

Examining the Miracle

Assessing and Learning from Germany's Success

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Executive Summary

As the global economy slowly climbs out from the 2008-2009 Recession, media outlets continue to publish coverage of the “German miracle” – the Federal Republic of Germany’s enviable performance during and since the recent economic turmoil. All hype aside, these articles evoke two related questions:

1. Is the German manufacturing sector truly performing at such a superlative level?
2. What can the US learn from German practices?

Historically, Germany’s economic picture has been mixed. Except between 1990 and 1995, its peer group and OECD member countries outperformed Germany’s GDP (PPP) per capita growth rate, yet over the last five years Germany has outperformed its peer group and the OECD in all the macroeconomic indicators discussed in this paper.

German manufacturing is renowned, with a worldwide reputation for high quality design and engineering. With an economy focused on maintaining high levels of exports manufacturing forms the basis of Germany’s prosperity, accounting for more than 80% of Germany’s merchandise exports. However, a closer look at recent German economic performance reveals that its manufacturing sector performs at a level comparable with other industrial nations, not head and shoulders above the rest as is claimed. Further, while the German economy is driven more by manufacturing than most other industrial nations, the weight of manufacturing in its GDP is decreasing each year. Germany’s trade surplus, its role in the Eurozone, its economic policies, and its educational system all focus on supporting the country’s manufacturing sector.

The United States and Germany operate under different market philosophies, with neither being markedly superior to the other, but there are lessons for the US in some of Germany’s policies and practices. Both inside and outside of the EU, Germany’s exports are diversified amongst a broad range of developing and developed nations, thus buffering the German economy from large swings in each area’s economies. The much-lauded kurtzarbeit emergency measures enabled the country to maintain employment levels and thus a relatively high level of confidence, greatly aiding Germany in making a quick recovery from the Great Recession. Lastly, the US should investigate adapting the German “Dual-System” of combined classroom and on-the-job vocational education for use in the industries that drive the American economy.

Introduction

As the global economy slowly climbs out from the 2008-2009 Recession, media outlets continue to publish coverage of the “German miracle” – the Federal Republic of Germany’s enviable performance during and since the recent economic turmoil. Recovering quickly from the ripple effects of the financial crisis, Germany managed to maintain steady GDP growth and a flow of exports to Europe and the rest of the world – while simultaneously driving down its unemployment rates to historic lows. Such “feel good” stories are a natural fit for difficult times, but these articles are often more qualitative than anything else, providing minimal data that would otherwise enable deeper understanding. The usual by-line reads something like the following: “Because of its enlightened industrial/educational/R&D/social policies, Germany has been able to achieve the holy grail of Western industrialized nations – simultaneously consistent growth, low unemployment, and a high standard of living.” All hype aside, these articles evoke two related questions:

1. Is the German manufacturing sector truly performing at such a superlative level?
2. What can the US learn from German practices?

Perceptions

Defining good performance

In order to evaluate how well an economy is performing, it is important to look at several macroeconomic indicators. GDP per capita (PPP) growth provides a good indicator of economic well being for the common citizen, functioning as a measure of the relative buying power exhibited by citizens and the overall standard of living within the country. This report also looks at the unemployment rates and how they have changed over a five-year period, which is a good point of reference for the job creation potential of an economy and reduction of the overall burden on the state.

With these indicators established, this report measures Germany’s performance against its peer group – France, the UK, and the US, with some additional comparisons to Switzerland. The performance of each of these countries is then measured against the performance of the OECD in five-year increments from 1980 to 2010 against the indicators established above. This provides historical perspective on the countries performance and provides some insights into its overall macroeconomic performance.

Public and media perceptions of Germany’s performance

Internal and external perceptions of recent German success are consistently positive. Recent studies show that German perceptions of economic prospects remain generally more positive than in the US, during both the recent global economic downturn (as per Pew surveys in 2008¹ and 2010²) and the subsequent and ongoing recovery (per recent Gallup polling³). This may have something to do with historical context; it could also be argued that Germany’s lavish social welfare system has protected the average German voter over the years, effectively cushioning the electorate from economic downturns. However, these interpretations are probably simplistic. Economic perceptions in general are a complex brew of history, media coverage, ideology, attitudes, unemployment rates, and many other factors – but there are definite correlations between macroeconomic performance and voter attitudes.⁴ Germans are increasingly positive about their standard of living and the availability of jobs, even among the poorest sector.⁵

External perceptions of German success are based on similar perceptions also consistent with this line of thinking – the whole idea of a “German miracle” is based on the view that the FRG economy is indeed performing at a comparably higher level, and much recent media coverage has zeroed in on the sustained reductions in unemployment and positive trade balances as the basis of this view, which is consistent with Germans’ own views of their prosperity.⁶

German media articles early in the Recession describe wavering public opinion regarding the Euro⁷ and grim economic predictions,⁸ but as the country’s economy quickly bounced back and continued to deliver positive growth, business writers began to recognize that Germany seemed to be outperforming other Western industrial nations. Many publications continue to reference high levels of confidence, exports, employment, and growth⁹ – based on reporting from both government and private analysts. However, as several years have passed, German publications seem to have picked up a strain of caution. Predictions for FY12 are more often mixed¹⁰, with a general consensus that the “miracle” may not be sustainable,¹¹ to include some questioning of both the wisdom of relying on exports and the social justice of a low wage sector.¹²¹³ Added to concerns over the ongoing currency negotiations and the bailouts of southern European economies, the German press seems to have shifted to a more cautious outlook.

German macroeconomic performance

1980 to 2005

From 1980 to 2005, Germany’s economic performance was mixed. The first indicator of this mixed performance is the comparison of the year-on-year GDP (PPP) per capita growth rate across Germany’s peer group and the OECD. In 1980, the gap between the GDP (PPP) per capita of Germany and the United States was approximately 6% (\$11,521 vs. \$12,243 respectively). However, this gap began to widen significantly throughout the 80s and 90s, reaching its widest gap in 2005 when it was over 31% (\$31,126 vs. \$42,680 respectively).

Except between 1990 and 1995, Germany’s GDP (PPP) per capita growth rate during this time was outperformed by its peer group and OECD member countries. During the same time, the United Kingdom experienced some of its highest GDP (PPP) per capita growth rates, overtaking Germany in 2000 to be second only to the United States in terms of GDP per capita in this peer group (See Table 6, Figure 4, and Figure 3). This was primarily due to the effects of German re-unification in 1990 as well as easing household savings rates in the United Kingdom and the United States – this enabled higher rates of domestic consumption, providing a boost to these economies (See Figure 5). However, because of higher growth rates after 2000, by 2005 the German (PPP) per capita (\$31,126) was again comparable to its peer group and still higher than the OECD average (\$29,549).

