Objectives and Approach

Since the burst of the bubble in the early 1990s, Japan's economy has shown little sign of recovery. Throughout the 1990s Japan's real GDP growth averaged only 0.6%, leaving GDP per capita in Japan at 77% of the US level in 1999 (Exhibit 1). Aggregate demand has remained low despite enormous fiscal injections by the government resulting in a debt level of almost 120% of GDP in 2000 in Japan compared with around 60% in the US and Germany. Savings remain high despite near zero interest rates, presumably driven by anxiety relating to employment conditions and worries about the pension system and elderly care. Although the government made announcements of serious deregulation in the mid 1990s, its commitment to following through on these plans is increasingly being questioned.

OBJECTIVE OF THE STUDY

The purpose of this study is to understand the reasons for Japan's dismal economic performance in the 1990s and help policy makers prioritize reforms. To do this, we analyze Japan's output and productivity gap relative to the US.

The main focus of our work is to build a microeconomic understanding of performance differences through four detailed sector case studies. We first benchmark the productivity performance of Japanese industries relative to the best performing economies in the world. Then we seek to understand the main barriers to productivity improvements and productive investments. By synthesizing the case studies, we draw conclusions on the actions needed to improve Japan's economic performance in the future. In doing this, we will focus on the policy actions needed to start Japan's growth without incurring unsustainable levels of unemployment.

Productivity growth is the key determinant of GDP growth. More efficient use of resources to create value allows the economy to provide lower cost goods and services relative to the income of domestic consumers and to compete for customers in international markets. This in turn raises the nation's material living standards. Productivity growth is also a key determinant of higher profitability (see Box 1: Productivity and Profitability). To start the virtuous circle leading to higher standards of living and improved profitability, we seek to identify concrete actions that the Government and businesses can undertake to raise productivity in different industries.

Japan's economic performance has long been a focus of attention for both academic literature and the press. The main debates center on the role of restructuring, the effect of disruptions in the financial system on the economy and the potential for growth of aggregate demand. But these debates have focused on Japan's aggregate performance and have failed to reach a conclusion. Given this failure, we believe that a systematic analysis of the barriers to productivity improvement in a representative set of sectors is likely to be key to understanding the nature of Japan's economic problems. This report aims to fill this void.

The emphasis of our work is on factors that determine Japan's economic potential in the medium and long term. We do not address the short-term macroeconomic factors that may affect the degree to which Japan achieves that economic potential. Given the failure of traditional macroeconomic remedies to start sustained growth in Japan, our starting hypothesis is that structural barriers, most likely microeconomic in nature, must be limiting Japan's economic potential. While we recognize that higher material living standards are only one of many policy goals that a government can have, the policy implications which we draw from our findings reflect our belief that higher productivity and output levels provide the opportunity to use resources to address social challenges more effectively.

APPROACH OF THE STUDY

The approach used in this study is based on the methodology used in previous McKinsey Global Institute (MGI) reports. First, we review the data on the country's aggregate performance as well as the existing literature. Second, we use industry case studies to highlight economic barriers that explain the performance of different sectors. Finally, by looking at common patterns across our industry case studies, we identify the main barriers preventing Japanese managers / owners from increasing productivity in their sectors.

Aggregate analysis

The first chapter is an evaluation of Japan's past economic performance based on aggregate data and relevant literature. This analysis of the main factors that have contributed to Japan's past productivity, output and employment performance coupled with a comparison of the US, provides a point of departure for our case studies.

Sector case studies

The core of the research project is four detailed industry case studies. In each we start by measuring the productivity gap between Japan and the benchmark country. We then analyze the sector to understand how Japanese

operations differ from world benchmarks and the reasons for the different choices Japanese managers have made. By developing a deep microeconomic understanding of industry operations, we are then able to draw conclusions on the relative importance of the external factors affecting managers' decisions. In doing this, we focus on the barriers that are preventing productivity growth in the use of existing assets as well as the factors that are limiting investment in new productive capacity.

Our sectors are selected to represent a significant share of the economy (Exhibit 2). They cover 22% of total employment in Japan. More particularly, they are all chosen from the domestically oriented part of the Japanese economy. It is unlikely that structural micro economic barriers are limiting Japan's economic potential in the sectors of the economy where Japan leads the world in export performance. The food processing case is an example of a light manufacturing industry. Residential construction represents a domestic sector with a large employment component. In the service sector, we studied retailing and healthcare.

