringing more competition into the industry.

- ¶ Technology will assist in fostering new entries in the industry. Entry barriers will come down as digital radio technology becomes economical.

- ¶ Restricted in their home markets and encouraged by opportunities in Eastern Europe, telecommunications service providers will increasingly internationalize.

This means that the old stable world of telecommunications with national monopolies will break up and many opportunities for competitive strategies will arise. To the extent to which these strategies are based on competitive cost advantages, the importance of labor and capital productivity will increase dramatically. National telephone companies will no longer be able to operate in a sheltered home market unthreatened by competitors or possible failure.

* * *

Our measurement of labor productivity shows for 1989 the telecommunications industries in the U.S., Japan and France at the same level of labor productivity. German labor productivity is at about 80 percent of the U.S. level, and labor productivity in the U.K. is under 60 percent of the U.S. level. With regard to capital productivity, the U.S. has an advantage of at least 50 percentage points over all the other countries (U.S. = 100 percent). In terms of total factor productivity, we measured a productivity gap between the (U.S. = 100 percent) and the other countries of 23 percentage points (Japan) to 48 percentage points (Germany).

Exhibit 2E - 33

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES
TELECOMMUNICATIONS

● Important
O Secondary
X Undifferentiating

External factors	
– Market conditions	
• Demand factors	●*
• Relative input prices/ factor availability	O
– Policy and regulation	
• Competition rules and concentration rules	●
• Government ownership	●
• Labor rules and unionism	O
Management behavior	●
Production process	
– Output mix, variety, quality	X
– Economies of scale	X
– Capital (intensity and vintage)	O*
– Skill of labor	X
– Organization of labor	●
Labor productivity	

* Affects only capital productivity and total factor productivity

ZXE-119.395c

At the level of the production process, we infer that labor organization is the primary cause of labor productivity differences (Exhibit 2E-33). Differences in capital productivity were caused by the higher U.S. utilization rate of the network, caused in turn by higher demand per customer. Higher demand for telephone services in the U.S. may be rooted in cultural differences. However, the U.S. industry has to some extent stimulated demand and thus network utilization with its pricing policy, which takes advantage of the price elasticity of demand (especially for long-distance calls). This capital has been deployed more officially. The utilization enhancing strategy of the U.S. telecommunications industry is probably a consequence of private ownership and price regulations which preserve profit incentives for managers.

However, the telecommunications industry in each country studied is heavily regulated and consists of one or more regional monopolies, which have little incentive to improve labor productivity. This is the reason why we in the end see France and Japan on the same level of labor productivity as the U.S. With about 70 percent of industry employment still working in monopolies, the incentives for U.S. managers are not very different than for managers in the other countries. As a result, they do not create a production process with higher labor productivity.

CHAPTER 3: SYNTHESIS OF PRODUCTIVITY RESULTS

The case studies of productivity in five different service industries have clarified the issues discussed in Chapter 1 regarding comparisons of productivity among nations, and the results support Chapter 1's overall conclusions about relative levels of productivity in the market sectors of leading economies. U.S. industries generally continue to show a higher level of productivity than their European counterparts, and Japan's industries show a lower level of aggregate productivity than Europe's. These differences exist in both manufacturing and services. According to the causality analyses in the service industry case studies, the reasons for differences in service industry productivity center heavily on management behavior, which is itself determined in large part by incentives and constraints from public policies and regulations. The most important policies and regulations determining productivity are those governing competition. This suggests that unless changes in those policies are made, productivity differences at the national level will persist.

In this chapter we draw our conclusions from our case studies described in Chapter 2 and discuss in more detail:

- The extent to which the productivity comparisons at the industry level correspond with the comparisons at the market GDP level
- The general causes of productivity differences that are evident from the service industry case study comparisons.

INDUSTRY CASE STUDIES SUPPORT GDP ANALYSIS

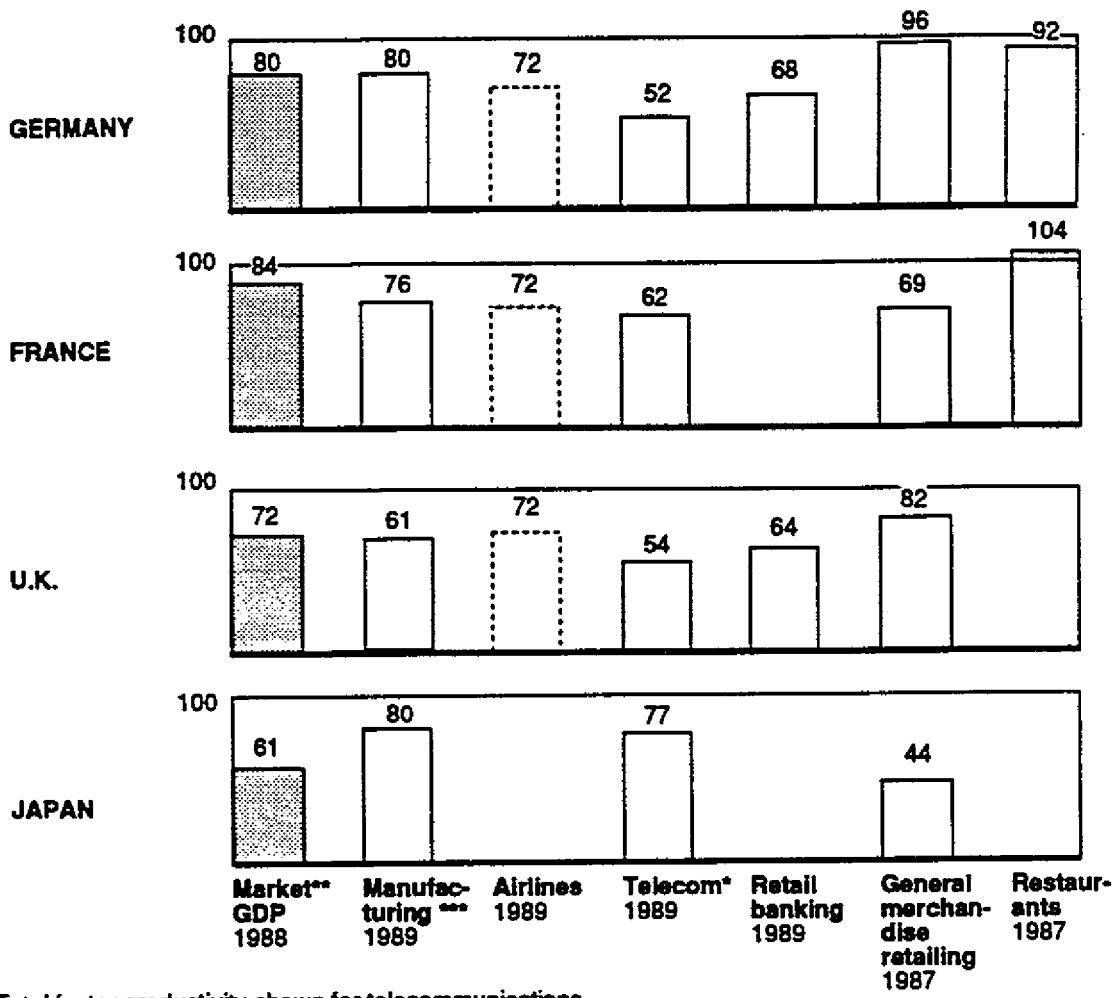
As we stated in Chapter 1, the international statistics on overall productivity in the leading economies raise considerable uncertainties. The general pattern indicates that the U.S. has a slightly higher level of overall productivity than Germany and France and a significantly higher level than Japan and the U.K. However, inconsistencies among PPP benchmarks and a lack of consistency among national employment data sources make it difficult to determine whether the differences are actually larger or smaller than the estimates we showed in Chapter 1 (and repeat in Exhibit 3-1).

We concluded that the only way to resolve these questions was to analyze productivity at the industry level. At that level, we were able to identify an appropriate output measure for each industry, and verify that output data and employment data were consistent. Manufacturing productivity data across countries has been available on various bases before. As we reported in Chapter 1, Pilat and Van Ark made an important breakthrough in such industry-based analysis

Exhibit 3 - 1

LABOR PRODUCTIVITY COMPARISON*

U.S. = 100



* Total factor productivity shown for telecommunications

** GDP excluding government, education, health, and real estate

*** Estimates by van Ark and Pilat for International Comparisons of Output and Productivity (ICOP) Project, Groningen, NL

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employee would be slightly smaller than suggested by our top down measurement.

Since the market service industries comprise over half of total market GDP (Exhibit 3-2), productivity differences in these industries in large part determine the overall productivity differences among market economies. To identify possible measures to eliminate both the observed differences between individual industries as well as the overall productivity differences, we first need a better understanding of the sources of productivity differences in service industries. Do common factors explain the differences we observe? Are there factors that could only be changed over the long term, such as labor skills? Or are there obstacles that could be removed quickly, such as regulations? We will now turn to these questions as we look across industries and generalize about causes of productivity differences we found in each case study.

CAUSES OF SERVICE INDUSTRY PRODUCTIVITY DIFFERENCES

In each of our case studies, we described our conclusions about the causes for differing levels of productivity in service industries. These conclusions are based, for the most part, on analyses described in the case. Our analysis was guided and in some cases supplemented by the judgment of our McKinsey colleagues who gave us the benefit of their years of client service experience in relevant industries around the world. We concluded that each of the causes of productivity differences falls into one of three groups of factors (see introduction to Chapter 2): external factors, which include market conditions, government policies and regulations; the behavior of managers; and production process factors. Exhibit 3-3 summarizes the relative importance of the different causes of productivity differences in each of the service industry case studies.

As Exhibit 3-3 indicates, we believe that the behavior of managers plays a pivotal role within the chain of causality which results in the productivity differences in the case studies. However, we will first discuss in more detail the causes on the level of the production process and on the level of the external factors before we turn to management as the link between companies and their environment.

Production Process Factors

Where there are large differences in productivity, there must be significant differences in the way production factors are combined, or in the scale of production. The production process is the way in which an individual firm combines those factors and conducts its business. The proximate causes of productivity differences show up here. Possible proximate causes are the output mix, economies of scale, the vintage and intensity of capital, and the organization and skill of labor (see Chapter 2 for definitions).