During this period, the German economy also suffered from rising unemployment rates (see Figure 6). This significantly worsened between 2000 and 2004 when it was routinely above 10%, reaching its peak in 2005 at 11.7%. Throughout the 1990s Germany’s unemployment rate was significantly higher than the OECD rate used as a benchmark in this report, and was the highest among the peer countries. On average, Germany experienced a 9.6% unemployment rate between 1990 and 2005 while the United States experienced an average unemployment rate of 5.5% and the United Kingdom experienced an average unemployment rate of 7%, just above the OECD average of 6.9% (See Table 7).

Since 2005

Over the last five years Germany has outperformed its peer group and the OECD in all the macroeconomic indicators established above. This has created a building sense of rising prosperity and economic optimism among the German population. The German GDP (PPP) per capita growth rate (3.66%) during this period has been over 80 basis points above the OECD growth rate. Germany's GDP (PPP) per capita (\$37,257.30) has actually overtaken the United Kingdom's (\$36,084.20) to become second only to the US among the peer countries. In contrast, the other countries in the Germany's peer group have seen slower growth in this indicator compared to the OECD (See Table 6 and Figure 4).

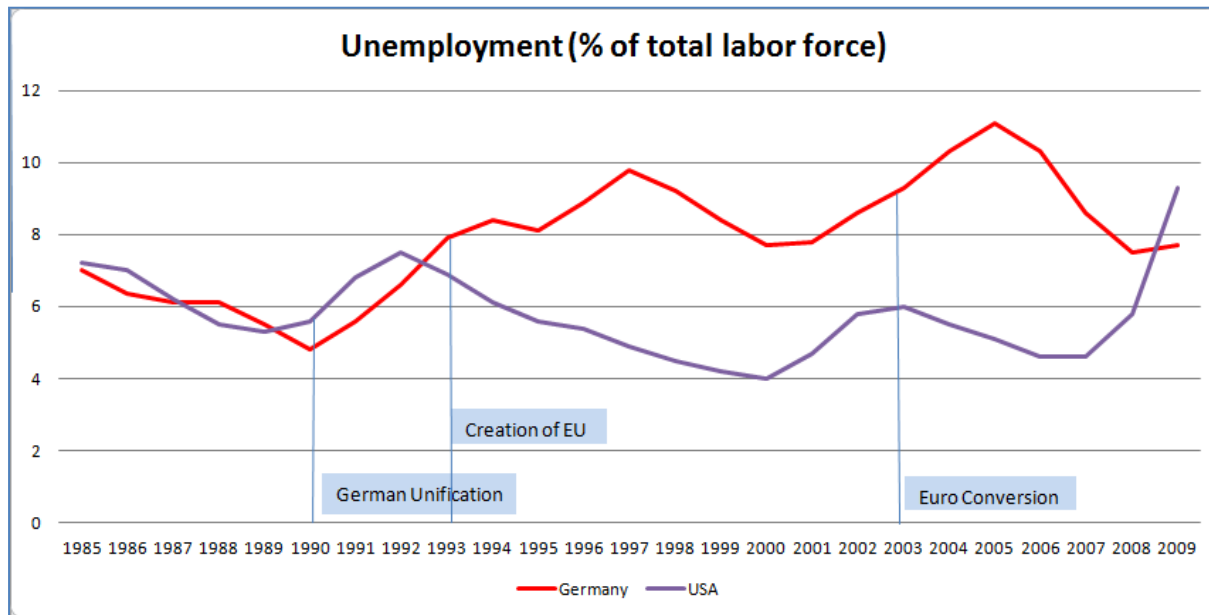
Germany's unemployment rate has gone down by 4% during the last five years, at a time when unemployment in the rest of the developed world soared. In OECD member countries the unemployment rate has increased 1.7% in the same period while the economies of the United Kingdom and United States have been the worst hit, where unemployment jumped by 3.1% and 4.5%, respectively (See Table 7).

Even with these positive indications in Germany, deeper analysis reveals that Germany's GDP (PPP) per capita is still nearly 20% below the comparable US figure (\$46,820.00 vs. \$37,257.30 respectively). Additionally, the German unemployment rate, while it has trended downwards, at nearly 8% is still above the average unemployment rate in the OECD member region.

A closer look at German unemployment

After running nearly parallel with the United States from 1985-1992, German unemployment was, on average close to 2% worse than the United States until a convergence took place in 2008 (see Figure 1 below for a graphical depiction of German and US unemployment since 1985).

Figure 1: Unemployment as % of total Labor Force

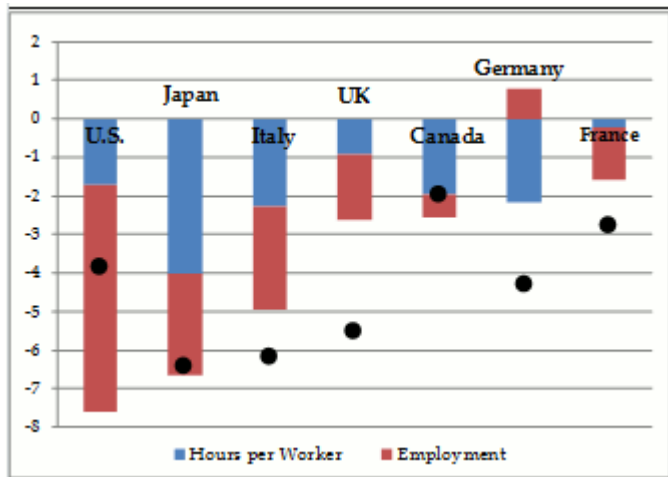


Unemployed people in Germany tend to stay unemployed, as evidenced in Figure 7. Even at the low point of long-term unemployment (as percentage of total unemployment) in Germany, long-term unemployment accounted for more than 30% of total unemployment. In the United States, by contrast,

long term unemployment has never been greater than 20% of total unemployment. As seen in the Figure 8, even as recently as Q1 2011, this trend continues, with Germany maintaining a significantly higher long-term unemployment rate remains versus the United States, and the world at large. This systemic longer-term unemployment has the potential to adversely affect the positive outlook German citizens have towards their economy.

While Germany managed to maintain high levels of employment during the downturn, productivity was negatively affected. According to research conducted by Lee Ohanian, a UCLA professor, "...between the first quarter of 2007 and fourth quarter of 2009, output in the US fell slightly less than in Germany. However, total hours worked fell nearly 8% in the US but only 1% in Germany; concurrently, US employment declined 6% over the same period but *edged up* in Germany (that is, German hours per worker declined more than total hours worked)"¹⁴, suggesting that higher employment was indeed traded for lower rates of productivity (see chart below for additional comparisons).

Figure 2: Changes in total hours and GDP during the Great Recession (percent change from 2007Q4 to 2009Q4)



The chart below shows the difference in hours worked per worker in the United States and Germany over from 2000 to 2010. On average, American workers worked 25% more hours than German workers, further suggesting that US productivity rates are considerably higher than in Germany.