Each of the sector cases follows the same sequential analytical process that starts with a measurement of the Japanese industry's current productivity level relative to world benchmarks (see Box 2: Interpreting Global Productivity Benchmarks). Then we generate and test hypotheses on the causal factors that explain the observed gap.

- **Measuring productivity.** Productivity reflects the efficiency with which resources are used to create value in the marketplace. It is measured by computing the ratio of output to input. We first define each industry in a consistent manner in Japan and the comparison countries, making sure that our industries include the same parts of the industry value chain. We then measure the sector's output using measures of Purchasing Power Parity adjusted value added or physical output. The labor inputs are measured as number of hours worked, and capital inputs (used in the food processing and healthcare cases) as capital services derived from the existing stock of physical capital (see Appendix A: Measurement of Output and Productivity).

  Given the lack of reliable statistical data in some sectors, we complemented official information with extensive interviews with customers, producers, and regulators (see Exhibit 3). This methodology was particularly helpful in deriving bottom-up productivity estimates in residential construction and healthcare, where traditional sources of information are particularly unreliable and incomplete. Finally, we also conducted interviews in different cities in order to account for regional performance differences.

- **Generating and testing causality hypotheses**. To explain why levels of productivity in Japan differ from the benchmarks, we start by generating a set of hypotheses on the possible causes. In this

phase, we benefit from McKinsey's expertise in many industries around the world, as well as from the expertise of industry associations and company executives in both Japan and the comparison countries.

We use a systematic framework to explain productivity differences across countries that captures the major possible causal factors. This causal framework has three hierarchical layers of causality (see Appendix B: Framework Definition):

- Differences observed at the production process level
- Factors arising from industry dynamics
- External factors that explain why the choices of Japanese companies differ from those in the comparison countries.

The hypotheses are tested with further fact based analyses and plant visits that allow us to conclude with an assessment of the relative importance of the causal factors in explaining the productivity difference in each sector.

Synthesis

Having identified the causal factors for each industry, we compare the results across industries. The patterns that emerge allow us to draw conclusions about the causes of the aggregate productivity gap between Japan and the comparison countries, as well as about the level to which productivity can rise when the external factors are changed. We then use this information to estimate the potential rate of productivity growth that would occur in different sectors if these external factors were removed as well as the foreign direct investment that would result from it. Simultaneously, we also assess, based on the actual experience of other countries, the future potential rate of output growth of Japan's main economic sectors. Finally, we combine these labor productivity and relative output growth estimates to derive the employment implications of sector economic reforms, suggesting which ones should be tackled first to start economic growth without incurring unsustainable levels of unemployment.

Appendix A: Measurement of Output and Productivity

Productivity reflects the efficiency with which resources are used to create value in the marketplace. We measure productivity by computing the ratio of output produced in a year to inputs used in that production over the same time period.

Output (Value Added)

For a given industry, the output produced differs from the traditional notion of sales. Sales figures include the value of goods and services purchased by the industry to produce the final goods or services. In contrast, the notion of value added is defined as factory-gate gross output less purchased materials, services, and energy. The advantage of using value added is that it accounts for differences in vertical integration across countries. Furthermore, it accommodates quality differences between products, as higher quality goods normally receive a price premium that translates into higher value added. It also takes into account differences in the efficiency with which inputs are used.

GDP can be seen as a value added concept of output. In many cases, output is not homogeneous; the GDP of a country is made up of many thousands of different goods and services. The GDP of a country is the market value of the final goods and services produced. It reflects the market value of output produced by means of the labor and capital services available within the country.

In case studies for retailing and food processing we used the value added measure of output. One complication arises from the fact that value added is not denominated in the same currency across countries. As a result, this approach requires a mechanism to convert value added to a common currency using Purchasing Power Parity (PPP) exchange rates, a topic which is discussed separately below. In residential construction where value added data was not available, we used the adjusted physical production as a measure of output.

Purchasing Power Parity (PPP) exchange rate

To convert value added of different countries to a common currency, we use PPP exchange rates rather than market exchange rates. PPP exchange rates can be thought of as reflecting the ratio of the actual costs of purchasing the

same basket of goods and services in local currencies in two countries. The PPP exchange rates are constructed 'bottom up' by comparing the actual market prices of comparable goods and services across countries, and then aggregating the individual prices up to a 'price' for sector-specific baskets and finally the total GDP.