Exhibit 3 - 3

CAUSES OF LABOR PRODUCTIVITY DIFFERENCES

● Important
O Secondary
X Undifferentiating

	Airlines	Telecom	Retail banking	General merchandising	Restaurants
External factors					
– Market conditions					
• Demand factors	X	●*	O	●	X
• Relative input prices/ factor availability	X	O	X	X	X
– Policy and regulation					
• Competition rules and concentration rules	●	●	●	●	X
• Government ownership	●	●	X	X	X
• Labor rules and unionism	O	O	X	X	O
Management behavior	●	●	●	●	O
Production process					
– Output mix, variety, quality	O	X	O	●	O
– Economies of scale	O	X	O	O	O
– Capital (intensity and vintage)	X	O*	●	O	X
– Skill of labor	X	X	X	X	X
– Organization of labor	●	●	●	X	X
Labor productivity					

* Affects only capital productivity and total factor productivity

Our causality analysis on the level of the production process identified at least one important source of productivity differences in four out of five industries. In the following section we will highlight the major findings of our case study work across industries in search of a pattern of causality:

¶ In each service industry studied, the output mix, i.e., the mix, variety and quality of services, is quite different among countries. Overall, however, we conclude that differences in output mix have little explanatory power as causal factors of the measured productivity differences.

The exception to this case was in the general merchandise industry where the output mix proved to be an important explanatory factor of the measured productivity differences.[2] One of the main determinants of productivity here is the particular mix of store formats for providing the services of retailing. We conclude that, while there are only minor productivity differences across countries for the same format, different formats have different productivities. As a result, the significantly different mix of formats across countries leads to a significant difference in overall retailing productivity (e.g., the large market share of small retailers in Japan versus the U.S.). As we discussed earlier, these format mix differences in the general merchandise industry are an outcome of differences in retail competition policy.

Not every difference in output mix causes significant differences in measured productivity. Thus, in the airline, retail banking and restaurant industries, differences in output mix played only a secondary role in explaining the productivity differences.[3] In fact, the high frequency of flights in the hub-and-spoke system in the U.S. airline industry works somewhat to the disadvantage of the U.S., and the heavy use of electronic payment instruments in the European retail banking industries helps narrow the measured productivity gap with other countries.

Furthermore, one important conclusion of our case studies is that higher productivity in the U.S. industries was not achieved at the expense of lower service quality or restricted service offerings. In fact, we found that U.S. industries often offer a broader service range than their counterparts. Examples include the frequency and number of destinations in the U.S. hub-and-spoke airline networks, the variety of deposit services in U.S. retail banking and the many telephone services offered to U.S. residential customers.

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2 See Retailing Case page 10.

3 See Airline Case page 11, Banking Case page 7, Restaurant Case, page 5.

¶ Based on our case studies, we conclude that economies of scale are not the most significant source of the measured labor productivity differences.

Somewhat surprisingly and contrary to common perceptions, we did not find evidence that the obvious difference in market or total industry scale between the U.S. and the other countries is a source of the labor productivity differences in our case studies. All the industries we analyzed seem to have a sufficient market size within their geographic boundaries (countries as a rule or Western Europe in case of the airline industry), which generally allows companies and their outlets to achieve a minimum critical size beyond which scale economies have only a limited positive effect, if at all.

Ultimately, any benefits from economies of scale have to be reaped by companies and their outlets, which are the two remaining possible sources of scale economies. Economies of scale, however, can only be a causal factor of productivity differences if the companies and their outlets have on average developed a bigger scale of operation. This is not generally the case. Retail banks in the U.K., for instance, are significantly bigger than even the money center banks located in the U.S. Also, the average outlet size of an average bank branch in the U.K. exceeds the average branch size in the U.S. Moreover, the importance of scale of a single company or outlet diminishes because companies and their outlets can contract out the scale sensitive elements of their business system. Individual banks in the U.S. can contract out their check or loan processing to their correspondent banks. Airlines in Europe can contract out certain maintenance or ground handling routines to other airlines.

However, companies located in the U.S. and their outlets, in some cases, have a larger scale and advantages from economies of scale. In the case of the German retail banking industry,[4] about one-quarter of employment is working for institutions with an average subcritical branch size. We estimate that about 5 percentage points of the 32 percentage point productivity difference between the U.S. and German industry can be explained by this factor. Diseconomies of scale from lower average branch size in the German industry are therefore a contributing but not the most important factor of productivity differences.

In the European airline industry,[5] a restructuring and concentration of the industry could lead to some scale benefits in such areas as marketing, sales and maintenance. In the maintenance function, airlines in Europe operate on average a much smaller fleet per plane type. In order to

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4 See Banking Case page 9.

5 See Airline Case page 13.

compensate for this scale disadvantage, European-located airlines to some extend pool their maintenance efforts. However, because the current practice increases the complexity of the maintenance function, we expect that maintenance operations are less efficient. In the sales and ticketing and general corporate functions, at the margin, labor productivity could be increased if a restructuring of the European airline industry led to larger airlines. While economies of scale certainly are a contributing factor, we think, they are not the major factor for the productivity differences. In the end, scale differences and scale effects only affect some airlines in some functions in Europe.

The scale disadvantages in the German retail banking industry and the European airline industry are not an inevitable consequence of smaller companies but rather reflect organizational choices or impeded industry restructuring, respectively. So far, management in Germany has had incentives to maintain an extensive network of subscale branches and thereby maximize the number of deposits because of the high spreads earned on low-interest savings deposits. In both cases the scale disadvantages are therefore manageable, either from the company or the industry point of view.

¶ We looked at the intensity of capital and the vintage of capital used. In other words, we analyzed to what extent the labor input is leveraged differently across countries either through a larger or more modern physical capital stock. Again, this factor played a smaller-than-expected role in the explanation of the productivity differences.

Differences in the ratio of labor inputs to capital inputs can occur if the same capital goods are not available in all countries or if managers decide not to use as much capital in their industry as managers in other countries do. We did not find a case where productivity differences derive from differences in the availability of capital. The hardware technologies used in the U.S. industries are also available to managers in Europe or Japan, so access to hardware technologies is not a factor in explaining productivity differences across countries. But even while technologies are uniformly available, managers make different decisions about how to mix labor and capital in the production process. As a consequence we observe differences in the use of capital.

- In the case of the retail banking industry, we identified important differences in the intensity of capital used.[6] Banks located in the U.S. have invested considerably more in information technology than those in the U.K. or Germany over the last 10 years. The more intensive use of automated teller machines and on-line terminals in

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6 See Banking Case page 9.

the U.S. has led to higher labor productivity levels than the U.K. and German industries achieve. The retail banking case exemplifies the importance that capital in the form of hardware technologies can have in improving the productivity levels of employees.

- The vintage of capital used, partly explained the capital productivity advantage of telecommunications companies in the U.S.[7] They have introduced more efficient electronic and digital switching equipment and fiber optic transmission links with a capacity to accommodate an enormous volume of information transmittal. Per dollar spent, these new hardware technologies can provide more service output at higher quality.

¶ We did not find evidence that pure differences in the skill of non-managerial labor caused the observed productivity gaps.

While years of education, formal training, and other inputs to labor skills can be measured, skills themselves and their impact on labor productivity are almost impossible to measure and to distinguish from labor organization. Thus, our conclusion is based primarily on the judgment of our McKinsey colleagues that individual skills among U.S. service industry employees are not higher than in other countries. In fact, the current perception is that the skill differences between the U.S. and the other countries in some cases work against the U.S. (e.g., a more thoroughly trained average bank employee in Germany). If this perception is correct, the productivity differences would probably be even larger if the skills in the U.S. were as high as in other countries.

There are several explanations for our somewhat surprising finding that non-managerial skill differences do not cause the productivity gaps we measured. First, we might just have picked those industries where skill differences either do not exist (e.g., all pilots can fly) or not important for productivity (e.g., better trained banking clerks in Germany are not necessarily more productive if they cannot apply or do not need all their skills in the branches).

More important, we observe the trend that more and more skills are included in or supported by "systems". Employees in fast food restaurants or at scanner cash registers are expected to be friendly but they do not have to be highly skilled in terms of their manual or cognitive abilities. Highly skilled employees, of course, design the purchasing, distribution, and "kitchen" system for the fast food chain. In retail banking, information technologies and systems help clerks at the teller windows by structuring procedures for handling customer requests. These examples illustrate that

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7 See Telecommunications Case page 12.

"high skills" are not an absolute but a relative concept. Managers and system specialists can build procedures and information systems into their organizations which allow even "low skilled" labor to be very effective and productive. In other words, it is not the absolute skill level of employees that counts but correctly matching employees with certain skills and jobs requiring those skills. Our case studies indicate that U.S. companies manage this match so well that we could not identify differences in employee skill levels as an important causal factor of productivity differences. We have counted the "skill" differences from more productive "systems" under organization of labor.

¶ The most important factor explaining productivity differences in the production process is the organization of labor. This is the way labor is used to provide the service output in combination with the other input factors.

Differences in the organization of labor include, for instance, differences in how labor is divided on specific tasks, how core processes are designed, and how capacity is planned and adjusted to a volatile workload. These differences have a high impact on labor productivity and they can be isolated when functional productivity is measured. To assess the explanatory power of organizational differences for the measured functional productivity differences, we checked first for differences in output mix, economies of scale, or differences in capital input. If these factors did not explain the productivity gap, we turned to labor. As long as we did not identify significant skill differences, and we never did, the (residual) causal factor must be the way labor is applied (organized). Through this process and very often with the confirmation of anecdotal evidence and the assessment of McKinsey industry experts, we identified the organization of labor as the prevailing cause on the level of the production process.

In three of the five case studies labor organization turned out to be the single most important causal factor.[8] A good example of a labor organization difference is in airlines, where the maintenance productivity for the European airline industry is significantly below that of the U.S. airline industry, even though the safety and reliability performance of all the major airlines is very close. This organization of labor difference also applies to ground personnel. Airlines in the U.S. maintain a productivity lead in ground personnel despite the fact that converting to a hub-and-spoke system caused a higher labor input. Another example is retail banks

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[8] See Airline Case page 15, Banking Case page 10, Telecommunications Case page 11.

in the U.K., which still encode checks in branches, while banks in the U.S. have centralized this function and gained productivity.

As with scale and capital intensity, the organization of labor in the production process is manageable in general. Labor laws or union agreements can constrain management as to how to apply a workforce. But union agreements are not fixed and can change over time either on the corporate or on the industry level. Organizations can be changed and productivity differences caused by organizational differences can be overcome.

If organizational and other manageable differences are the major reasons for the productivity gaps, the implication is that productivity differences are neither accidental nor inevitable. Productivity differences are a consequence of different management decisions which create the production process. But why do managers not choose more productive organizations and production processes? To find an answer to this question, we have to analyze the external factors managers take into account as they create and improve the production process within their companies.

