# Closing the Productivity Gap Between East and West Germany

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## Introduction

The opposing economic philosophies of capitalism and communism collided on October 3, 1990, with the official economic and monetary unification of the Federal Republic of Germany (West) and the German Democratic Republic (East). The effects since then have included crises of unemployment, mass plant closings, enormous transfer payments, and pessimism in the recently-unified Germany.

Addressing the economic problems which Germany has faced since its reunification is a complicated task involving numerous economic and political factors. Some of these include the effects of the rapid privatization of the East German economy, the revaluation of the East German currency to the level of the strong West German deutsche mark, and the wage parity which has forced companies operating in East Germany to pay inflated West German wages to the less skilled, undereducated, and comparatively inefficient East German workers. But to fully understand the current German economic crisis it is critical to examine the productivity differences between the East and the West.

The unification of Germany has fused two completely dissimilar economic and political systems with different abilities to produce. West Germany was a nation of well-educated workers in a capitalist system which fostered industrial growth and provided enormous incentives to achieve high levels of quality and efficiency. Within a couple of decades, West Germany had become one of the strongest economic powers in the world, and it had earned a reputation for reliable products and state-of-the-art technology. Meanwhile, the formerly productive and highly-skilled workforce of East Germany had been burdened under socialism with restrictions, bureaucracy, and an inability to access Western technology and markets. The requirement under the communist regime to achieve a fully-employed labor force forced firms to hire more people than were needed, which heightened bureaucracy and decreased efficiency. The restrictions of the East German government severely limited the ability of firms to replace obsolete machinery and to conduct research and development. Thus, East Germany's economic growth, while favorable among the Eastern Bloc nations, was low compared to those of Western economies.

Since unification, the merger of these economies has brought unemployment and business closures. One reason was the privatization of East German firms by the Treuhand agency. This bureau was created by the German government to find investors for East German firms previously owned by the state. The Treuhand was able to sell nearly all of these companies, but the process cost millions of jobs and billions of marks. In general, neither these firms nor their workers had been able to compete with their counterparts in the West.

In this essay, I analyze the causes of the productivity gap between East and West Germany. I also show

recent progress and present trends with an emphasis on what has been done to bring the industrial base and the economy of the East up to the level of the West. Although the problem is far from being resolved, it is important to examine what goals the government has set, the solutions that have been proposed, and what the outlook is for the future of German productivity.

## Perceptions of German Industry

Until recently, in most of the Western world German industry has been thought of as synonymous with the West German capitalist industry of the last fifty years. Indeed, the former Federal Republic of Germany built a reputation for being the model of education and skills-training with grand scientific facilities, a high research and development commitment, and a strong export-minded array of medium-sized companies known as Mittelstand. (Templeman et al., p. 66) Its economy grew steadily after the end of World War 11 and into the 1980s, despite strict anti-inflationary economic policies. West Germany has traditionally had the world's strongest currency, and in 1994 held an $81 billion trade surplus, with most exports going to Western Europe and about 8 percent to the United States. West Germany has also been known for its labor laws and strong unions which protect the standard of living. Its people have enjoyed one of the world's highest average wage levels, shortest work weeks, and longest vacations. Germany's social welfare system (health care, retirement pensions, and child care) has also been considered to be among the world's best. (Conwell, p. Bl)

East Germany had likewise been an economic powerhouse. With the strongest economy of the Eastern Bloc countries, it enjoyed nearly full employment and was considered by many to be history's most successful socialist state. Again and again its leaders would refine its "planning mechanism" (a kind of economic constitution which defines the distribution of resources and revenue) to restrengthen the system upon encountering economic obstacles. (Bryson, p. 22) It had all the benefits of a skilled, low-cost workforce which was producing efficiently enough to satisfy the steady demand of the Soviet market.