AVG HRS WORKED PER WORKER	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Germany	1473	1458	1445	1439	1442	1434	1430	1430	1426	1390	1419
United States	1836	1814	1810	1800	1802	1799	1800	1798	1792	1768	1778
Difference in hours in the US vs. Germany	24.6%	24.4%	25.3%	25.1%	25.0%	25.5%	25.9%	25.7%	25.7%	27.2%	25.3%

Labor force employment levels in Germany are also highly correlated with education. Relatively larger sections of the German of workforce stopped their studies at the primary or secondary levels, when compared with the US (see Figure 9 though Figure 11); unemployment is also more prevalent at the lower levels of educational achievement, as shown in Figure 12 through Figure 14. This indicates that the German educational system creates an employment tradeoff, ensuring higher levels of employment for the most educated, with lower levels of employment for those with less schooling. The American education system actually works oppositely, providing more educational access overall and higher levels of

employment at the lower levels – with commensurately higher levels of unemployment among the highly educated simply because so much more of the workforce has attended tertiary institutions.

Role of Manufacturing in growth

Manufacturing is the flagship sector of the German economy

German manufacturing is renowned, with a worldwide reputation for high quality design and engineering. Automobiles may be Germany’s most visible consumer export, but its heavy machinery can be found on factory floors all over the world. With an economy focused on maintaining high levels of exports (2010 exports constituted 47% of the German GDP,¹⁵ second only to China in real dollars;¹⁶ German imports for 2010 stood at 41%), manufacturing forms the basis of Germany’s prosperity, accounting for more than 80% of Germany’s merchandise exports (as shown in Figure 15). By comparison, in 2010 US exports accounted for only 12% of its GDP, while imports represented 16%.

However, a closer look at recent German economic performance reveals that its manufacturing sector, while admirable, performs at a level comparable with other industrial nations not the head and shoulders above as the media leads consumers to believe.

Additionally, and in order to maintain its export prowess, Germany has held its household savings rates significantly higher than the same rate in the United States and United Kingdom (Figure 5), leading to weaker domestic consumption and enabling Germany to maintain a positive balance of trade.

Normalized growth of manufacturing sector in line with US

The growth of the German Manufacturing sector is not nearly what it was 30 years ago. When compared to other relevant countries, the growth rate for the German manufacturing sector is still more than that of the United States, but significantly less than that of Switzerland. In the years from 2000-2010, the manufacturing sector's value add as a percentage of GDP grew across Europe and the United States at the following rates:

Table 1: Manufacturing Sector Value Add Growth in Current USD

Country	1980-1989	1990-1999	2000-2009
Germany	115%	-12%	59%
USA	58%	40%	31%
Switzerland	111%	-6%	104%
France	N/A	N/A	36%
Great Britain	77%	16%	7%

Source: World Bank, 2011

Additional data on the decreased growth in both the industrial and manufacturing sectors can be found in the appendix in

Table 8 through Table 12.

In an attempt to level all differences between each country’s population growth and inflation, a comparison of the various manufacturing sectors was done while using constant 2000 US Dollars and normalizing each country’s data for population growth over a 30 and 12 year period (See Figure 16 through Figure 20). This analysis revealed that the manufacturing sector of Germany was growing at about the same rate as that of the United States:

Table 2: Manufacturing Value added in Constant 2000 USD Divided by Population

	1980	1998	2010	CAGR 30	CAGR 12	30 Year % Increase	12 Year % Increase
Germany	\$4,000	\$4,438	\$4,969	0.73%	0.95%	24.2%	12.0%
Switzerland	\$5,614	\$6,195	\$7,026	0.75%	1.05%	25.2%	13.4%
USA	\$ -	\$4,798	\$5,380		0.96%		12.1%
France	\$ -	\$3,019	\$2,779		-0.83%		-8.0%

Note: There is no data on Great Britain’s manufacturing value add in constant USD.
Source: World Bank, 2011

Manufacturing’s weight in GDP decreasing

GDP increasingly driven by services

In the 2000-2010 timeframe the German service sector grew rapidly in both real terms and as a percentage of the FRG’s GDP, at 1.3 times the rate of the manufacturing sector, as illustrated in

Table 8 through Table 12. This is consistent with the gains of service sectors in other major industrialized nations, where the share of GDP attributable to manufacturing (Manufacturing Value Add as a Percentage of GDP¹) has consistently declined since 1980.

As the other sectors of the economy (especially services) continue to grow at increasing rates, it is not surprising that the German manufacturing sector will not be as central to the overall economy in coming years.

¹ **Manufacturing, value added (% of GDP):** Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Note: For VAB countries, gross value added at factor cost is used as the denominator.

Table 8 through Table 12 show the relative growth rates and weights in the GDP of comparable countries as well as a projection for 2019 (using given growth rates in each sector). This projection likely undervalues the future weight of the service sector and overvalues the relative importance of the industrial, manufacturing, and agriculture sectors. Its purpose is solely to illustrate the diminishing importance of all sectors other than services. (See Figure 21)

The decline in the relative weight of the manufacturing sector in the overall GDP of each of these economies can be attributed to a number of variables. In order to better understand the interplay of the different sectors, inflation and population growth were isolated for a round of analysis in all of the relevant economies. When held constant with population and inflation, over the last 30 years, German manufacturing value add to GDP² has grown by 24.2% from 1980-2010, while Services during that same time period grew by 104% (see table below)

Table 3: Services Value added in Constant 2000 USD Divided by Population

	1980	1998	2010	CAGR 30	CAGR 12	30 Year % Increase	12 Year % Increase
Germany	\$8,196	\$13,431	\$16,702	2.48%	2.00%	104%	24%
Switzerland	\$18,164	\$22,276	\$24,982	1.11%	1.05%	38%	12%
USA	\$13,963	\$23,101	\$27,433	2.36%	1.57%	96%	19%
France	\$9,873	\$13,756	\$15,574	1.64%	1.25%	58%	13%
GBR	\$9,136	\$14,640	\$18,663	2.49%	2.23%	104%	27%

Source: World Bank, 2011

Employment picture in Germany, by sector

As previously stated, among all industrial countries Germany is one of the few in which the unemployment rate has declined despite the recent Recession. This is mirrored in German manufacturing employment, where has the slowest rate of decline among the G-8 countries. While there has been a steady reduction in the number of manufacturing jobs since 1991 (primarily due to the restructuring of the German economy after re-unification), the number of people employed by the industry sector in Germany has remained relatively stable since 2004, at roughly the same level as the 1980s. This suggests that although Germany has been following the path of other industrialized countries, manufacturing is still contributing significantly to the German economy. This is primarily because Germany is focused on maintaining an export-based economy and a position of industrial and manufacturing preeminence. Not surprisingly, exports account for a significant portion of Germany's employment. According to a study

² Manufacturing, value added (constant 2000 US\$): Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Data are expressed constant 2000 U.S. dollars.

by the Prognos Research Institute, “nearly 3.0 million jobs in Germany depend on exports to the Eurozone while 4.4 million depend on exports to the EU”.^{17 18} Lastly, and like most nations, the German service sector continues to take up a growing majority of the labor force; a depiction of German labor assignment by sector can be found in Figure 22.