External Factors

All management behavior is driven by incentives determined by the external factors of market forces and the policy context. We found that in our case studies, market forces were not as influential as public policy and regulation. The market forces which drive the differences in productivity are demand factors and relative input prices (which also indirectly reflect differences in factor availability). Competition and concentration rules, as well as government ownership, are the most important factors in the context of public policy and regulation.

¶ We found that demand factors affect productivity in general merchandise retailing, telecommunications and, to a lesser extent, in retail banking.[9]

- In general merchandise retailing, higher levels of income and wealth in an economy provide great potential for higher levels of productivity in this industry. This effect stems from the higher levels of service and quality demanded by higher income consumers. The provision of these services requires a better educated, more skilled, and better paid set of workers than in firms serving low income customers. "High service" formats have higher productivities than "low service" formats. The degree to which higher productivity is achieved for the whole industry is determined by whether managers exploit the income advantage by successfully segmenting demand and tailoring formats to the higher income segments.

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[9] See Retailing Case page 5, Telecommunications Case page 12, Banking Case page 12.

- In telecommunications, capital productivity and total factor productivity depend heavily on the volume of calls, which leverages the high fixed investment and maintenance costs in access lines. In the U.S., demand per customer is much higher than in the other countries studied, in part because of pricing structures designed to exploit demand elasticity and very likely also because of social customs. This demand difference translates into a higher utilization of the access network and a higher capital and total factor productivity of the U.S. telecommunications industry.

- The behavior of retail bankers in Germany also appears to have been significantly influenced by the nature of customer demand. Over recent decades, this demand has emphasized security and safety rather than higher returns. This type of demand is understandable for generations who experienced the high inflation of the 1920s, the depression of the '30s, the destruction of assets in the '40s, and an anti-inflationary money supply policy more recently. However, this pattern of demand will change with the post-war generation, which has grown up in an era of economic and political stability. As a consequence, bankers in Germany will no longer be able to avoid price competition in the future, and increasing profitability pressure will lead to higher levels of labor productivity.

In the short-term, these differences in demand restrict the opportunities of management to improve the productivity of its operations. However, demand will change if supply constraints are removed and consumer preferences can be changed in the long run. Corporations can give their customers incentives through price signals to change their consumption towards a pattern which allows a more productive and cost efficient production process. Thus, managers can develop strategies to create and benefit from these changes in demand. If the industry is open to newcomers, entrepreneurs may create and exploit these opportunities if the old players do not.

¶ We also found that differences in relative input prices do not explain national productivity differences. We found that the prices of labor and capital are sufficiently close in most industries to make very little difference.

¶ The most important external factor determined by public policy and regulation is the competition and concentration rules set in a country or for a specific industry. Among the various competition rules, those which foster or impede the freedom to enter the market and to offer services at unrestricted prices are the most important. Wherever in our case studies we observed regulatory interference with one of the basic market elements (freedom of entry, pricing), the affected industry seemed to pay for the interference with lower levels of productivity.

If entry into industries and markets is allowed, then dynamic companies will have incentives to develop innovations that improve value to the customer by offering more service per dollar. If there is vigorous competition, new entrants cannot charge high prices or gain market share by innovating and then resting on their laurels. Competitors will respond to service increases or price decreases by introducing improvements of their own, which will cause prices to fall and value to be transferred to the customer (the consumer surplus). Thus, in order to earn superior returns, corporations have to continuously innovate, either by offering better service or the same service at lower prices. Innovation and market entry thus continuously provide pressure towards higher productivity levels. Each innovation temporarily creates a monopoly or an oligopoly. However, if concentration or antitrust rules allow and enforce high intensity competition, then the oligopolies are competitive. They arise and are then destroyed as new oligopolies with superior innovations are formed. If long-term monopolies and oligopolies are not allowed, then corporations gain only a temporary performance advantage from each innovation. But the continuous process of innovation generates increasing value to the consumer and higher productivity on a sustained basis.

Differences in the magnitude of the freedom and threat of entries (and the resulting market concentration) explain much of the differences in productivity found in airlines, retail banking, general merchandise retailing, and telecommunications.[10]

- New entrants in the U.S. airline industry at the time of deregulation triggered a fundamental industry restructuring. In this case, the appearance of new competitors spurred established competitors to considerably higher levels of measured and unmeasured productivity. Ironically, most of these new entrants have subsequently exited the market, even though they had a low cost position. They lacked the sustainable route networks and the scale to provide the convenience customers wanted from nationwide hub-and-spoke systems. In the U.S., unprofitable airlines have exited at a high rate, but in Europe the publicly-owned national flag carriers have not been allowed to fail or to be taken over, in part for public sensitivity reasons. Whereas competitive intensity is extremely high among airlines in the U.S., each of the European routes is a regulated duopoly, on which prices are fixed. At least until very recently, the competitive intensity was relatively low among airlines in Europe and the pressure to perform and increase productivity was relatively low.

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[10] See Airlines Case page 16, Banking Case page 12, Retailing Case page 11, 13, Telecommunications Case page 15.

- In the U.S. retail banking industry, established competitors were also spurred to higher levels of productivity by the appearance of new entrants and products (e.g., money market mutual funds). On the other hand, in the highly concentrated U.K. retail banking industry, the four large banks maintained relatively constant market shares. Their financial performance moved up and down together for years prior to the recent financial deregulation in the early 1980s. Such behavior suggests low competitive intensity.

- In general merchandising, the appearance of new formats ("category killers") has significantly increased the productivity of general merchandising in the U.S. by driving less productive, older formats out of the market. Legislation in other countries, however, protected established retailers from new entries of more productive retail formats. While this preserved the current industry structure and employment, it has hurt innovation and productivity in these industries.

We think that the surprisingly large productivity differences between the U.S. and Japan in many industries and between their overall economies are a consequence of very different approaches towards competition and anti-trust policy. Japan has adopted policies that favor established economic interests over general efficiency. It has selected key industries to be externally oriented and competitive, and this strategy has been tremendously successful in autos, consumer electronics, semiconductors and so on. But Japanese government and management has, by formal and informal means, protected much of Japan's economy from domestic or international competition. The comparisons of U.S. and Japanese manufacturing productivity in Chapter 1 suggest that if U.S.-based companies in industries such as food processing could enter the Japanese market, through exports or by setting up operations in Japan, they could be very competitive. Within the service sector, large retailers have, until very recently, been prevented from opening stores in Japan by laws that require that small local merchants approve new competition. Japanese policymakers believe that these restrictions are justified because they preserve social harmony and avoid the disruption of individual lives that would result from unrestricted competition (we will discuss this trade-off in detail in Chapter 4).

¶ Government ownership is another productivity driver set by policy. State-owned corporations are not under the same pressure to produce profits for shareholders as privately-owned corporations are. Moreover, governments attempt to achieve their employment objectives more directly through state-owned corporations. Social policies in Europe aimed at avoiding labor dislocations can most effectively be implemented through state-owned entities.

Ownership differences have undoubtedly been important explanatory factors in the cases of the airline and telecommunications industries, which are still state-owned in some countries.[11] We know of instances where the managements of state-owned airlines were constrained in their strategic options for improving productivity and, for instance, explicitly not allowed to reduce costs by laying-off employees. We also believe that the higher productivity levels of the private telecommunications industry in the U.S. stems partly from the pressure to produce profits even within the still regulated environment. In this case, government-owned companies in Europe operate in an environment which is sheltered from competition by government policy. They are unlikely to have the incentives or to feel the pressures to increase labor productivity if it would make unpopular measures necessary, especially if those measures included sacking employees.

¶ The impact of differences in labor rules and union agreements on productivity has been under discussion for at least the past decade. But the empirical evidence from this discussion on whether unionism has a generally positive or negative effect on labor productivity is still far from conclusive. We believe, however, that while labor rules and union agreements in industries with low competitive intensity may significantly impede efforts to increase labor productivity, they ultimately play only a secondary role in explaining productivity differences between industries with high competitive intensity.

This is also the conclusion of Freeman and Medoff, who emphasize the importance of competitive markets rather than the degree of unionism in explaining the productivity of a company or industry.

> "Like everyone else, unions, management of organized plants, and workers are more likely to devote effort to productivity-augmenting activities when they face the gun of competition. Indeed, in a competitive sector, only the unions and management that are able to raise productivity to offset union wage gains will survive in the long run."[12]

Our case studies support the hypothesis that while different labor rules and union agreements might pose short-term barriers to change and increases in productivity, their influence is in the long run secondary to

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[11] See Airline Case page 17, Telecommunications Case page 16.

[12] Richard B. Freeman/ James L. Medoff, What Do Unions Do?, New York 1984, p.179

the competitive forces in the market place.[13] Despite strong unions, labor in the U.S. airline industry went through tremendous disruption after deregulation let competitive forces separate winners and losers. We see similar trends in the U.S. telecommunications industry, which has recently begun to compete on cost by streamlining its labor force. We also expect that growing competitive forces in the European airline industry will overcome labor rules and agreements in the pursuit of higher productivity.

The described external factors influence the behavior of management. Differences in competition rules, for instance, create different incentives and constraints for managers pursuing a productivity enhancing strategy. As a result, management may create different production processes which have inherently different labor productivities. We will now take a closer look at the pivotal role management plays as the link between the external factors and the elements of the production process which directly impact productivity.

Management Behavior

Managers are the link between external factors and production process factors. The causal differences found at the production process level suggest that managers in the U.S. have significantly different skills or pursue different objectives than managers in Europe and Japan.

All of the production process factors that contribute significantly to explaining productivity differences are under management control at the corporate level. The most important factor explaining labor productivity in the cases of airlines, retail banking, and telecommunications, for example, is the basic organization and efficiency of labor. Managers in one country must innovate and do something different than managers in other countries to achieve higher productivity (see box facing page 15 for a discussion on productivity and innovation). If we assume that managers behave rationally, i.e., they pursue their objectives as best as they can and respond to external incentives when they decide which objectives to pursue, different management behavior must be explained by differences either in the skills of managers or in the objectives they pursue. We argue that both are ultimately determined by the environment, or the external factors, which management faces in various industries and countries.

¶ Skills of management. We believe that there are no general inherent differences among management abilities or natural talents across the countries we are looking at. No cultural, social or physical differences would generally prohibit managers in France, for instance, from performing as well as those in the U.S., given the same environment.

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[13] See Airlines Case page 17

Managers in the U.S. are not inherently "better" or more talented than those in Western Europe or Japan, and vice versa.