The reason for not using the market exchange rate is because it reflects international transactions alone; it cannot reflect the prices of non-tradable goods and services in the economy. Furthermore, comparisons made on the basis of market exchange rates would be affected by fluctuations in the exchange rate resulting from, say, international capital movements.

For our aggregate survey, retailing and food processing cases we use PPP exchange rates reported by the OECD. However, these PPPs are unreliable for healthcare therefore we constructed our own. Details of this calculation can be found in Appendix C of the healthcare case.

Finally, we adjusted our PPPs to exclude sales tax and we accounted for different input prices in order to obtain a Double Deflated PPP which is the PPP exchange rate ultimately used in our value added comparisons.

Inputs

Our inputs consist of labor and capital. Labor inputs are the most straight forward to measure: we seek to use the total annual number of hours worked in the industry by workers at the plant site. When actual hours are not available, we estimate labor inputs by multiplying the total number of employees by the best available measure of average hours of work per employee in the sector.

In the food processing and healthcare cases we also measured capital inputs. The heterogeneity of capital makes measuring capital inputs more difficult. Capital stock consists of various kinds of structures (such as factories) and equipment (such as machines, trucks, and tools). The stock is built up incrementally by the addition of investment (business gross fixed capital formation) to the existing capital stock. Each piece of capital provides a flow of services during its service life. The value of this service is what one would pay if one were leasing this piece of capital and this is what we use as our measure of capital inputs.

Once we have measured capital stock, we construct our capital service measures using the Perpetual Inventory Method (PIM). We based our estimates on US service lives for structures and equipment. Although ideally we would have liked to measure the capital inputs in each of our case studies, we concentrated on the food processing due to data availability. For the remaining case studies, capital was treated as a causal factor in explaining labor productivity.

Appendix B: Framework Definition

The framework for synthesising the explanatory factors for the productivity performance in each industry is summarised in Exhibit B1. The various elements of the framework are further described below. Illustrations of possible barriers are also presented under some of the subheadings, both in order to facilitate the understanding of the relevance of each point and in order to introduce some of the barriers that are presented in the later discussions.

Production process

The first set of factors affecting productivity arises at the production process level. These can be grouped into product mix/marketing, production factors and operations. Production process factors in the framework are jointly determined by elements of a firm's external environment beyond its control and decisions made by its managers.

- ***Product Mix/Marketing***. Countries may differ in the categories of products they demand or supply, and a productivity penalty can arise if a country's output consists of a higher share of inherently less productive product or service categories. Within product categories, countries may differ in the quality of products they produce. Production of higher value added products or services using similar levels of inputs is reflected in higher productivity. Another source of productivity differences within product categories is differences in product proliferation. A wide range of product or service lines can reflect a sub-optimal product mix that reduces productivity. Finally, both within the manufacturing sectors and in services, design can influence which technology might be applied. Design changes might simplify the production process and improve productivity.

- ***Production factors***

  - **Capital intensity/technology.** We use capital in the sense of physical assets and their embodied processes (e.g., machines, plants, buildings, and hardware). Capital can influence labor productivity in two ways. First, 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 higher labor productivity. Second, a more technologically advanced stock of capital should also enhance labor productivity.

- **Scale.** Higher production scale is generally expected to lead to increased productivity.

- **Labor skills and trainability.** This refers to the current and potential skill exhibited in the pool of labour from which a company chooses employees. Firms can either train employees from scratch, which takes time, or employ ready trained workers.

¶ ***Operations***

- **Organization of functions and tasks.** This is a broad category encompassing the way in which production processes and other key functions (product development, sales, marketing) are organized and run. It reflects managerial practices in most areas of the business system as well as the structure of incentive systems that employees and companies face.

- **Design for manufacturing (DFM).** DFM is the adoption of efficient building design by using an optimal site layout, then using standard, interchangeable and cost competitive materials

- **Supplier relations.** Suppliers can contribute to industry productivity by efficient delivery processes, by collaborating in product development or by providing products or services that facilitate production (e.g. special trade in residential construction). It also includes productivity penalties due to lower quality and fluctuations in the delivery of inputs.