The largest sectors of German industrial employment are focused on the automobile, chemical and heavy engineering segments, whose products are primarily geared towards the Eurozone countries. These sectors form the foundation of German industry and their primary activity is in adding value to raw or partially finished materials imported or developed within the country.

Sources of the German Miracle

Trade surplus

As discussed, Germany has long been an export driven economy and one of the primary reasons for its growth in the last five years has been its expansion of exports and subsequently its trade balance (see Figure 23). Germany’s manufacturing sector is directly linked to this period of growth, as most of Germany’s exporting firms are from a few key industries – like chemicals, automobiles and machinery. These goods cannot be easily produced in other countries as they are heavily dependent on intellectual property and require complex supplier networks, which in and of themselves take significant time and resources to develop.

German growth has also benefited from the diversification of its markets. Historically, more than 60% of Germany’s exports have been destined for the Eurozone area. However this has started to change as industrial sectors have emerged in developing economies; Germany has been able to target these countries with capital goods that are required for manufacturing plants. This is primarily because the manufacturing of these engineered goods requires specialized technical skills and a high level of capital intensity which can be difficult to acquire and produce in emerging economies. As a Deutsche Bank Research paper stated in early 2011:

Germany has exactly the right country and product mix in its export portfolio. This is impressively documented by the scale of Germany’s exports to China, nearly 70% of which constitute machinery and transport equipment, i.e. capital goods, and which expanded by 45% last year, while Germany’s total exports increased by “merely” close to 20%. With capital goods accounting for over 45% of its total exports, Germany is the leading such exporter in Europe.¹⁹

Moreover, Germany’s trade and current account surplus has also led it to become one of the leading net creditors in the world, hence earning additional income. As Germany’s trade surplus grows, its foreign assets expand, allowing it to provide other economies with loans through the purchase of their bonds. This has increased the dependence of other countries (especially in Southern Europe) on capital infusion from Germany as they seek to stabilize their economies,²⁰ and has made Germany a cornerstone of the EU – its exports are now paramount to the success of the European economy.²¹

Trade Risks: Export reliance makes Germany rely on the health of trading partners

Because of its export reliance, Germany’s relatively weak domestic demand keeps it from growing as fast as it could if it decreased the household savings rates in order to boost domestic consumption.

Additionally, because of its significant exposure to the Eurozone market for exports, Germany is held hostage by the ongoing crisis; this is made worse by the trade surplus, which has placed Germany in the position of creditor to struggling economies in Europe – this exposure will continue to be a significant risk to growth until the region stabilizes.

Currency

As a country heavily reliant on exports, Germany has benefited more than its European peers from the implementation of a single European currency.

Artificial deflation

The Euro has created an artificially weak currency, allowing Germany to export to Europe at competitive prices.²² Many economists speculate that a German only currency would be much stronger, potentially “too strong to support its current export-driven economy.”²³ Chancellor Angela Merkel acknowledged during a recent parliamentary speech that, “...as an exporting nation, Germany has particularly benefited from the euro.”

Participating in a monetary union with countries that have far weaker economies works in Germany’s favor. “In the decade that followed [the introduction of the Euro], thanks to an export boom driven by its European neighbors’ spending sprees”²⁴ Germany’s economy rebounded significantly. As per Figure 24, Germany’s balance of payments went from a small deficit, to an impressive surplus in the course of the last decade; the direct opposite of Germany’s EU partners. The Financial Times estimates the German exports would be drastically weaker if Germany was outside the Euro. According Paul A. Volcker, senior fellow in international economics at the Council on Foreign Relations, “...between August 2009 and May 2011, German exports jumped by 18%. A reasonable estimate suggests that they would have risen only 10% had Germany been outside the Euro”.²⁵ The German State bank KfW “...estimates the German economy would have grown by 50 billion - 60 billion euros less in 2009 and 2010 without the euro and 2011 gross domestic product growth of 5.6 percent would only have been 3.6 percent.”²⁶

An artificially low euro in Germany means an artificially high euro in weaker countries like Spain and Greece. It also means those countries can afford to buy German goods. Despite the Eurozone crisis, German exports in September 2011 rose nearly 1% from the previous month to 91.3 billion euros, which is the highest level since records began.²⁷ For an export-oriented country like Germany, healthy exports equates to a healthy overall economy, strong GDP, and favorable trade balance.

Currency Risks: Shared currency forces Germany to prop up member countries

The primary risk for Germany in sharing a currency with other members of the EU, as shown over the recent Eurozone crisis, has been the expectation that Germany will support weaker EU countries during periods of economic instability. The common belief is that while “Germany cannot solve the euro crisis alone, but it does have a geopolitical onus to lead the way out.”²⁸

The first EU bailout for Greece was €110billion and a second package of €130billion was approved in mid March of 2012, with the majority of this amount coming from German taxpayer. German banks also hold the most Greek bonds with \$22.7 billion, and the second largest part of Greek sovereign debt at \$15 billion in holdings as of June 2011.²⁹

Policy

Media coverage of Germany's recent performance often identifies enlightened government policies as the bedrock upon which the economy has flourished. Various initiatives have been singled out as the driving forces behind sustained growth and low unemployment, with long term planning and kurtzarbeit ("short work") upheld as model practices that the United States should emulate. This is a somewhat distorted view, however, as the source of Germany's recent performance lies not with the inherent wisdom its long-term strategy or the superiority of its economic system, but rather with initiatives started under the short-lived Schroder administration and in astute short-term emergency policies designed to steer the German economy through the shoals of the global downturn.

Long term planning has produced mixed results

The focus of Germany's economic policy on long term planning derives from the Social Market Economy (Sozial Marktwirtschaft) philosophy on which it is based. The 1967 Stability and Growth Act is the epitome of this school of thought, mandating that the federal government maintain economic stability using such measures that "...will, within the framework of the market economy, simultaneously help to stabilize prices, maintain a high level of employment, and achieve external balance, accompanied by steady and adequate economic growth."³⁰ Seemingly socialist in outlook (especially to American eyes), the Social Market Economy is actually an attempt to find a middle ground between the extremes of socialism and laissez-faire capitalism. Core capitalist practices like private property and free trade are maintained, but the government takes an active role to maintain economic prosperity with a goal of ensuring stable, sustainable growth. However, philosophy and policy have not always borne out over the decades; in the long term Germany's actual performance has in fact been mixed.

Reunification challenges drove economic reforms

By the early years of the new century, the German economy had lost considerable momentum. Reunification had proved to be more challenging than anticipated. Businesses in the East were not prepared to compete in the world market, so West Germany had to invest huge sums (over \$2 trillion) to assist the East in its transition to a free market economy, building infrastructure and cleaning up environmental damage.³¹ This required the privatization of businesses on a grand scale, and "...all told, about 14,000 companies in East Germany were closed or privatized in the five years after German reunification, resulting in the loss of about 4 million jobs."³² The FRG was increasingly referred to as "the sick man of Europe" as its economy slowed and unemployment skyrocketed.