However, in a static view, management skills, i.e. the ability to perform in a given environment, vary within industries and among countries at any given point in time. But we find that to the extent there are skill differences at the industry level, they are determined by market conditions and national policies in a dynamic process. Managers and their skills develop within the context of a certain environment and they may not be able to adapt to and survive in different environments. The historical environment may have led to the selection of a set of skills which equip managers to perform well in the current but not in a new environment. Management changes may be necessary before the higher productivity potential of new environments can be achieved. In principle, this interaction between external incentives and constraints on the one side and incumbent managers on the other side should lead over time towards an optimal match between environmental requirements and management skills. Or in other words, every environment gets the management it demands.

¶ Objectives of management. The objectives which management decides to pursue largely dictate management behavior. Like skills, the objectives sought by management are a result of the external incentives and constraints. Managers take into account market conditions and government policies and regulations in setting objectives and making the decisions to build, organize, and operate the production process, which generates productivity performance. As we discussed earlier,[14] the most important incentives for management in the service industries are set by legislation and regulation governing these service industries.

Only in very rare cases can managers act independently of external factors in choosing the objectives they want to pursue. In highly concentrated industries, e.g., in telecommunications, a few individuals and their values may have a large impact on the objectives sought and the behavior of a whole industry. However, the objectives pursued are usually shaped by the economic, political and social environment of an industry. If the external context changes, the objectives pursued will change and the production process and productivity will change along with them.

We concluded that productivity differences across industries center heavily on differences in the objectives pursued by management. Management's objectives can be sorted by two characteristics: by organizational focus (management itself, the company, and society) and by type (economic and social), as shown in Exhibit 3-4. We observe different objectives for each category. Productivity may be one of the

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[14] See under "External Factors" in this chapter.

PRODUCTIVITY AND INNOVATION

Although we did not investigate innovation as thoroughly as productivity, our findings indicate that, in the industries we studied, those located in the U.S. are often more innovative than those in Europe and Japan. Innovation is the introduction of either new or improved products and services into the market place, or the use of new means in the production process. In that sense, an industry or company is innovative if it provides continuously new services or continuously finds new processes to deliver them on a significant scale. This notion of innovation emphasizes the result rather than the process of innovation.

Higher measured productivity and higher innovativeness, it seems, go hand in hand. We believe that when a company increases productivity, it often does so by using improved new processes or by introducing new, inherently more productive services. We expect that the same factors which led to productivity differences among industries can cause differences in the rate of innovation. A competitive industry environment, for instance, which allows market entries and exits can set the incentives to managers to foster both productivity and product and process innovation.

In our case studies, the higher innovativeness of U.S. industries became apparent when we compared output mix and usage of information technology. After World War II, the U.S. banking industry, for instance, took over leadership in innovation from the U.K., and many new services either originated in the States or were first introduced there on a broad basis. Recent examples include linked checking and savings accounts and ATM's as deposit takers. Innovation in this case also extends beyond hardware to the organization of labor. For example, U.S. banks have adopted organizational changes such as single-line, multi-server waiting lines ("snake queues") to increase utilization and improve customer service.

The U.S. telecommunications industry was the leader in new technologies and services at least until the end of the 1980s. A comparison of services offered to residential customers shows that the U.S. telephone companies provide a larger variety of services than other countries do. In the case of the airline industry, deregulation unleashed new services (e.g., frequent flyer programs) and technologies (e.g., hub-and-spoke scheduling). In the general merchandise retailing industry, we observed a high rate of innovation of new retail formats in the U.S. and, to a slightly lesser degree, in the U.K.

We are not implying, however, that the U.S. has any kind of monopoly on innovation. Examples of important innovations from other countries are easy to find. In airlines, Sir Freddy Laker introduced regularly scheduled, no frills transatlantic transportation. In general merchandise retailing, IKEA and Castorama are two of the pioneer category killers, and Japan's Ito Yokado is an acknowledged world leader for innovation in information based strategy and logistics. Innovation can occur in any country, when the conditions are right.

If our hypothesis that the more productive industries are also the more innovative ones is correct, it has important implications for our conclusions about the productivity differences that consumers experience. Competitive industries with a high rate of innovation normally cannot avoid giving some of the value of their innovations as a surplus to their customers. This creates a dilemma for our productivity research. We cannot measure or adjust for this part of the industry output, but we include the input needed to produce it. Our productivity measures will therefore, tend to understate productivity of more innovative industries.

economic objectives management has for its company. Certainly productivity is neither the only objective management should pursue at any given point in time nor is this objective necessarily in harmony with other objectives. Managers have to make trade-offs among different objectives.

We believe that managers in the U.S. make different trade-offs when they formulate and prioritize their objectives and that the choices are primarily determined by external factors. Managers in Europe and Japan pursue explicitly more social objectives, whereas management goals in the U.S. are heavily focused on economic objectives. Thus, in the U.S., managers focus more on pursuing productivity, while in Europe and Japan, managers trade productivity against other, possibly social goals. Our case studies support this hypothesis to some extent.

- ¶ In the U.S. airline industry, the primary objectives pursued by management after deregulation have been purely economic: gain market share in important markets and build an attractive route network and strong customer base to be profitable and survive. Increasing the value to the customer[15] as well as lowering costs and increasing productivity helped management to pursue these goals. Examples of increased value to the consumer include the increased frequency and variety of connections following the introduction of the airlines' hub-and-spoke system in the U.S. These innovations have been introduced by airlines because the penalty for not adopting them would be loss of market share and, eventually, exit from the market. Such is not the case for airlines in Europe, which, at least during the 1980s, have been protected from the possibility of new entrants that might provide higher value outputs to customers and thus take market share. The peculiar environment of the European airline industry therefore allowed its management to trade off the economic objectives of their companies against other objectives, such as national prestige, employment, and social harmony in their companies. Labor productivity apparently did not have a high priority in the hierarchy of pursued objectives.

- ¶ The management objectives pursued in telecommunications are somewhat different because, as a local monopoly, telecommunications continues to be a strongly regulated industry, even in the U.S. However, in private U.S. telecommunications companies, owners have provided profitability incentives for managers that are considerably stronger than those for managers in the publicly-owned European and recently deregulated Japanese industries. And even before deregulation, regulation in the U.S. allowed managers to make additional profits by

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[15] In our terminology, value to the customer includes both the measurable output of services, such as passenger miles flown or payments cleared, as well as unmeasured outputs that increase the consumer surplus.

introducing new technology and cutting costs in the periods between rate adjustments. So seeking profitability objectives, even in a regulated environment, has stimulated management to make productivity improvements. Looking at the time after deregulation in the U.S., Japan, and the U.K., it becomes obvious that market forces caused management to concentrate even more on pursuing objectives such as customer satisfaction, profitability, and productivity.

¶ In retail banking, management in Germany and the U.K. could satisfy profitability objectives relatively easily in environments in which new entrants with high value products (higher interest rates) have not been a threat, at least until very recently. Low interest rates on deposits have assured profits, and competitive pressure to cut costs or increase productivity with other means has not developed, resulting in low competitive intensity in the industry. Again, management could focus on objectives other than productivity without being hurt by competition. In the U.S., non-conventional competitors (e.g., money market mutual funds) forced retail banks to raise interest rates and lower costs after deregulation in the early 1980s. The competitive forces at work have forced managers in the U.S. to pay most of their attention to the economic goals of their banks. Therefore they took advantage of huge advances in technology, which provided major opportunities for labor productivity and profitability improvements. Technology and capital have been available equally in each of the countries studied, but these opportunities have been exploited to a greater extent by managers in the U.S.

¶ General merchandise retailing is much less regulated than airlines, retail banking, or telecommunications. In a totally deregulated environment, economic success and productivity in every country would be determined by whether managers could successfully segment demand and match the variety and quality of goods they offer in a particular shopping experience (format) to what a particular segment wants. Such innovation could generate large profits, at least until competitors caught up. Besides improving the value for the customer by increasing convenience through longer opening hours and a greater variety of products, managers could also cut costs and increase productivity by shifting to an industry structure that eliminated wholesaling. However, in countries like France, Germany, and Japan, some remaining regulations like the large scale retail store law discouraged these economic incentives. Instead, these regulations give management and proprietors of small retail outlets the opportunity to pursue "job security" and protect their interests against newcomers. Economic success is no longer required to stay in business, the importance of economic objectives drops in the eye of the manager or proprietor, and chances to increase productivity are not exploited.

Overall, our case study findings support the hypothesis that the objectives pursued by management vary with the environment in which management operates. The more strongly the industry environment encourages competitive intensity, the more management is forced to concentrate on pursuing objectives related to the economic well-being of its company, and the more productivity seems to benefit. On the other hand, the less external factors encourage competitive intensity the more, it seems, management can pursue other, particularly non-economic, objectives and the more likely it is that productivity suffers.

Understanding this relationship between public policy, the business environment, management behavior, and productivity raises the question of what the options are for public policy and regulation to create a productivity enhancing business environment and balance this goal against other social goals. In other words, where does productivity stand in the social policy context and what are the implications of our findings for public policy? We address this question in the next chapter on productivity and policy.

CHAPTER 4: PRODUCTIVITY AND POLICY

If our conclusions are anywhere near right, there are unexploited opportunities for productivity improvement in the service sector of Europe and Japan (and in service industries in the U.S. as well). The achievement of these gains would mean a measurable narrowing of the existing gap in real income per person between the U.S. and the other large advanced industrial nations, so the stakes are not trivial.

An essential part of our argument is that existing differences in service sector productivity are not simply the symptom of a technology gap, of the unexplained availability to firms located in the U.S. of some technological knowledge that is inaccessible elsewhere. There are differences in technology, and we have documented some of them; but where they exist we think they reflect deeper factors in the market and regulatory environment within which businesses operate, and especially in the intensity of competition to which service sectors are routinely exposed in the various countries. Many of the productivity-enhancing innovations we have observed are organizational rather than technological. They, too, are primarily an adaptive response to incentives originating in the market environment, as influenced by public policy.

So questions remain. What can governments do to encourage service-industry firms to increase productivity? And how likely is it that the required policy changes will actually take place? To answer them, we must take a more dynamic view of the interaction between policy and the microeconomic processes that drive productivity, paying special attention to the competing policy objectives that have led governments to create barriers to productivity growth.