## Productivity

Productivity is a vague and often misunderstood term. Its measurement can be even more confusing since there is no single standard method or unit to consistently define it. In general, however, it is the ability to produce goods or provide services effectively. It is the economic value created from a conversion of resources - labor, energy, materials, and capital. This often means the quantity of products and services or gross tonnage of output per employee or per man-hour. It may also include the value added by a process or firm. Thus, the focuses of productivity are throughput, efficiency, and value added. Although various measurement methods may weigh these components differently, increases in any of these factors are thought to have a positive influence on productivity.

Defining productivity as an overall level of efficient production is much less difficult than trying to measure it accurately. Often a measure of physical productivity is used, which is defined as the output per employee. However, this does not include the complexity of the item, the costs of production, the age of the equipment, the skill level of the workers, the degree to which automation is used to replace some employees, and the number of employees a firm has who are not direct producers, such as staff, supervisors, or researchers. Economic productivity deals more with sales per employee in currency units, or the value added per employee. (Carr pp. 80-84) It is important to note that none of these measures includes any direct consideration of quality, whether subjective (such as customer satisfaction) or quantitative (such as the number of defects per one thousand units).

Thus, a universal index of productivity as a standard to which all producers can relate their processes

does not exist. Despite this, one will often see comparisons such as "Country A was 40 percent more productive than Country B." This does not necessarily mean that workers generally work harder in Country A, or that plants and factories in Country B are not operating as efficiently as they could. Country B might not have sufficient natural resources, so its input costs are higher. Also, its firms may focus more on quality than throughput; or maybe demand is less in Country B so its sales are lower.

These are precisely the types of problems which arise with comparisons of productivity for different industries in different locations. But manufacturers, engineers, and businessmen who study this subject seem to feel that, if one collects enough data on as many different variables that can be enumerated and combines them all in some complex way, one just might be able to figure out how efficient one company, industry, or economy is in comparison to another. Such comparisons will be given for differences among the production capabilities of East and West German firms in this essay. But readers should keep in mind that it is important not to concentrate on the precise quantitative differences, but rather on their causes.

## Productivity in Germany before Unification

### West Germany

West Germany's rapid, post-war recovery during the 1950s and 60s was known as the Wirtschaftswunder or "economic miracle." During the first forty years after World War II, West Germany's commitment to state-of-the-art technology and research and development helped propel it to the ranks of the top three world economies.

Over the course of the last ten years, however, German productivity and technology has slipped somewhat. An apparent aversion to risk has deterred investment in new areas and has caused much of its industrial base to cling to traditionally successful industries such as metals, chemicals, motors, and machinery, instead of nurturing investment in new high-technology fields such as microelectronics, biotechnology, computer software, and genetic engineering. (Fisher, p. 9) West Germany has also exhibited less technological innovation recently, as shown by the comparatively low number of patents issued over the last ten years. There seems to be less incentive for such advancements not only in Germany, but in Europe as a whole. Some of this may be attributed to regulations which promote domestic markets, such as those that help protect European automakers from Japanese and American competition.

Despite these deficiencies, West German industry has devoted much of its expertise into improving its traditional competitive strengths. One such effort has been to ensure that its management and workforce are the best-trained and most highly educated in the world. Of German production managers, about 60 percent have either advanced degrees or degrees in business, and 20 percent have doctorates, a level usually thought to be more common to researchers and educators. (Carr, p. 83) Most medium and large companies provide in-house training and education. Workers whose role in production may be limited to a few responsibilities are given training in functions outside of their immediate duties, such as quality control, management techniques, manufacturing strategies, and theoretical studies to couple with their practical knowledge. This leads to more flexible workers who are able to make decisions and are conscious of their roles in production and in the success of the company.