Industry dynamics

The competitive pressure in the industry influences the pressure on management to adopt best practices in the production process. We include two types of factors: domestic competitive intensity, and exposure to best practice.

¶ **Domestic competitive intensity.** Differences in the industry structure and the resulting competitive behavior of domestic players. Other factors being equal, more competitive industries will put more pressures on managers to adopt more productive processes.

¶ **Exposure to best practice.** Includes competitive pressures from foreign best practice companies either via imports or through foreign direct investment.

External factors

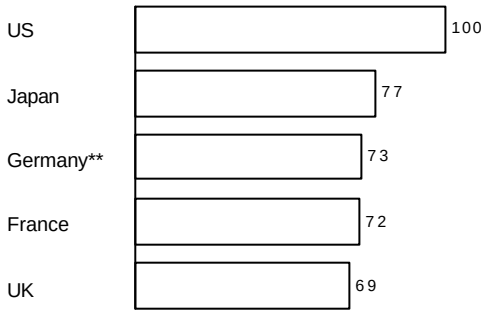
The external barriers on managers can be divided product market, capital market, labor market, land market / taxes, related industries and consumer

preferences. These factors are mainly outside the control of firms but influence how they operate.

- ***Product market.***
  - **Product regulations.** Regulations prohibiting or discouraging certain products or service offerings (including regulations on pricing) can reduce or eliminate high-productivity production. Product market regulations can also limit or distort competition by protecting or favoring incumbent companies.
  - **Trade/FDI barriers.** Tariff and non-tariff barriers to trade or foreign direct investment (FDI) can reduce the competitive pressure on an industry and allow low productivity to persist.
  - **Product pricing information.** Comprehensive information on prices is a very basic requirement for any market to function well. To ensure the availability of this data, the government must sometimes intervene by requiring public disclosure.
  - **Standardization.** Although many firms and consumers benefit from standards, individual firms often do not have a sufficient private incentive to take action to promote a standard. On the grounds that there is a socially insufficient amount of investment in standardization, government intervention is often required.
- ***Capital market***
  - **Corporate governance rules.** The extent to which management is exposed to pressure from owners, shareholders or creditors can influence the rate at which productivity is improved.
  - **Financial system.** Inefficient allocation of resources across sectors and firms will distort the ability of the market mechanism to reward productive firms.
- ***Labor market.*** Labor regulations may influence the possibility of implementing productivity improvements (e.g. strict immigration policies make it difficult to import skilled labor).
- ***Land market/taxes.*** Distortions resulting from the tax system or regulations relating to land use can prevent efficient use of land.
- ***Related industries.*** Supplier or downstream industries can hamper productivity by reducing the competitive pressures on the industry players. An underdeveloped upstream industry can also impose significant productivity costs on its clients by not providing products or services that facilitate production or by delivering outputs with lower quality and/or at high fluctuations.
- ***Consumer Preferences***. Japan and its comparison countries may differ in the structure of consumer demand they face as a result of

varying climate, income distribution, or traditional consumption patterns. This influences the product mix demanded in the marketplace, which in turn can affect the value of the total output and thus productivity.

Exhibit 1
GDP PER CAPITA OF SELECT G-7 COUNTRIES
1999 at PPP



* Converted at GDP purchasing parities
** Unified Germany (former West Germany and former East Germany)
Source: OECD

Box 1

PRODUCTIVITY AND PROFITABILITY

Within any given market, a firm that is more productive will enjoy higher profitability, unless it suffers from some other source of cost disadvantage. A more productive firm will either produce the same output with less inputs and thus enjoy a cost-advantage, or produce better output with the same inputs and thus enjoy a price-premium.

Over time, the higher profitability of productive firms will attract competition. As competitors catch up in productivity, profitability will tend to converge. In such an environment, the only way a firm can enjoy higher profitability is by pushing the productivity frontier beyond its competitors. If, as a result, the firm achieves higher productivity, it will enjoy higher profitability only until its competitors catch up again. In another words, profitability, in a dynamic world, is a transient reward for productivity improvements.