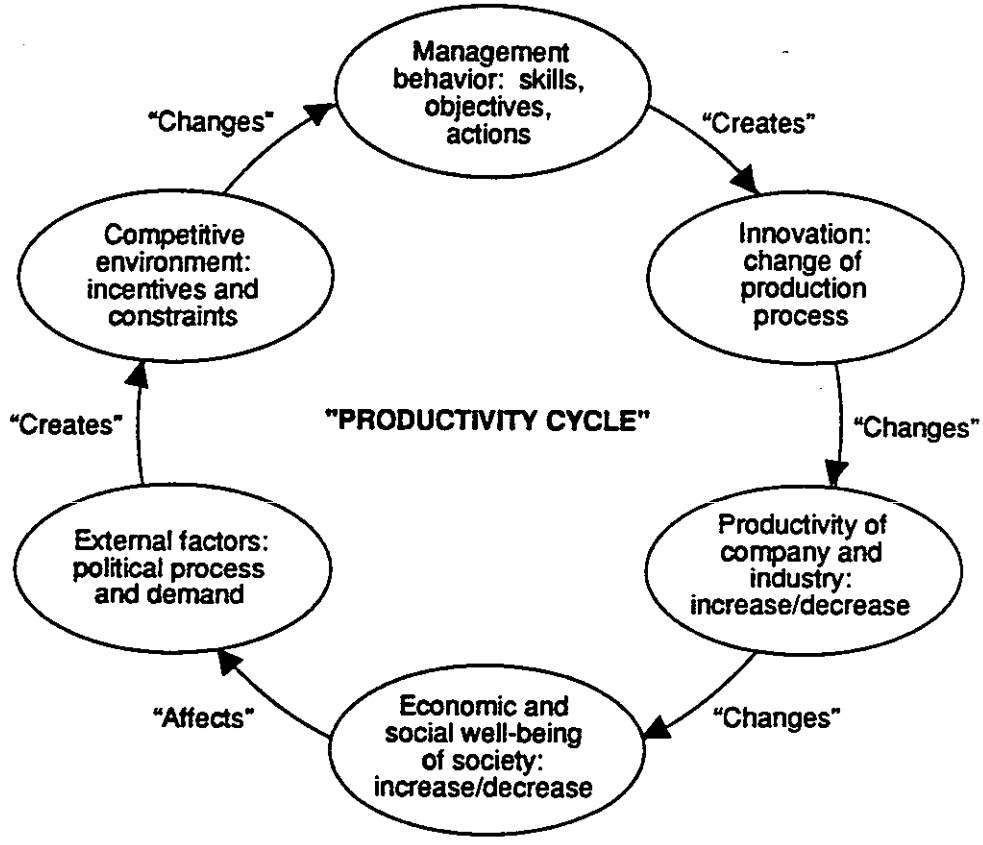
PRODUCTIVITY DYNAMICS AND THE ROLE OF GOVERNMENT

So far, our productivity analysis has had a static character. In Chapter 3, we looked in detail at the ways in which the production process, management, and external factors determine productivity in industries. We also discussed the hierarchy between them and how they interact. However, we only analyzed productivity at one point in time and in one direction of causality, and we did not close the loop and show how industry performance feeds back to the elements which determine productivity in the first place. Does industry productivity performance over time affect the higher level external factors in the environment in which the industry operates?

We think that, at least in the long run, there is such a "productivity cycle" connecting the critical drivers of productivity – competition, management behavior, and innovation – back to the policy environment and fundamental demand factors. Exhibit 4-1 illustrates the dynamics of this cycle in a simplified way. External factors,

Exhibit 4 - 1

DYNAMICS OF MANAGEMENT BEHAVIOR AND PRODUCTIVITY



Source: McKinsey

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especially public policy and regulation, create a competitive environment which, in turn, heavily influences management objectives and behavior. Pursuing its objectives, management creates and changes the production process through innovations and higher capital investment, which improve the labor productivity of the company and, ultimately, the industry. The productivity cycle then provides a feedback loop to the external factors. Productivity is an important determinant of the economic and social well-being of the society. If the well-being of the people falls short of their expectations, in the long term they may try to change things. This will occur through changes in demand or through the political process although not in any mechanical way.

This productivity cycle has important implications for managers. Where productivity gaps exist, managers can expect rising pressure for change. These pressures may exhibit themselves in changed consumer behavior or foreign competition. Where obstacles are rooted in regulation and policy, however, desire for change will be expressed in political terms. Some examples might illustrate the use of this model.

Before privatization, British Telecom's (BT) output quality was perceived to be very low. Consequently, there was a growing discontent among its customers which – amplified by press coverage – increased the pressure on policymakers to change regulations and ownership. These changes occurred and increased the performance pressure on BT's management. In reaction to the changed environment, management changed the production process and BT's productivity increased perceptibly.

Another example comes from the German retail banking industry. Given the historical background, German customers have been satisfied for decades with relatively low interest rates on their savings accounts. However, as ownership of assets shift from one generation to another and access to a broader range of financial intermediaries and services increases, customers are becoming more demanding and discontented with the current service offering. Consequently, the demand pattern is changing as customers shift their assets from savings to other investments with higher yields. Competitive pressure will increase, management will innovate and in the end banks will offer higher rates on savings accounts.

If the only objective of government policy were to increase productivity, the policy implications of our case study findings would be straightforward: tailor the regulatory and macroeconomic conditions and tax policies to make the productivity cycle work. But we know that governments actually have many other objectives, which makes the matter much more complicated.

PRODUCTIVITY AND POLICY TRADE-OFFS

Policy reflects the outcome of a process which makes trade-offs among a number of objectives, not all of which are income and wealth related in the traditional sense. The choice a society makes reflects a number of factors, some of which are questions of technical political organization, and some of which reflect deep cultural and philosophical positions. It is quite true that in many cases, "the public good" is traded off in favor of private, special interests. In any event, it is sufficient for our purposes to describe the economic elements affected by these choices as either on the output or the input side of the productivity equation.

- ¶ Environmental protection, ensuring public safety (e.g., airlines maintenance regulation) or consumer protection (e.g., deposit insurance, food and drug purity) are examples of regulations concerning non-marketed industry outputs and production processes as such. If market forces alone cannot control undesirable outputs, government regulates the output directly. This regulation can affect productivity. There is, however, a broad consensus across the OECD countries that governments play an important role in trading off these goals against more narrow "economic" gains.

- ¶ The other set of trade-offs is primarily concerned with labor input and employment. For instance, labor laws regulate job conditions, rules about industrial safety are intended to prevent accidents, and unions are involved by law in decisions about changes in the organization and mechanization of labor.[1] Most disputes about productivity versus other goals concern a perceived trade-off between productivity and employment. This is not surprising because income from employment is still the major source of income for almost all individuals and employment is also the primary mechanism of income distribution in all countries. If productivity is increased, it is assumed that a given level of output will be produced with a smaller workforce. That suggests to many people that productivity increases will lead to layoffs, unemployment, and income loss for a large part of the population. At the end of the road they fear a society plagued with unemployment, homelessness, crime and social unrest.

At the most basic level, increased competition implies that there will be winners and losers, at least temporarily, in the economy. So the simple prescription

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[1] Whether this government regulation is at the expense of productivity gains remains uncertain. The counter-argument goes that treating employees more like partners on a long-term basis rather than anonymous "factors of production" increases motivation, skills, and productivity of the labor force.

to increase productivity by increasing competition must touch a sore spot for many policymakers. But is there always a conflict between productivity and employment? Does increasing competition and productivity always mean displacing labor?

PRODUCTIVITY AND EMPLOYMENT

Displacing labor is not the same as increasing productivity; neither is it the only means for achieving higher productivity in a company or industry. The source of most productivity increases is innovation, defined as new ways and technologies for producing goods and services. Innovation changes the production process and the nature of output and normally increases labor productivity by increasing output, by decreasing labor input, or by doing both. In other words, one outcome of increasing productivity in a company may be that employment stays constant while labor is redeployed in ways that increase output. This is an approach taken by many highly productive Japanese manufacturers; and this is, in itself, not a bad thing. When innovation leads to reduced labor requirements, however, innovation sets free human resources which may be laid-off and returned to the labor market. In that sense displacing labor realizes productivity gains made possible by innovation.

Productivity will be higher, however, when management uses both means to foster productivity. If an economy restricts itself to increasing productivity without displacing labor from its current uses and without using the labor market to re-allocate resources, the economy is unlikely to achieve all possible gains in productivity. This is because creative and productive use of people is restricted to the next best ideas within companies instead of the next best ideas within the whole economy. We think, for example, that the concept of major companies in Japan which guarantees life-long employment together with a low turn-over in the labor market will impede the economy from achieving the most productive allocation of labor. By voluntarily restricting lay-offs, these Japanese companies put themselves in the position of needing to outgrow their inefficiencies by increasing output in their old businesses or by growing into new business. This system provides security and stability for those people who are employed. But Japan provides the social good of preserving existing jobs at the expense of higher productivity in the economy as a whole. This discussion illustrates how we must distinguish between existing jobs and future jobs.

Productivity and Existing Jobs

It is certainly true that achieving increased labor productivity often requires displacing labor. In this sense, the trade-off between productivity and employment in existing jobs is real. For workers in a particular plant or office, a productivity increase can be either good news or bad news. Productivity increases allow companies to hold down production cost and prices, which can stimulate the demand for goods and services provided and lead to higher employment. For some companies or industries, however, if demand is not very responsive to price or if

the price level is falling, for example, due to intense international competition, productivity increases will end up displacing workers. There are clearly costs associated with the disruption of individual lives when market forces are allowed to operate without policy mediation. These costs have to be weighed against the benefits of higher productivity and higher average standard of living.

One of the consequences is the proliferation of regulations and other policies whose explicit goal is the protection of specific jobs and incomes. Most often, although not always, it is manufacturing employment that is protected, even when service employment is more common and more promising. This practice is more common in Europe and Japan than in the U.S. although it can be found everywhere. Such policies may occasionally be defensible, if they are intended and implemented only to preserve social harmony and cohesion by smoothing the shocks associated with rapid economic change, and if the benefits are large compared with the costs. The policies and regulations often have complex effects, not foreseen by policymakers. In particular they may be a bad bargain because they give temporary shelter to existing jobs and incomes at the expense of future jobs and incomes.