## East Germany

Prior to unification the East German productive base largely consisted of manufacturing, and this was generally centered around low technology products. Like West Germany, it devoted much of its

manufacturing resources to classic engineering industries such as metals, chemicals, and vehicles. These comprised eighteen percent of East German manufacturing, compared to thirty-one percent for the West. But unlike West Germany, where wages were too high to support labor-intensive production, East Germany focused on the lowest technology areas such as food, woodworking, and textiles. Service industries such as law, tourism, retail sales, media, accounting, consulting, and banking were not valued under the socialist economy. However, the need for business services quickly became apparent as the state collapsed and the unification process began. There was a severe lack of technological advancement, mainly the result of a research and development spending level which was only about 20 percent that of West Germany. This resulted, for example, in the West having a 67:1 advantage over the East in the number of patents per million people from 1963-87. (Hitchens, p. 103)

Despite the lack of business services, innovation, and contact with western companies, East German industry experienced the benefit of having the consistent, scheduled demand of the Soviet Union and its satellite states for its products. This meant that East German firms could devote more of their resources to production rather than inventory storage, marketing, and sales. But instead of being able to take advantage of this opportunity to lower costs and increase productivity, East German companies had to deal with the typical bureaucracy of a communist state. For example, when 10,000 privately-owned East German companies were taken over by the state in 1972, politicians and friends of the regime were rewarded by the government with the opportunities to run these firms. The state then added to the payroll other politicians, spouses of Soviet military officials, officers of the secret police, and anyone who would raise the employment figures so it would appear that the system was working. The presence of such unproductive people coupled with total job security often discouraged the other workers from being efficient. Manufacturing thus became less efficient in East Germany while labor costs rose dramatically. (Bryson, pp. 52-54)

The East German system of corporate investment and the upgrading of facilities also severely limited productivity. Investment expenditures were decided by the government, which allocated funds based on the importance of the product. To enhance the "image" of East German manufacturing, the government stipulated that a certain number of processes had to be automated, whether automation was a justified expense or not. Receiving funds required a lengthy process with extensive documentation because the investment had to fit within the government's order of planning. This was a set of national economic strategies which stipulated how the East German industrial base would strike the proper balance between five production needs: energy, materials and other inputs, equipment, consumer goods, and industrial plants. (Bryson, pp. 39-40) When investment funds were provided, machines and equipment were generally purchased from suppliers in East Germany and Czechoslovakia, and were often secondhand. At the time of unification, only 50 percent of the machines in East Germany were less than five years old, compared to 71 percent in the West. Moreover the technology on which the equipment was based was generally about twenty years behind that of Western counterparts. In the West, 85 percent of this machinery would have been considered inferior. It was not so much the legal restrictions that prevented the purchase of modern Western equipment, but the lack of the necessary foreign currency.

The result of these differences in equipment quality frequently led to large-scale efforts on the part of the GDR to update and modify existing equipment. But this resulted in maintenance costs which were twice as high as those incurred by West German industries, and these more than offset any increases in productivity. Even with these efforts, insufficient maintenance and low operator skill often led to breakdowns not caused by machine depreciation.

East Germany's low productivity actually helped accelerate the decline of the socialist economy. The East German state created tight production and delivery schedules. But unlike the just-in-time methods so often used by businesses today, East German firms generally could not choose their suppliers, especially international ones. Thus, when a harsh winter drained energy supplies and caused

transportation difficulties in 1987, it set off a chain reaction of production deficiencies. Firms did not keep adequate inventory, and those which were still able to produce did not have the flexibility, the equipment, or the incentive to raise productivity to meet the increased demand that other companies were unable to fulfill. By 1988, the government refocused its investments on consumer goods instead of capital goods to quell some of the shortages. Because of this, companies were unable to replace obsolete machines and productivity hit "rock bottom" in 1989. (Bryson, pp. 23-27) When the Berlin Wall fell later that year, the rallying cry was not "productivity," but it is common historical knowledge that a political regime's strength is strongly dependent upon its economic viability.