It became increasingly apparent that Germany had to address the unsustainable costs of its elaborate social welfare system and make itself more competitive as the world economy moved towards globalization. Thus, in the early 2000s, German administrations sought to reform the nation's economy and the ways in which the federal government interfaces with and guides it. Starting in 2003, the new coalition government led by Gerhard Schröder enacted a series of policy measures known as Agenda 2010, which were "...aimed at boosting growth and employment and consolidating public finances through tax reforms, greater labor market flexibility, and limited cuts in state benefits and subsidies."³³ The most important and contentious part of this program were the "Hartz Laws", which ultimately sought to reduce unemployment rates and spending on social assistance benefits – much like similar recent initiatives in the US. Concurrently, efforts were made to reduce subsidy and financial assistance expenditures as part a general drawdown of government spending³⁴. However, these reforms proved to be enormously unpopular, contributing greatly to the ouster of the Schröder government in 2005, when a

new coalition led by Angela Merkel took the reins. The Merkel government has continued to make economic reforms, though more cautiously than her predecessor.

The economic upswing and the creation of a low wage sector

Despite the short tenure of the Schröder government, its policies stuck, having their intended effects in the intervening years. Well before the global economy stumbled in 2008, Germany's unemployment rates and government borrowing were consistently falling while growth rates improved. This was largely accomplished by reducing social welfare benefits in tandem with lower social insurance and payroll taxes for the low-end of the labor market – in effect, the federal government incentivized German companies to create jobs, and German workers have been steered towards these less well-paying jobs by making employment more attractive. In the period of 1995-2010, the low-wage sector has grown an incredible 65% in western Germany (only 3% in the eastern part of the country, where wages are generally lower); 2007 saw the largest growth of this part of Germany's labor force, with nearly a quarter of the country's entire working population earning less than €15, the cut-off for low-wage classification.³⁵ Incentives to increase employment of the youngest and oldest workers have also been implemented, and the retirement age has been raised to age 67³⁶, providing additional impetus to the growth of the low wage sector.

By weaning people off of the social welfare system, the government reduced its spending requirements while simultaneously boosting both employment and its tax base. This matched perfectly with concurrent initiatives to rein in government spending and drive down budget deficits; paring down benefits got the unemployed back to work and out of the German safety net.

Emergency measures kept the German economy in motion

With its financial house in order, the Merkel government was in a good position to implement emergency measures to prop up the German economy through "...an extensive package of stimulus and bailout measures, which included €480 billion for ailing banks, €15 billion for financially weakened companies and €80 billion for two programs to stimulate the domestic economy."³⁷ Additional actions included a 2008 reduction in corporate tax rates, from 25% to 15%³⁸, followed in 2010 by the Growth Acceleration Act, which offered further tax relief to businesses and to individuals; an automotive trade-in program similar to the US "Cash for Clunkers" program was also instituted, and was enthusiastically received by the German consumer³⁹. In general, the stimulus measures helped to maintain confidence levels during the crisis; by running up government borrowing, Germany's "...companies received new orders, [it's] consumers had more money to spend and banks, no longer fearing that their borrowers could soon go out of business, started lending again."⁴⁰

Although only a temporary measure (i.e., no longer in effect) short work ("Kurtzarbeit") measures allowed Germany to continue to drive down unemployment during the economic downturn of 2008-2009, which by 2010 was approaching pre-1991 levels⁴¹, and it is perhaps here where the "miracle" truly lies. Kurtzarbeit is a long-standing tool that enables the Federal government to hold back layoffs by letting companies put the workforce on part-time hours (and part time pay), while the government subsidizes the difference. This practice allowed trained labor to remain in place and available to take up the "slack" when the economy began to climb out of the Recession – and it allowed consumer spending to remain largely unaffected for the duration, keeping up demand and confidence. More importantly, it saved the government from paying huge sums in unemployment benefits (which are quite generous in Germany, by any standard) and bypassed the restructuring period that would have accompanied all of the retraining and

movement of labor throughout the economy, not an insignificant consideration. All told, Kurtzarbeit cost Germany only \$6B by 2010, and was strictly an expedient measure, phased out as quickly as possible; Siemens, for example, had over 19,000 employees on short work in the summer of 2009 – a year later that number would shrink to only 600⁴².

Policy Risks: Government borrowing and squeezing the middle class

The reforms started under Chancellor Schröder put the FRG in a position to weather the Recession admirably through massive government borrowing; by restructuring the economy away from a social welfare sector and enacting fiscal reforms in preceding years, Germany was well placed to take the necessary actions to “bridge the gap”. However, because these emergency measures operated on the basis of massive outlays, the government had to assume a considerable level of risk; private sector reliance on the government for protection against economic hazards places much of the burden on the government, by definition. If the situation had spun completely out of control with the global economy entering a full-fledged Depression, the FRG would have leveraged itself into a corner, with dire consequences. In this vein, the current state of Greece serves as a warning, with the added irony that Germany is currently the pivot upon which much of the proposed relief measures for the Greek economy may turn. Wisely, the German government has since embarked on a course of debt reduction and fiscal consolidation, and is working to slash debt 50% by 2014, as required by new constitutional debt laws.⁴³

While labor market reforms have in many ways enabled the recent German resurgence, the growth of the low-wage market and the virtual wage freeze does not bode well for the future. The economic growth of the past decade has not seen a corresponding rise in salaries, as newfound labor flexibility was largely purchased by guarantees of future employment⁴⁴, which in turn were supported by government assistance for the duration of the recent crisis. It seems unlikely that the German middle class will be willing to indefinitely accept a progressively smaller piece of the pie as the price for sustained growth.

Education

The German education system is focused on producing a labor force to match the employment needs of the country. In terms of creating a work force geared towards manufacturing, the German education system is outperforming that of the United States. Through improved math and science education and better training and opportunities for those who decide not to pursue college degrees Germany is better equipping its students to fill the employment roles required by its manufacturing heavy economy. The quality of mathematics and science education received by the German students throughout their compulsory education is generally higher than in the US, and much more importance is placed on “Vocational” (or “Career and Technical”) education and apprenticeships.

Math and science education creates more engineers

The comparisons drawn between the quality of education received by 15-year-old students in the 2009 OECD PISA study make for interesting reading. According to the study, of the 65 countries surveyed, neither Germany nor the United States’ students stray from the mean when tested on reading skills⁴⁵. However, the differences begin to show when moving onto mathematics, where Germany performs above the mean while the United States performs below⁴⁶. When tested on science, American students performed at the mean, while the German students were statistically significantly above the mean⁴⁷.