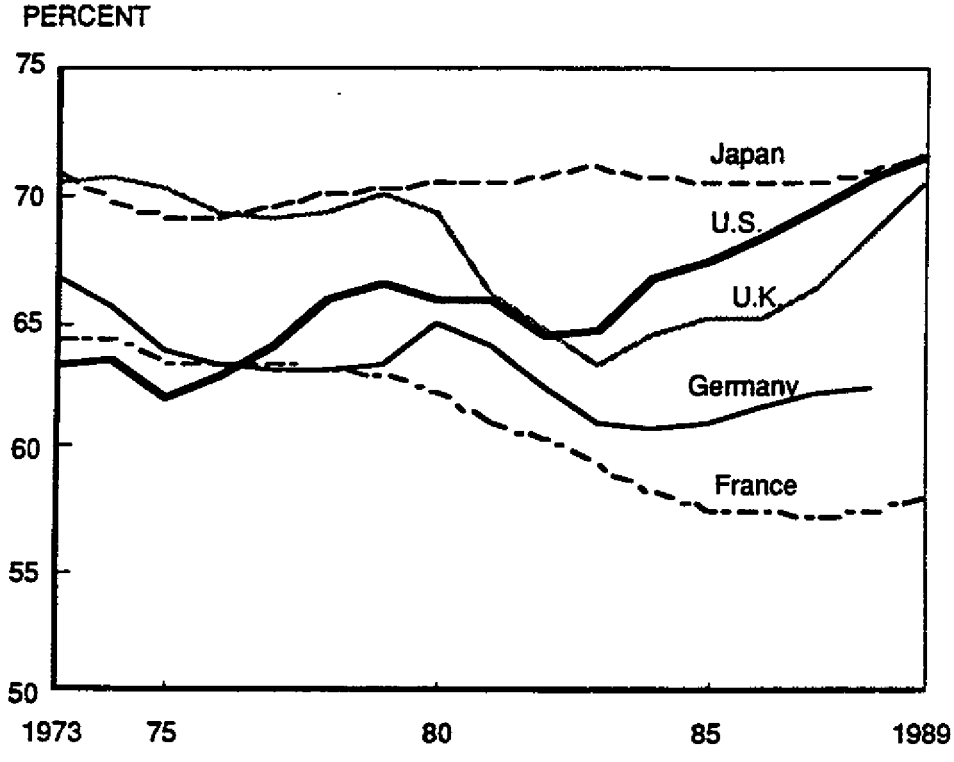
We agree that government has an obligation to promote and maintain a high level of employment, given labor-supply conditions. But we believe that governments sometimes try to fulfill their obligation by adopting policies that inhibit productivity growth, especially in the service sector. These policies should be re-examined frequently and honestly. When it is found that they have substantial costs, these should be admitted and alternatives should be sought. Most often alternative policies will be available that protect aggregate employment with less discrimination between sectors and less damage to productivity.

Productivity and Future Jobs

In fact, there seems to be a widespread misunderstanding about the nature of the trade-off between productivity and overall employment in existing and future jobs. High productivity does not generally go along with high unemployment. For an economy as a whole, rapid productivity growth need not mean slow employment growth or rising unemployment, because output is not fixed and can expand enough to sustain high employment. Provided the appropriate macroeconomic policies are followed, GDP will grow faster over the long term when productivity growth is faster. For example, unemployment in the U.S. was lower in the 1950s and 1960s when productivity growth was relatively rapid than its was in the 1970s and 1980s, when productivity growth was slower. Workers displaced from one job by productivity increases will generally find other jobs in a dynamic and growing economy and they will contribute to the growth of GDP in their new positions. The prime responsibility of government is to maintain a

Exhibit 4 - 2

CIVILIAN EMPLOYMENT AS PERCENT OF WORKING AGE* POPULATION – 1973-89



* Ages 15-64

Source: OECD Labor Force Survey

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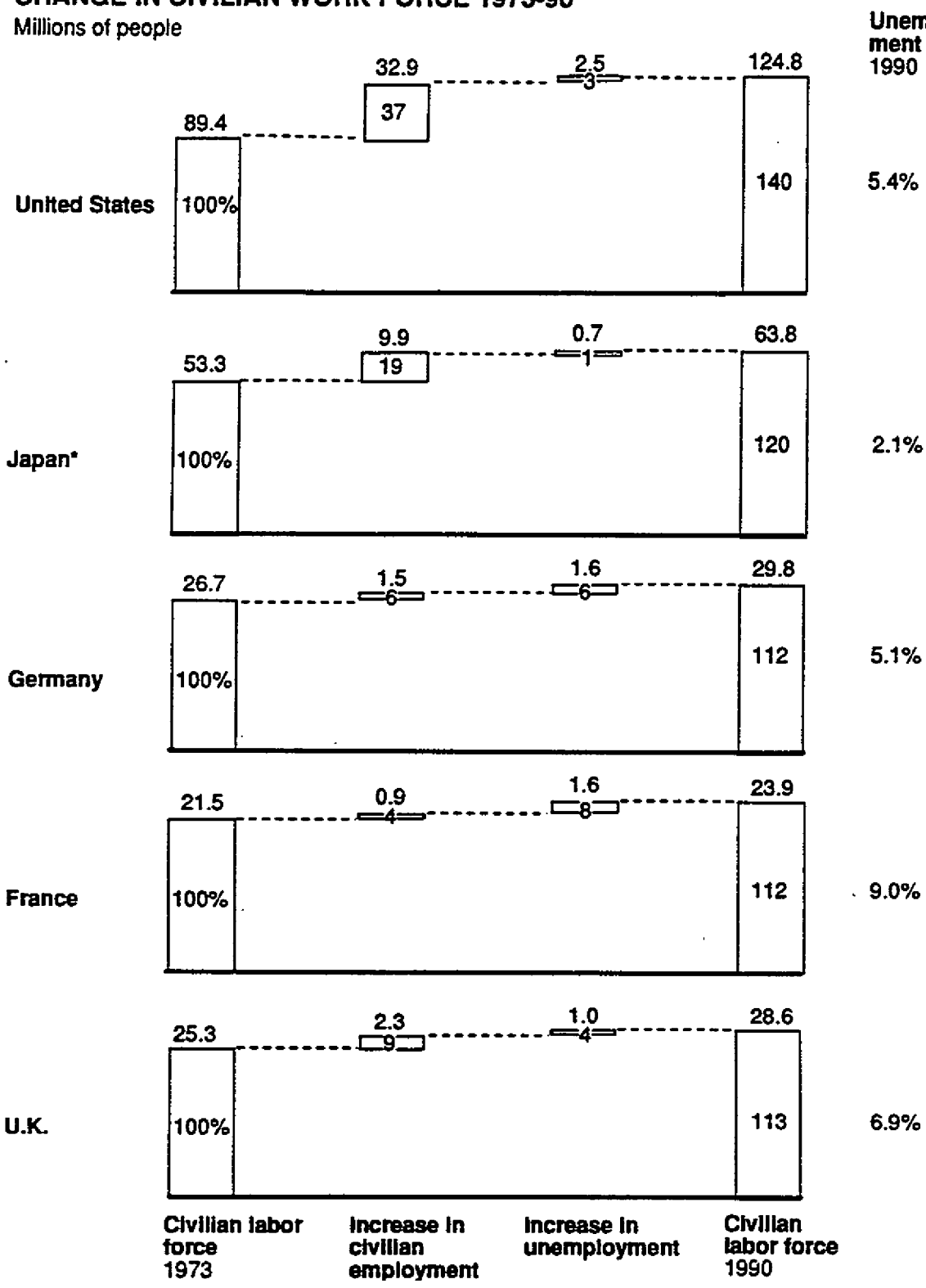
Exhibit 4 - 3

CHANGE IN CIVILIAN WORK FORCE 1973-90

Millions of people



There is probably an optimal degree of job security, high enough to reduce resistance to innovation and productivity increase but not so high as to make innovation unprofitable or impossible. The optimum may be too difficult to define precisely; the important idea is that both extremes may be undesirable.

European policies which place a higher premium on income equality and are intended to encourage employment may have instead discouraged it. Despite, or even because of its greater emphasis on efficiency, the U.S. economy over the past 30 years has shown a remarkable ability to create new jobs. Rapid job creation has enabled the U.S. to move from having the lowest percentage of working age population employed among the leading economies in 1973 to having the highest percentage in 1989 (Exhibit 4-2). This has led to lower total unemployment and - consistently over time - to lower long-term unemployment in the U.S. than in Europe (Exhibits 4-3 , 4-4 and 4-5). The job creation performance in the U.S. undoubtedly stems from strong innovative and entrepreneurial behavior. Even with its relatively high rate of employment growth, the U.S. economy maintained a significant lead in labor productivity.

Flexibility in the Labor Market

Combining productivity growth and labor turnover with low unemployment requires a flexible labor force and effective labor markets, along with sensible macroeconomic policies geared to high aggregate employment. Observations on labor turnover and the duration of unemployment spells suggest that the labor market achieves more complete and rapid redeployment of labor in the U.S. than in Europe and Japan. Perhaps for this reason, custom and legislation in Europe and Japan tend to favor employment stability at the expense of flexibility, while the emphasis is reversed in the U.S.

In the 1980s, both the growth of demand and the flexibility of employment arrangements in the U.S. have made it easier to accommodate productivity improvements that result in job displacement. The process involves a complicated interaction of aggregate demand, the composition of labor demand as influenced by technology and the deliberate design of job requirements, and the supply of skills embodied in the labor force. Recent experience leaves no doubt that the pursuit of efficiency creates both winners and losers. In the U.S. the losers have been concentrated at the low-skill end of the labor force. We share the growing concern about the increase of poverty and income inequality. It seems clear that the right way to attack these problems is through education and training, not through the inhibition of productivity gains.

It is also usually wrong and often fruitless to blame unemployment on productivity increases. The sources of persistent high unemployment in Europe have been carefully studied in academic institutions and international agencies. The typical finding is that persistent unemployment arises from failure to adequately stimulate aggregate demand. This may in turn be a reaction to fears

about the rigidity of labor markets. If barriers to mobility within a country keep workers from moving from one region or industry to another, or if social programs diminish the motivation for relocation and retraining, then these policies should be recognized as contributing to unemployment. It is inefficient and unnecessary to achieve social goals by methods that reduce aggregate output.

IMPLICATIONS OF OUR WORK

An important interpretation of the productivity differences described in this report is that they reflect the remaining differences between the economic and social policies of the leading economies of the world. Whether the policy differences between the U.S., Europe and Japan will narrow is unknown and unknowable. Europe and Japan have explicitly placed more value on social objectives and maintaining social harmony. The extent of the sacrifice in economic performance that is incurred as a result of policies designed to achieve other objectives is unclear. However, our analysis at the sector and industry level which frequently indicated productivity differences between 20 and 40 percent suggests that the cost may be significant. There is no "right" answer about how to balance economic performance and social objectives, and we have not analyzed the benefits of achieving social objectives. In democracies, social and economic objectives are balanced through the political process, and the balance changes over time. Our results suggest, however, that the productivity of the leading economies will not fully converge as long as the balance between social and economic objectives differs among those economies, or unless ways are found to pursue social objectives that weigh less on innovation and efficiency.