## The Post-Unification Era and the Present Situation

### The Results of Privatization

At the time of monetary union and the revaluation of the East German mark, physical productivity, or output per employee, in the East was about 50 percent that of the West. Moreover, the value added per head was only about one-third for firms making items comparable to those of their counterparts in the West. Because it shows how much a finished product is worth compared to its inputs, value-added productivity measurements give a better idea of what customers view as the worth of the product, and therefore its quality. Immediately after unification, this difference in productivity was not viewed as serious because West German investors viewed the East Germans as generally well-educated workers who could still be paid wages considerably lower than those in the West. Entrepreneurs also assumed that because the East German currency was exchanged on a one-to-one basis with the deutsche mark, East Germans would have money to spend in their new economy. It was also thought that productivity would slowly rise to the level of the West, and wages would rise proportionately. But soon after the monetary union, the German government promised to boost East German wages and salaries to those in the West. This resulted in East German wage costs rivaling those in the U.S., but with a GDP per person on a par with that of Mexico. (Hitchens) Obviously, investors would not have been attracted to such a situation, so it was up to the Treuhand to provide incentives and support to investors to encourage them to purchase the nearly 13,781 firms which it inherited.

Some of the incentives provided by the Treuhand agency included selling land for virtually nothing, shouldering the former businesses' debts, assuming the cost of environmental cleanups, and sometimes even covering early losses. The strategy of the privatization process could be described as: "Pick up restructuring costs and add some investment, in exchange for firm commitments on jobs, and future investment by the new owners." (Gumbel, p. Al) As a result of this strategy, only 60 companies remained unsold at the end of the process. By December 31, 1994, when Treuhand ceased to exist after completing the task of privatizing Eastern companies, it had lost $173 billion, and almost two-thirds of the East German workers had become unemployed during the restructuring process. Most men over age 50 probably will not work again. Employment of working-age women in East Germany fell by nearly 40 percent while 80 percent of industrial jobs were lost. To cover the costs of the Treuhand and the transfer payments to the East, West Germans have paid a 7.5 percent surcharge on all personal and corporate income taxes.

The rapid sale of East German companies provided opportunities to investors who were either entrepreneurial risks or who were looking to take advantage of the situation. This chaotic period of German economic history did not allow for the Treuhand to conduct proper investigations of potential investors or of the conflicting ownership claims on the property which was seized up to fifty years ago by the GDR. (Eisenhammer, p. 36) Despite the incentives given by the Treuhand, the support of the German government, and the eagerness of workers and investors alike to bring success to the newly capitalist enterprises, many of the privatized businesses quickly failed. Mismanagement by the new

owners was one reason for the closing of many businesses. In adapting to capitalism, East German firms have also had to deal with out-of-date techniques and an oversupply of their products in Western markets. Many firms have also found it difficult to adapt to new design and quality standards and to incorporate the competition-driven elements of marketing, advertising, and user-friendliness to their businesses.

Adding to the East German inefficiency problems, there has also been a lack of worker motivation in some firms. The lower skill and educational levels of East Germans has caused many to be demoted, in order to align their skills with those of better-educated West German workers. Other factors contributing to low motivation have been low production and sales levels and a skepticism regarding the ability of the plant to close the gap with Western competitors. Recently, however, motivation seems to be on the rise in many firms, because those who have jobs see possible unemployment as strong motivation to work harder and many now view their company as able to survive. (Hitchens, p. 58)

## Strengths and Weaknesses of East German Firms

The East German workforce does have certain competitive strengths which both investors and the German government hope will provide the base upon which a strong economy may eventually be built. It will not become completely apparent what these strengths are until one can look back on this time period and see which firms survived and which ones did not. However, an evaluation can still be made about the assets of the newly market-oriented economy. For one thing, East Germans have a good skill base in the classic engineering trades such as welding, drilling, machine maintenance, woodworking, and milling. They also have knowledge of and connections with Eastern European and former Soviet economies. (Hitchens, pp. 109-10) While these are not currently the strongest of markets, they are expected to eventually become the next high-growth area after the Asia-Pacific region, and East Germany is hoping to grow with them. Of the former Soviet satellites, East Germany appears to be the first to successfully make the transition to a market system. This, no doubt, can be attributed mainly to its previous success under socialism, and to its unification with the economically successful West Germany.