While this difference between the two countries’ scores on math and science could be attributed to many causes, the quality and training of teachers, the segmentation of students by ability at an early age (with

accompanying changes in the methods for instruction), and general attitudes in the press and media towards those young students who excel are all significant factors. The cause of this difference is unknown, but it is worth noting that, in tandem with the larger role played by manufacturing and industry in the German economy (compared with the US), German students by the age of 15 already demonstrate a better understanding of the math and science that drive these sectors.

This apparent inclination towards math and science continues after secondary school. While the volume of students who do attain a university degree in Germany is about ten times smaller than that of the United States (200,000 in Germany versus 2 Million in the US in 2004),⁴⁸ 16% of degrees awarded in the US were for math, science, and engineering, contrasted with 30% of those awarded in Germany.⁴⁹ Again, it appears that the German education system is both better prepared to produce technically minded students as compared to the US and proportionally produces more students of this type.

Of course, not all engineering graduates will take jobs within the manufacturing or industrial sectors. Engineers are valuable assets across all industries, but knowing that in Germany secondary education in technical fields is more comprehensive and also that the percentage of students inclined to follow courses of study in technical fields suggests that the German economy is more heavily driven by engineering and technical industries, when compared to the US.

Vocational training yields a specialist workforce

Only around 40% of German secondary school students go on to a university education. Interestingly, about 60% of all German students (not necessarily the 60% that do not attend a university) receive a vocational or trade training along with their standard compulsory education⁵⁰. The German “Dual System” of vocational and general education is one of few such systems in the world. In the program, students spend part of the time studying theoretical subjects in a vocational school and part of their time learning practical “on the job” skills with their employer⁵¹. The cost of this education is divided between the government and the sponsoring company – who also designs the course of study students will follow⁵². This system greatly benefits students, as they are able to learn both the theoretical and applied skills that will aid them in their careers. At the same time, employers are given a chance to train their employees over the course of a few years, paying the apprentices around one third the salary they will earn upon completion of the program, and ensuring they will have qualified and capable employees at the end of the apprenticeship.⁵³

In contrast to the 60% of German secondary school graduates that have learned a skilled trade while attending dual training and secondary education programs,⁵⁴ a 2005 study showed that only 20.8% of American high school graduates completed a concentration (designated by enrolling in 3 or year long courses) in a specific occupational coursework program.⁵⁵ This number has not changed much since 1990, when it was measured at 22.8%, however the actual programs in which the students enroll has changed over time.⁵⁶ In 1990 the top five most popular areas in which a high school student concentrated were:

Table 4: Top 5 Vocational Concentration Areas USA 1990⁵⁷

Concentration Area	Percentage of Total Students with Concentration (1990)
Business Services	6.7%
Agriculture	2.9%
Mechanics and Repair	2.5%

Marketing	2.4%
Materials Production	2.1%

By contrast, in 2005 the top five areas of concentration were:

Table 5: Top 5 Vocational Concentration Areas USA 2005⁵⁸

Concentration Area	Percentage of Total Students with Concentration (2005)
Agriculture	3.0%
Computer Technology	2.7%
Healthcare	2.1%
Mechanics and Repair	2.1%
Business Services	1.9%

Training received by the American secondary school students differs from what German students receive, as it is less formal and without a commensurate level of employer involvement, and is also not practiced in fields that would directly impact the industrial sector. The United States sends a larger portion of students to university than Germany⁵⁹, but Germany better prepares its students who do not attend to be more productive members of the work force.

Over the last 15 years, a number of studies were performed to compare the “...effect[s] of inter-country differences in the skills and qualifications of direct production workforces’ on firms’ productivity, quality of output, and capacity for product and process innovation.”⁶⁰ When comparing the plants within countries in which a higher percentage of the work force had vocational training (such as Germany) to comparable plants in countries with lower percentages of vocational training, it was discovered that plants in countries with more vocational training saw lower defect rates, lower ratios of direct to indirect labor, higher capacity utilization rates, and an improved scope for product and process innovation⁶¹. These results suggest that Germany’s manufacturing and industrial sector have remained a prominent part of its GDP because of increased vocational education for the work force.

Education Risks: Vocational training eases labor market exit

A Study performed for the National Bureau of Economic Research in 2011 found that secondary school graduates with strong general education and less vocational training initially had a more difficult time breaking into the work force, but that as the members of the work force aged, the advantage shifted from those with vocational training to those with general education. That is, at a young age, one with a strong vocational background and a German “dual system” of education behind them will have better employment prospects, but over time will be at a disadvantage compared to someone the same age with purely a conceptual education.⁶² According to the study, in “apprenticeship countries”, defined as Denmark, Germany, and Switzerland, when the male population is split into two categories – those with general and vocational educations – the employment patters over time are very different. During the middle years of one’s career the two education types have nearly equal employment, but at the very start of a career the employment advantage is skewed towards those with vocational training and at the end of the career towards those with standard educations.⁶³

These differences can be explained in a variety of ways. First, while the vocational education group has higher employment during the ages of 16-25 in the apprenticeship countries, during that time students attaining general educations are still in school and unable to work full time. Furthermore, the pool of people who are counted as not employed includes those who have retired, so different retirement ages and patterns between job functions given education may explain those differences. It is clear that both educational systems have their benefits and drawbacks, with neither one being the clear winner, and while a pure dual-system of education like that in Germany may not be feasible for the United States, the United States could stand to mimic parts of the German system in order to better prepare its youth for the work force.

Lessons for the US

The United States and Germany operate under different market philosophies, with neither being markedly superior to the other – both deliver economic performance and material prosperity, downturns notwithstanding.

Diversity of trading partners reduces export risk

German trading patterns deserve serious consideration by leaders of industrial nations, especially those that rely on exports. While Germany's exports are concentrated in Europe, even within the EU "...differences in economic structures, development, and business cycles ... lead to diversification of demand sources for the German economy."⁶⁴ Outside the EU, Germany's exports are diversified amongst a broad range of developing and developed nations. This geographically diverse mix of trading partners allows for economic protection when western economies slow.⁶⁵ In essence, Germany's eggs are in many baskets, not just one, as the aphorism goes. Germany's reputation for manufacturing quality serves to further ensure that that Germany will maintain a reasonable level of international demand during periods of geographically concentrated slowdown.

Employment drives confidence

Because rates of employment play such a central role in perceptions of economic prosperity, it is perhaps no surprise that the downward trend of German unemployment rates has elicited so much praise, and rightly so. However, this trend began years before the onset of the Great Recession as a response to record levels of unemployment building up over the preceding decades. Much of the progress in this area is directly attributable to the Schröder government's aggressive policies – policies that were so unpopular that the electorate moved for new leadership; interestingly, many of these recent German reforms could be seen as a move towards American-style policies (such as encouraging a low wage labor sector and the curtailment of social benefits), bringing the two systems closer together in practice. The Merkel government has kept these reforms in place while continuing economic reforms at more cautious pace, enacting emergency measures to maintain economic growth and high levels of employment – in spite of the downturn. It is here where some of the most valuable lessons regarding German economic performance can be found. Cautious drawdowns of social welfare policies accompanied with incentives to create and fill more jobs have been very successful; the creation of a low wage sector has resulted in a happier labor force, reduced government spending, and lower labor costs.