The bottom line is, higher productivity leads to higher material (not necessarily social) well-being. We believe therefore that "making the productivity cycle work" is a valuable governing thought for the role of government and economic policy in a market economy. We believe that, in the long run, any roadblocks in this productivity cycle will be overcome by consumer pressure and preferences in combination with the political process and market forces. If we accept this presumption, an important role of government should be not to build any roadblocks which might hamper the dynamics of the productivity cycle in the first place because this would only postpone an inevitable process at the expense of the economic well-being of the current population. But a purely negative policy is not enough: governments must devise policies that both promote competition and balance other social goals more effectively.

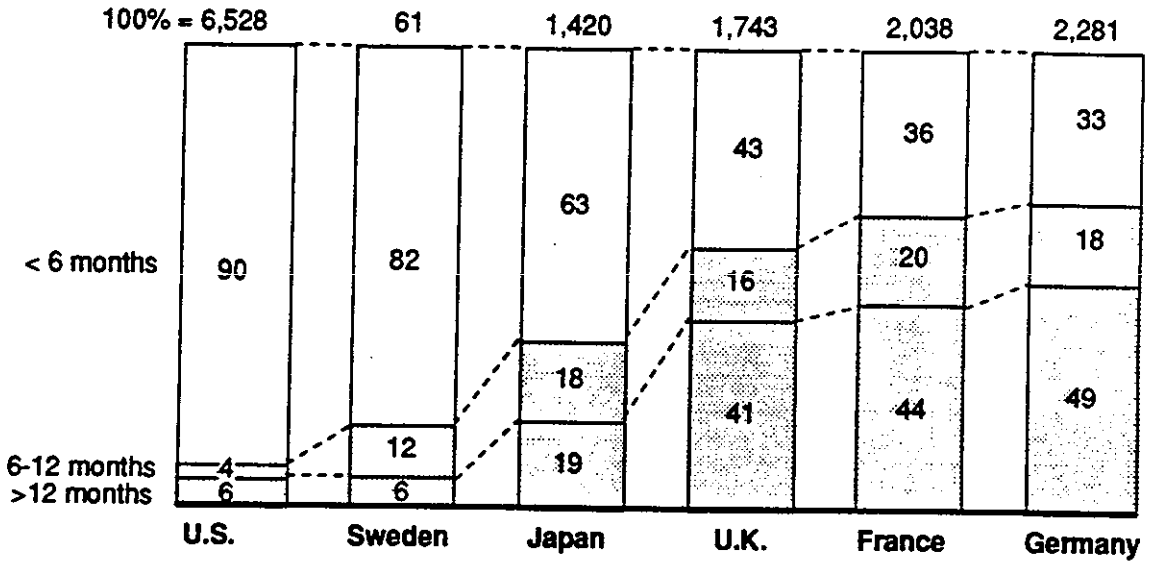
Productivity and Competition

As we described in Chapter 3, openness to competition is probably the most important causal factor differentiating the service sectors in the U.S., Europe, and Japan. Other significant factors are discussed there as well. To some extent, the ongoing opening and extension of the European market to services as well as goods

Exhibit 4 - 4

DISTRIBUTION OF UNEMPLOYMENT BY DURATION 1989

Thousands of people



Source: OECD Employment Outlook 1991

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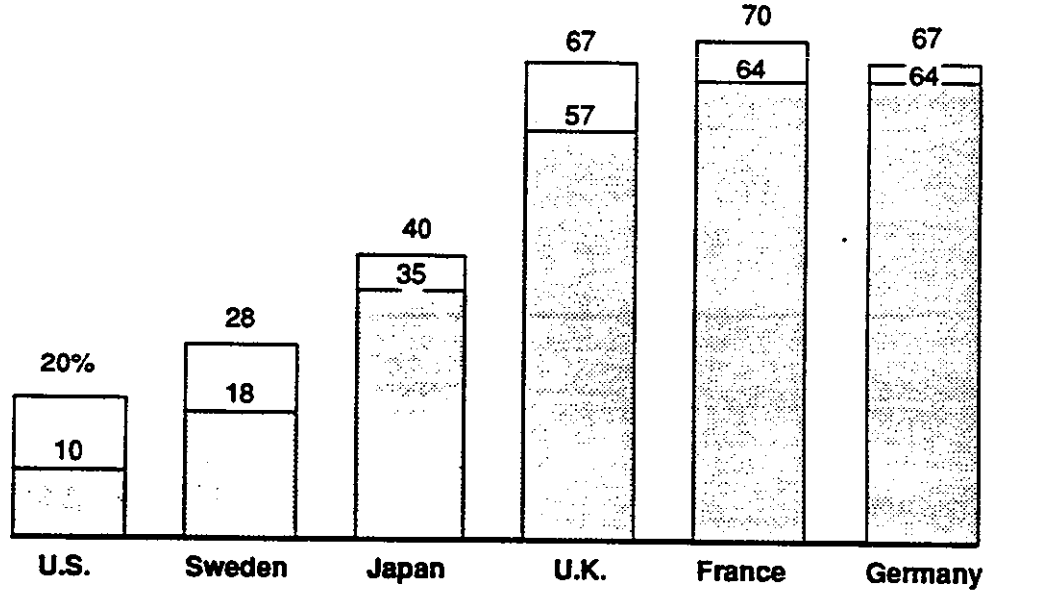
Exhibit 4 - 5

VARIATIONS IN LONG-TERM UNEMPLOYMENT* 1984-89

Percentage of total unemployment



* Defined as unemployment of 6 months or more

Source: OECD Employment Outlook 1991

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will automatically provide an intensification of competition. In some cases this may allow an increase in scale to companies that can successfully expand into newly-accessible markets at all. Others will lose market share and eventually be displaced, possibly by rivals based in other countries, or based in no particular country at all. Our preliminary finding is that economies of scale are not the main vehicle for productivity increase in service industries. A more important effect may be the expansion of firms with the flexibility and aggressiveness to innovate. In some cases the spur of more intense competition may be enough to transform firms that have used dominance of a local market as a way to evade the need to increase productivity. In other cases, passive firms will fall by the wayside.

This process can be accelerated and made more complete by changes in public policy. Formal and informal regulations, and formally and informally enforced practices, are an important part of the environment in which services are produced and marketed and from which firms get their incentives. Nations, and the service-producing businesses resident there, will be better placed to increase productivity and at least have an opportunity to profit from that increase, if the public policy environment is more suitable to the sort of competitive flexibility that seems to be favorable to productivity advance, in the sectors we have studied.

The concrete policy proposals implied by this general statement may differ from place to place and sub-sector to sub-sector. In general, however, our studies suggest that the important elements are: (a) the reduction or elimination of barriers to entry that now characterize certain state-owned (airlines) or merely closely-regulated service industries, (b) the relaxing of regulations that severely limit the ability of competing firms to redeploy labor and other resources when that is necessary to adapt to new technologies of changed markets, (c) the easing of restrictions that work against the capacity of service-producing firms to take advantages of economies of scale where they exist, and (d) the imposition and enforcement of prohibitions of anticompetitive behavior on the part of business firms themselves, through market-sharing, price-fixing agreements, and the like.

Other laws and regulations that have the effect of lessening competition to entrenched firms (and thus restricting the possibilities available to up and coming firms) may serve other social purposes. This may be so for restrictions on land use, for some environmental regulations, and, of course, for health and safety regulations. Once again, this situation calls for some creative social engineering designed to achieve the desired goals in ways that are more compatible with open markets and competitive pressures.

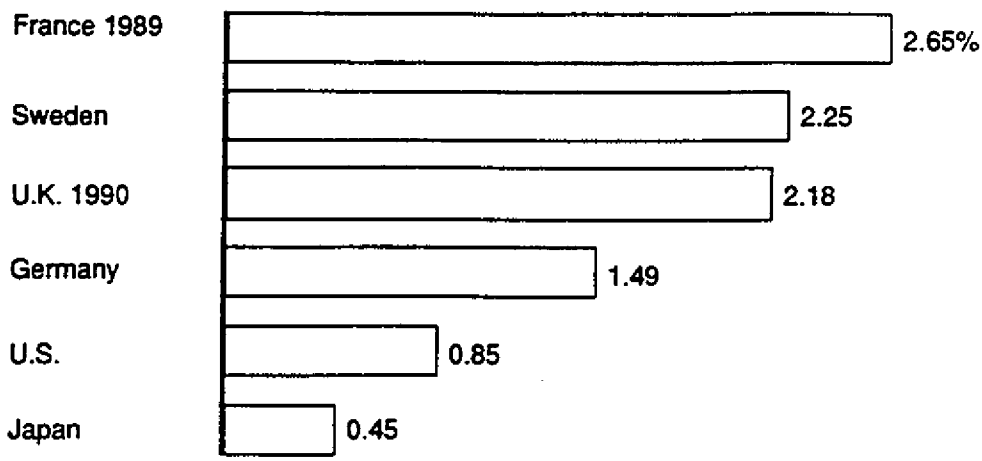
Competition and Labor Market Flexibility

Much more than this is required. As discussed earlier, many of the policies and practices that limit competition serve some other desirable end. This is most obvious in the case of the labor market. The ability to lay off unneeded workers is certainly a major advantage to a labor-intensive, service-producing firm trying to