Because East Germany has not yet raised its industrial capabilities to those of West Germany, it is important to analyze its many weaknesses as well. While its close ties to Eastern Europe and Russia are expected to be an asset of East Germany, the fall of communism in those states has also removed East Germany's largest market. The socialist economy left East German industries with a reputation for producing low quality products. Despite East German workers' skills in traditional trades, they lack expertise in important fields such as new materials, hydraulics, and electronics. Without having had available the support of business services, many East German firms also need to improve their management skills, particularly in areas such as data processing, organization, accounting, communication and marketing.

Another significant obstacle for East German firms has been an insufficient infrastructure. These problems are now disappearing due to the enormous amount of construction taking place throughout Eastern Germany to improve the general state of its roads and utilities. The government has provided so many incentives to real estate investors that there are now actually large surpluses of office space in most East German cities. (Miller, p. 54) The concern over the shortage of business service personnel, such as bankers, lawyers, accountants, and marketing consultants, is being addressed by an influx of Western companies seeking to get a foothold in the market before East German entrepreneurs learn to provide these services themselves. There still remain problems regarding plants and factories, however. The size of most greatly exceeds what is needed for current capacity. Many are old and in some state of disrepair, with 55 percent predating World War II. From the recent socialist days of scheduled

production and low capital investment, there remains a lack of warehouse space for inventory but enormous stockpiles of old machines and loose parts. (Hitchens, pp. 69-71)

From this assessment of the strengths and weaknesses of East German businesses, we can point to the characteristics of those enterprises most likely to survive and be successful. The business needed to have produced a robust product prior to unification. The plant and workforce should be flexible enough to adapt to the production of a different or better product. The firm should have investors from, or at least strong ties with, counterparts in West Germany who can provide advice on matters such as manufacturing and marketing. There also needs to be strong commitment to plant and machinery investment, worker training, research, and product development.

After these businesses survive the period of uncertainty in East Germany, they must then be able to withstand the same problems that West German companies now face. These include supporting the world's most costly welfare state, cleaning up the environment, dealing with increasing continental and global competition, and challenging the powerful labor unions.

## Relief Efforts

To improve the East German infrastructure and to raise the level of employment simultaneously, the German government has established New-Deal-type job opportunities for unemployed East Germans. Some of the $500 million raised by new taxes (Cowell, p. BI) in West Germany has been used to employ many of them to pave roads, build shopping centers, and open banks. (Melloan, p. A13) In 1994 East Germany devoted three times more of its gross domestic product to construction than the West, while manufacturing accounted for only 19 percent of the East's GDP as opposed to 28 percent of the West's. (Miller, p. 54) Such differences could be a source of concern for people who feel that temporary, government-sponsored jobs bloat employment and revenue statistics and thus hide the severity of the economic problems still facing the East. The German government, however, feels confident that these measures are needed to allow the new East German enterprises a chance to establish themselves and become profitable.

Many investors and companies have found that establishing a strong presence in Eastern Germany should be a profitable endeavor. The electronics giant Siemens, for example, has recently invested in a $2 billion microelectronics research center near Dresden which is expected to create at least 4,500 new jobs. (Miller, P. 54) In Eisenach, General Motors Europe has purchased a state-run East German automobile factory which used to make a car known as the Wartburg. With $600 million in investment, GM turned the factory into a new Opel plant which is expected to raise productivity seven to eight percent annually for the next few years. Through a thorough interviewing process, the GM plant's new managers hired the best workers of the old company to anchor the production line. After having received 12 weeks of training to increase their skills in quality, design, and product development, 2,000 employees can now build a vehicle in less than 20 hours while the average European plant needs 36 hours. (Miller, pp. 67-68)

Training has been one of the major focuses of investment in the newly-acquired businesses. During the privatization process, the German government and West German industries together helped initiate programs involving managerial cooperation and partnerships between companies in the East and the West. East German managers visited plants in the West to observe manufacturing techniques and to seek advice on such matters as marketing, packaging, technology, training, costs, and pricing. Many managers and workers were sent to the West for official training and education, such as the Meister program which allowed the best workers to receive two years of full-time training to become foremen. In the West workers were educated in electronics, standards, and quality control, while managers

received courses in business administration, marketing, data processing, accounting, and labor law. After their training was completed and they returned to their companies, many East German workers and managers established similar training programs in the East. (Hitchens, pp. 64-68)