Kurtzarbeit is a viable alternative to mass unemployment

US policy makers should study the effectiveness of the short-term measures as a whole. German policy measures enabled the country to maintain a relatively high level of confidence, leading directly into a quick recovery and respectable, sustained growth. It is possible that short work measures are simply more palatable for labor and industry in a psychological sense that translates directly into real economic results.

The success of kurtzarbeit measures as a short-term palliative should be recognized and seriously considered as an alternative to unemployment insurance in the US. As Peter Sparding at the German Marshall Fund remarked in 2011: “Implementing short-term work schemes in the United States, while initially costly, would prevent some of the social costs of further unemployment during downturns while securing valuable worker skills.”⁶⁶ By splitting the cost of keeping workers on the books for the short term, German industry was able to weather the shocks that accompanied the initial onset of the Great Recession, at less cost to both the employers and the government. Had kurtzarbeit measures not been used, laid off workers would have received a similar amount of monetary compensation – but entirely out of government coffers, and for no value of production whatsoever. Short work allowed labor assets to remain in place, reducing the transfer and retraining costs that would have accompanied rehiring as the economy recovered, saving both time and money for the government, for industry, and for the workers themselves.

Vocational training should be adapted to US requirements

As Mayor Bloomberg of New York City said in an address in January of 2008, “College is not for everyone, but education is.”⁶⁷ New York City is opening up vocational schools to train its students to better enter the work force at younger ages, citing success of such programs in Germany and Japan. However, while vocational schools traditionally, and in those countries, focus on industrial occupations, those of New York will focus on more service sector orient occupations such as accounting, vision technology, veterinary science, and web design, along with the more traditional automotive technology and airframe mechanics.⁶⁸ Mayor Bloomberg is correct, college is not for all students and in order for an economy to flourish, there must be people willing and qualified to do the jobs that do not require college educations. However, as New York City aims to emulate the German “dual system” of education, which places students into the workforce at younger ages with more responsibility, Mayor Bloomberg and his education advisors should be wary of the claims that vocational training hurts long-term career prospects.

The US should not strictly adopt the German model of education and employment, as it largely relies on both employers and the government to foot the bill for students’ educations. In order for this to be viable for companies supporting the system, students must be prepared to stay with these training organizations throughout the bulk of their careers. Part of the success of the system in Germany is attributed to a “...tradition in Germany of being loyal to the company”⁶⁹, an idea to which American youth do not adhere. According to the Bureau of Labor Statistics, cited by the Wall Street Journal, three out of four workers aged 16-19 and about half of all workers aged 20-24 have been with their current employer for less than one year. Further, the average American in 2008 was with their current employer for only 4.1 years⁷⁰. This means, that the United States should take Germany’s lead by better providing education for those not looking to gain a college degree, but that the US should modify the vocational programs of Germany to better fit its needs.

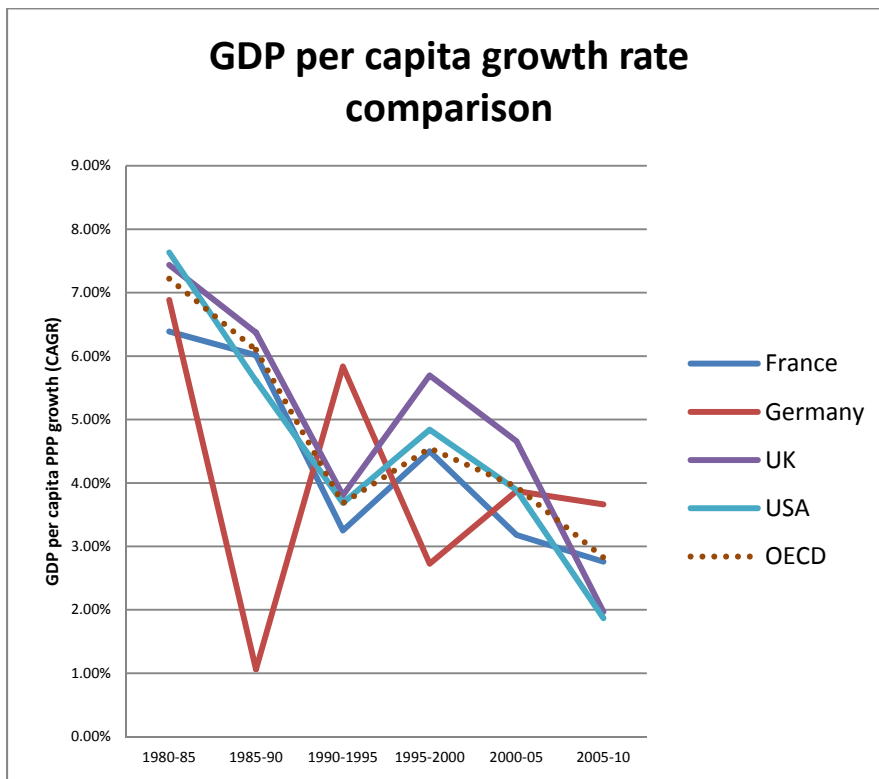
APPENDICES

Table 6: Year-on-Year GDP (PPP) per capita growth rate comparison

	1980-85	1985-90	1990-95	1995-2000	2000-05	2005-10
France	6.39%	6.01%	3.25%	4.50%	3.18%	2.76%
Germany	6.89%	1.06%	5.84%	2.73%	3.87%	3.66%
UK	7.44%	6.37%	3.80%	5.69%	4.66%	1.97%
USA	7.63%	5.61%	3.68%	4.84%	3.89%	1.87%
OECD	7.22%	6.10%	3.68%	4.55%	3.94%	2.82%