Exhibit 4 - 6

PUBLIC EXPENDITURE ON LABOR MARKET PROGRAMS 1990-91

Percentage of GDP



Source: OECD Employment Outlook 1991

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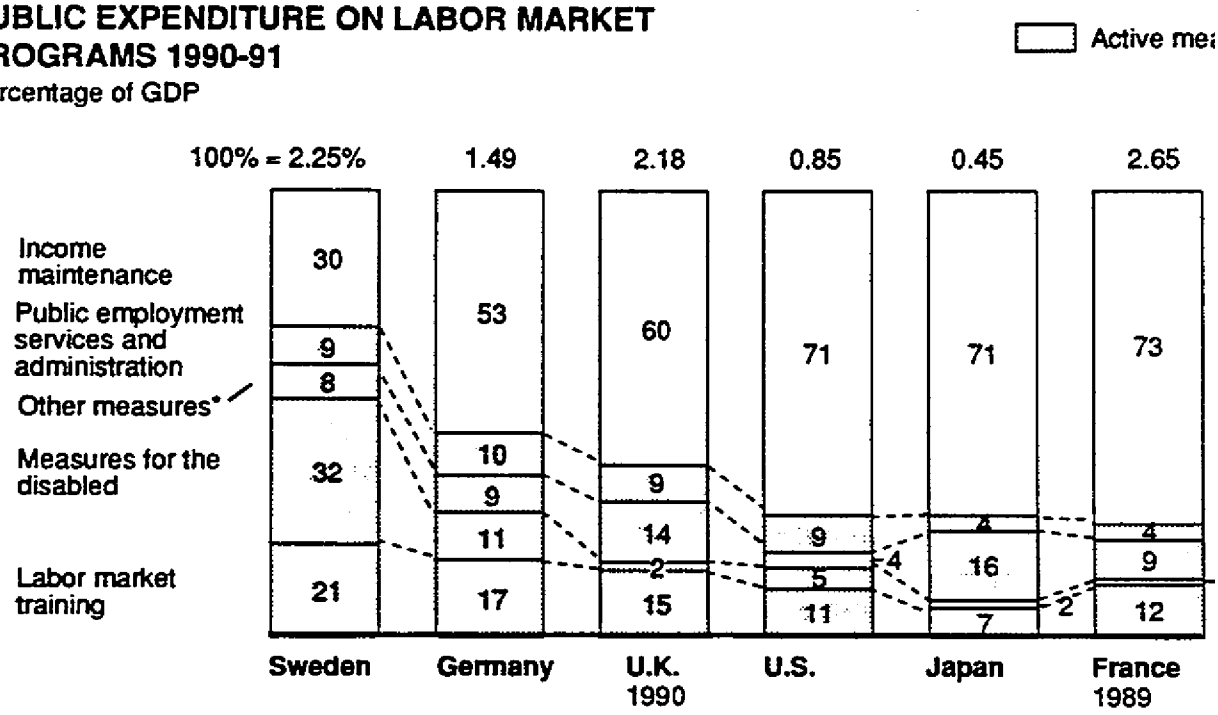
Exhibit 4 - 7

PUBLIC EXPENDITURE ON LABOR MARKET PROGRAMS 1990-91

Percentage of GDP



* Youth measures, subsidized employment

Source: OECD Employment Outlook 1991

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adapt to a changing environment. Even if it can be shown to be advantageous to the "economy as a whole," it is just the opposite to the workers who lose their jobs. There is no particular justice in inflicting the costs of uncertainty and change on individual workers. (No convincing case has been made that they are compensated for bearing this risk by higher wages, especially not in soft labor markets.) It is moot whether a more flexible and mobile labor market would tend, on the average, to have a higher or lower unemployment rate. More turnover tends to raise unemployment rates, but too little flexibility may do the same, for two reasons. It works against productivity gains; that is why we are discussing the issue at all. More subtly, the knowledge that they cannot discharge unneeded workers makes firms less willing to hire them in the first place; part of the cost of hiring is the expected cost at the other end.

The moral of this story, we believe, is not that policy should give up on labor-market flexibility. It is that any such policy must realistically be part of a package that compensates for the loss of job security in some other way. The components of such a package might include, in varying proportions, large-scale retraining programs financed and operated jointly by government and business, generous unemployment-insurance benefits, especially during retraining and until a new job has been offered, and a serious commitment to the maintenance of high employment in the economy at large. It should be remembered that workers may have a substantial investment in their skills, perhaps the largest investment they have. Unlike many other forms of investment this one is not diversifiable. If there is to be insurance, it will have to be provided by society in practice.

We do not have a detailed, new concept of a policy which emphasizes labor-market flexibility while compensating for the loss of job security. However, we can learn from existing labor-market policies in some European countries about the features this system could combine. On the supply side of the labor market, the two most obvious failures are, first, the slowness with which displaced labor is retrained and redeployed to new occupations and industries and, second, the occasional mismatch between the skills of new entrants to the labor force and those required in the available entry-level jobs. Some hints about effective labor-market policies can be gleaned from the experience of European countries. We mention particularly Sweden for its employment policies and (West) Germany for its job training programs.

- ¶ The main feature of Swedish labor-market policy is its emphasis on training and other measures to speed re-employment of displaced workers. Exhibits 4-6 and 4-7 show that while Sweden's total public expenditure on labor-market programs as a percentage of GDP is about the same as in other European countries (and much higher than in the U.S.), it spends much more on active measures and much less on income maintenance.

Moreover, public employment services and administration play a more active role in Sweden than in other countries. Sweden's labor exchange is more centralized: all vacancies and planned lay-offs have to give notice. The unemployed are often assigned to training programs and if a job cannot be found within 6 months, employers are offered a 50 percent wage subsidy for the first 6 months of employment. In case these incentives fail, the unemployed are entitled to unemployment benefits for 300 days. After that, 6 months of employment in the public sector is offered as a last resort.

The main benefit of the Swedish labor market model is that it keeps the unemployed in touch with the labor market. This improves their chances to find another job while the threat to cut their benefits if they show no willingness to work ensures the incentive to find a job. There are certainly drawbacks to this model and the expansion of the public sector is one of them. However, we think that the active labor market policy in Sweden gives some good examples for what can be done to ease the pain of individuals and to tackle the problem of long-term unemployment should productivity increases lead to lay-offs and a higher inflow of unemployed.

¶ The main lesson to be learned from the German experience is different. The emphasis comes during the initial transition from school to work. The large part of each age group that will not go on to a university degree is provided with several years of combined education, training, and apprenticeship. Time is divided among classroom education, on-the-job training, and paid work. Many graduates find initial employment with the firm in which they have done their apprenticeship.

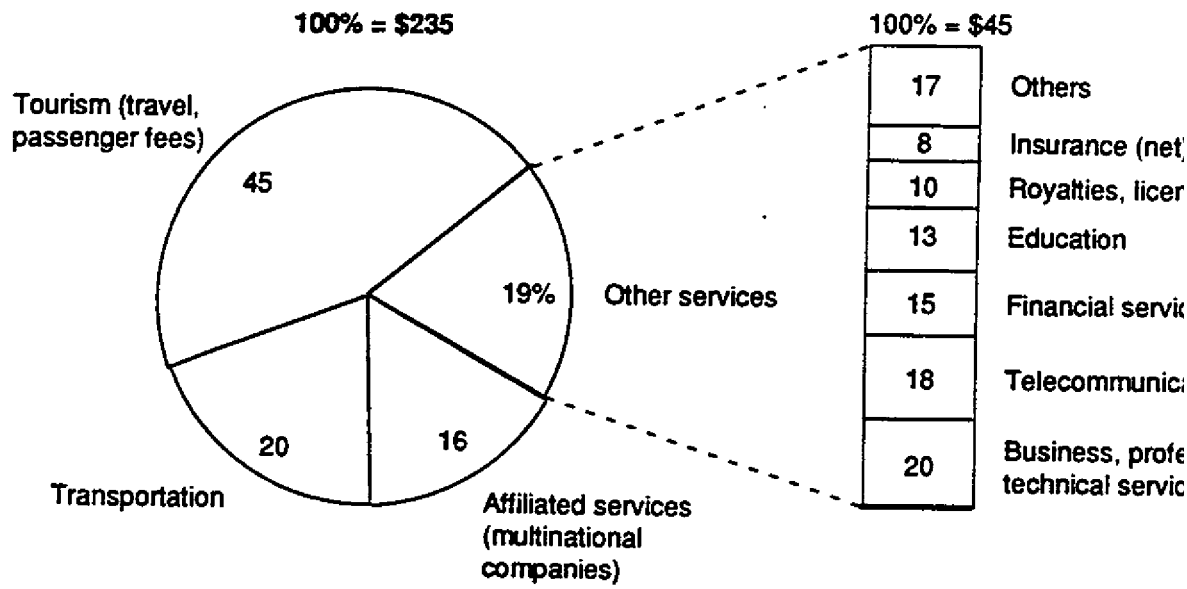
The advantage of this system, as compared with a school-centered vocational education, is that participants learn skills that are actually in demand. In doing so, they have an opportunity to establish their suitability for employment. One of the keys to the success of the German system is the apparent high level of cooperation between business firms and schools. Firms participate in the structuring of a school curriculum that provides the background for productive work; and schools participate in training.

These are intended only as examples of what can be accomplished by active labor-market policies. In other institutional and cultural settings, other policies might be more acceptable and more effective. Institutional innovation is far preferable to policies that preserve jobs at the expense of productive innovation.

Exhibit 4 - 8

U.S. TRADE VOLUME IN SERVICES (EXPORTS & IMPORTS) – 1990

$ Billion



Source: BEA, Survey of Current Business, June 1992

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Trade And Foreign Direct Investment As Opportunities For Service Industries

Our findings about productivity in the service industries also have implications for trade policy and policy on direct foreign investments. If trade in services and trans-border investments are free, individual companies and industries have the opportunity to exploit their productivity advantage in services by selling or expanding abroad. The more productive companies can profitably increase output and employment; consumers can benefit from better or cheaper services. In the case of service exports, income and jobs are created in the exporting country. If the advantage of higher productivity is exploited by foreign direct investment, income and jobs are created in the importing country.

As discussed in Chapter 1, trade in services is not unimportant. It is a major positive contributor to the current account of the U.S. but other countries are profitable exporters as well. Nevertheless trade in services is limited by the nature of the product (Exhibit 4-8). The consumer must often come to the "exporting" country, as with tourism and education. Some services are linked to the movement of physical goods (as with harbor services) or information (telecommunications). The category of affiliated services between multinational companies is again based on foreign direct investment. The remaining trade in business and financial services is relatively small and probably limited in its scope for growth. Nevertheless we believe that policy should seek free trade in services; the current GATT round at least points in the right direction.

Exploiting competitive advantages from higher productivity through foreign direct investment can take diverse forms. Some European firms have undertaken direct investment in the U.S. primarily for the purpose of acquiring and learning innovative ways of doing business which can then be transferred to the home country. Migration of management is another way to transfer technology. In any form, the process requires that capital markets and markets for corporate control be open and that formal and informal barriers for foreign companies to set up operations in another country are not prohibitive. Moreover, it requires skills in multinational management and the will to "go global." Policy can and should aim at freedom of market entry through foreign direct investment. We expect that the skill and will of management to globalize will follow. As a result there will be winners on every side. Companies that go abroad will gain knowledge, experience and scale. Customers will get access to better services. And foreign operations will create income and employment in the countries in which they operate.