While a more productive firm will enjoy higher profitability within a given market, this may not be true for firms operating in different markets, for two reasons. First, higher cost of inputs may deem a productive firm in one market unprofitable, while a less productive firm in another market with lower cost of inputs may be profitable. For example, a US firm may be more productive but less profitable than a Japanese firm because US wages are higher. Second, competitive intensity may differ across markets so that a productive firm in a highly competitive market may be less profitable than an unproductive monopolist or oligopolist in another market. For example, in the 1980s European airlines enjoyed higher profitability than their more productive US counterparts because they faced much less price competition.

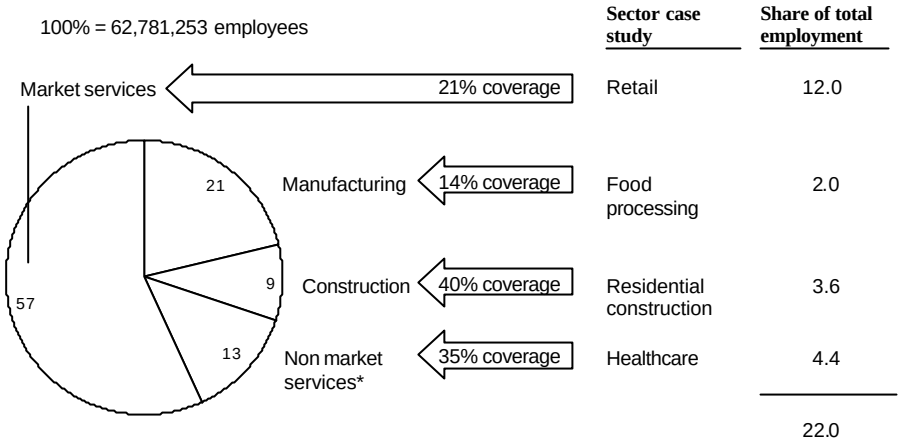
However, deregulation and globalisation are eliminating distinctions between national markets. As barriers are removed, productive firms will enter markets with unproductive incumbents. This could take the form of exports if the goods are traded. While cheap input prices may temporarily shield unproductive incumbents in the importing country, those input price differences are not sustainable in the long run. The cost of capital (a key input price) is converging internationally, and wages (the other key input price) will eventually catch up with productivity (so that no country can enjoy both low wages and high productivity in the long-run). The other form of market entry for productive firms is foreign direct investments. In this case, productive transplants will face the same input prices as unproductive incumbents, and will therefore enjoy higher profitability.

In sum, as markets liberalise and globalise, the only sustainable source of higher profitability for a firm will be to continually raise productivity higher than its competitors.

Exhibit 2

SECTOR COVERAGE OF JAPANESE ECONOMY: 1996

Percent; share of total employment



Sector case study	Share of total employment
Retail	12.0
Food processing	2.0
Residential construction	3.6
Healthcare	4.4
	22.0

* Government services, education, healthcare services

Source: Management and coordination agency

Exhibit 3

McKINSEY GLOBAL INSTITUTE'S INDUSTRY STUDIES IN JAPAN: NUMBER OF INTERVIEWS

Industry	Interviews
• Food processing	26
• Retail	20
• Residential construction	41
• Healthcare	50
Total	**137**

Source: McKinsey Global Institute

Box 2

INTERPRETING GLOBAL PRODUCTIVITY BENCHMARKS

To assess the performance of Japanese industries, we compare their labor productivity with those of the best performing countries in the world. This benchmark allows us to measure how efficient Japanese companies are in the production process relative to their potential. The use of comparison countries allows us also to identify the reasons for the productivity gap through a detailed comparison of production process and other business practices between Japan and the benchmark country.

The global benchmarks should not be perceived as a measure of maximum possible productivity level however. At any moment of time, there are individual companies with productivity levels above the average of the best performing country. And over time, the global benchmark rises as individual companies continuously improve their productivity. So while the benchmark productivity level can be interpreted as a realistically achievable level of efficiency, it should not be seen as a limitation.

Independent of the global benchmark for any specific sector, we have chosen to express all of our productivity measures in consistent units defined relative to the US average productivity level. The US has the highest real income level among large countries, which makes it the benchmark for the level of total GDP per capita. While there may be some exceptions to this rule at the level of specific industries, we believe that using a consistent benchmark unit helps the interpretation of productivity gaps in individual industries and facilitates performance comparisons across them.

Exhibit B1

CAUSALITY FOR PRODUCTIVITY DIFFERENCES