Germany's effort to improve conditions in its Eastern half has led to some success. Unemployment has declined in the East to 13 percent in October of 1995, while wages have reached a level which is 76 percent that of the West. (Cowell, p. BI) These signs provide hope for Germany that the East German workforce will soon reach a state of wage parity with the West, since six years ago East German wages were only 32 percent of those of the West. Other signs of a budding East German economy are a GDP growth in 1994 in the East of 9 percent, versus a growth of just over 2 percent in the West. There has been a 25 percent rise in the number of service-oriented businesses in the East. (Miller, p, 54) For some industries, such as the massive German chemical industry, productivity in the East is closing the gap so quickly that the Association of the German Chemical Industry (VCI) expects 1995 to be the last year for keeping separate statistics for the East and the West. (Layman, p. 17)

One very serious problem which the new East German businesses faced was that the Western European market was saturated with many of the products which the East Germans had traditionally produced. Thus, they were forced to find new customers. This has resulted in the opening of new markets in areas of vital economic importance, such as the Asia-Pacific regions-. In 1994 East Germany exports grew by 25 percent. Combined with a 7 percent increase in the West, Germany seems certain to add to its already-strong export surplus. (Miller, p. 54)

## Future Objectives and Expectations for East Germany

The causes of East Germany's low productivity can be grouped into three general categories: facilities, workers, and products. The facilities in East Germany included aging factories and plants filled with outdated machinery and surrounded by an insufficient infrastructure. Investment in factories and infrastructure is thought to have raised productivity nearly 30 percent. There are still improvements which must be made in the way of facilities, however, especially in repairing the environmental damage caused by the over-industrialization of pre-unification East Germany.

Given the proper equipment and the incentive to work, East German workers have the potential to be very productive. The knowledge that their incomes and even their employment depends on the quality of their work should certainly give East Germans sufficient incentive. It is now important that the government provide them with educational and research opportunities. Dedication to R&D investment will help East German companies progress into those high-tech markets which have not yet been saturated by West German competitors.

Most of the consumer products made by companies in the former GDR were considered to be inferior in Western markets. Prior to unification, East German producers did not give much consideration to international standards, aesthetics, and user-friendliness. Most of these products are now being replaced by ones which are more appealing. It is important that producers be able to efficiently adapt their workforces and processes to the new standards. The influx of Western technologies, better materials, and new equipment should significantly improve the durability and reliability of these items. The application of design and safety standards, such as improved tolerances on mechanical items and hygiene requirements on food and pharmaceuticals, should also improve product quality. However, even after such adaptations are made, it will take time for East European producers to build a reputation for making quality products.

## Conclusions

Through an enormous amount of investment by the German government and by private firms and entrepreneurs, East German companies now have fairly modern facilities in an environment more conducive to efficient production. The workforce is better trained and educated, and while there is still a gap in productivity, it is closing fast.

Even after East German companies bring their productivity to the level of West Germany, they will still have to contend with the same problems now facing established West German firms. These include the slow growth of the German economy, the powerful national labor unions, the heavy legal restrictions of the German government, and the high taxes which support the country's social welfare net. If the new firms do not encourage innovation or devote enough resources to research, they, like their West German counterparts, will fall behind in important new technology areas.

In the coming decades, East Germany's economic transition and recovery will serve as a benchmark for other nations in similar situations. Some of these nations include other former-communist countries struggling to adapt to a market economy such as the former Soviet Union and other former members of the Eastern Bloc, as well as communist nations such as China and Vietnam, which are slowly opening to elements of capitalism. Potential foreign investors in these countries may well look to the successes and failures of German reunification to guide them in their decisions to invest.

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