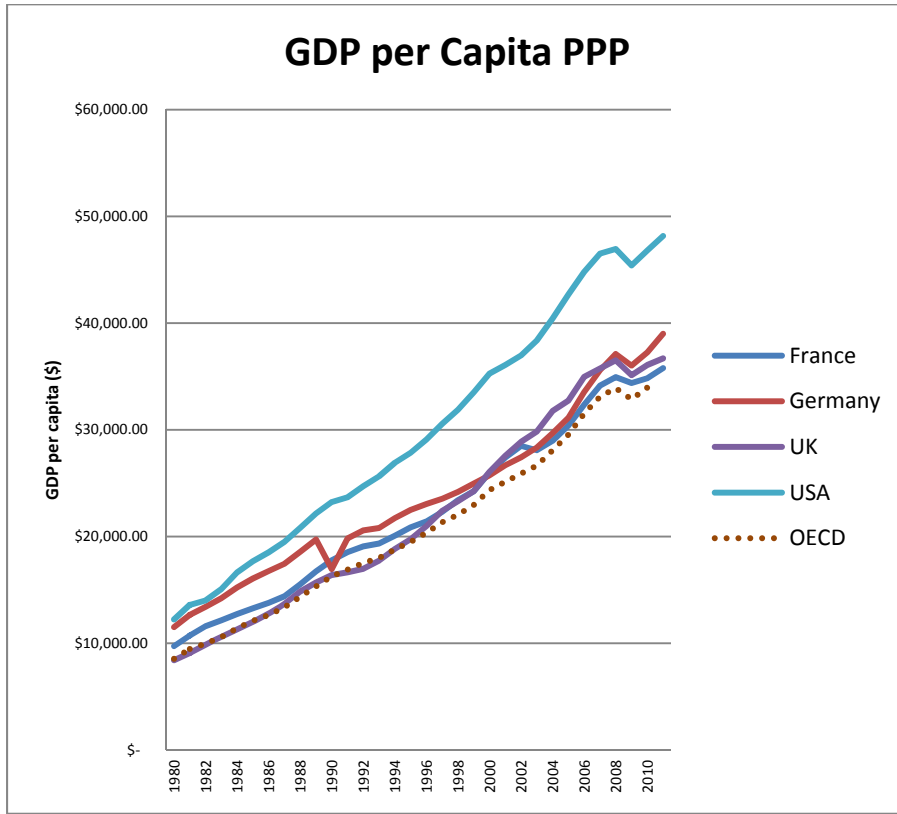
Source: EIU and OECD statistics

Figure 3: Historical GDP (PPP) per capita growth rate – France, Germany, UK and USA



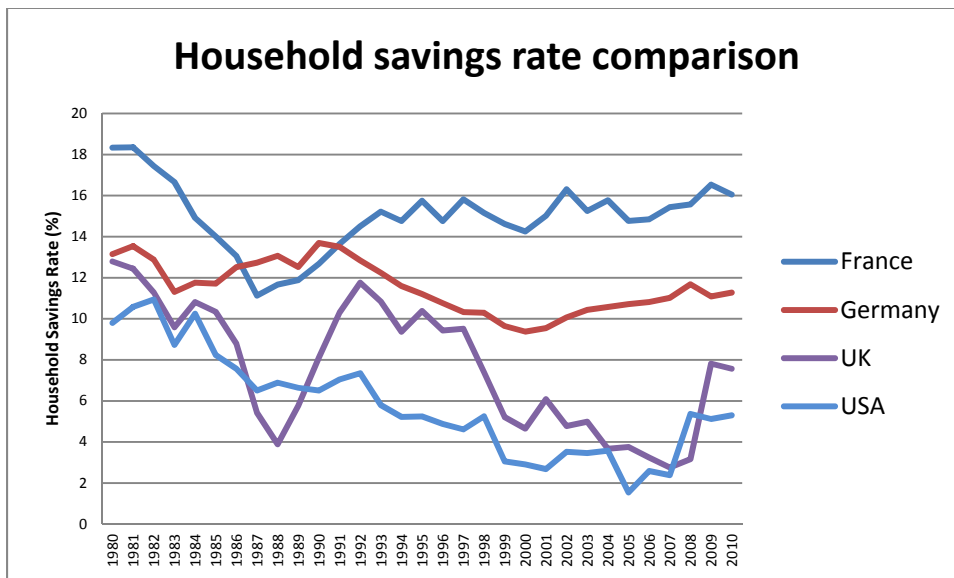
Source: EIU and OECD Statistics

Figure 4: Historical GDP (PPP) per capita – France, Germany, UK and USA



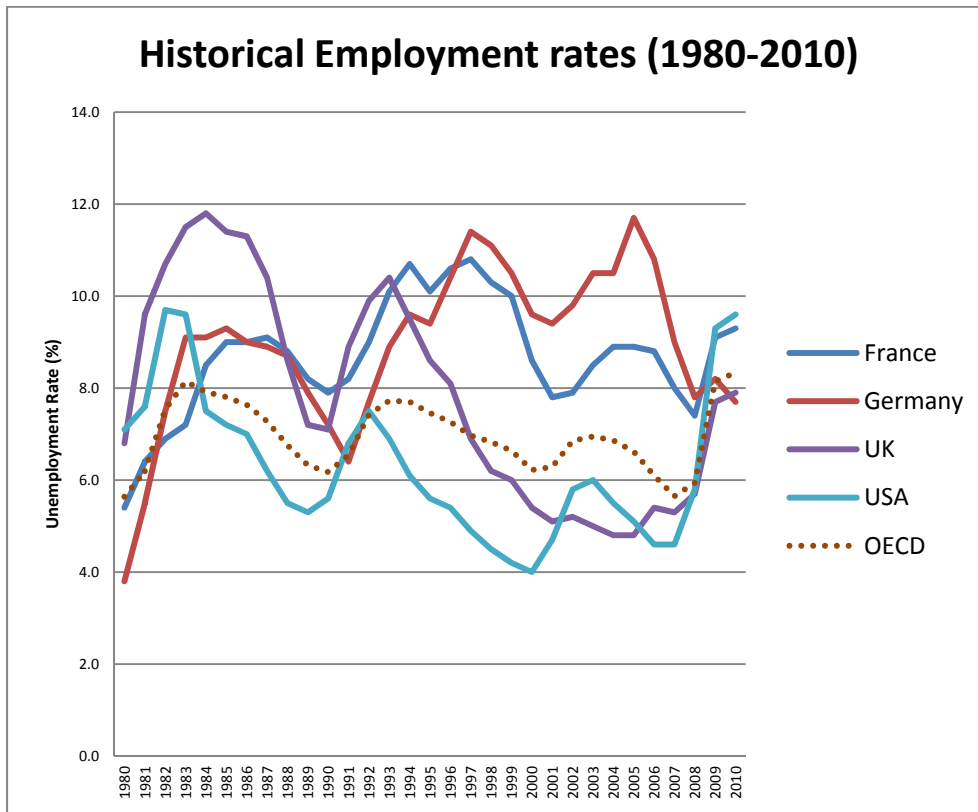
Source: EIU and OECD Statistics

Figure 5: Household Savings Rates comparison from 1980-2010



Source: OECD statistics

Figure 6: Historical Unemployment Rates



Source: Bureau of Labor Statistics and OECD Statistics

Table 7: Unemployment Rate Comparison over 5 year Increments

	1980-85	1985-90	1990-95	1995-2000	2000-05	2005-10
France	3.6	-1.1	2.2	-1.5	0.3	0.4
Germany	5.5	-2.1	2.2	0.2	2.1	-4.0
UK	4.6	-4.3	1.5	-3.2	-0.6	3.1
USA	0.1	-1.6	0.0	-1.6	1.1	4.5
OECD	2.2	-1.6	1.3	-1.2	0.4	1.7

Source: Bureau of Labor Statistics and OECD Statistics

Figure 7: German Long Term Unemployment

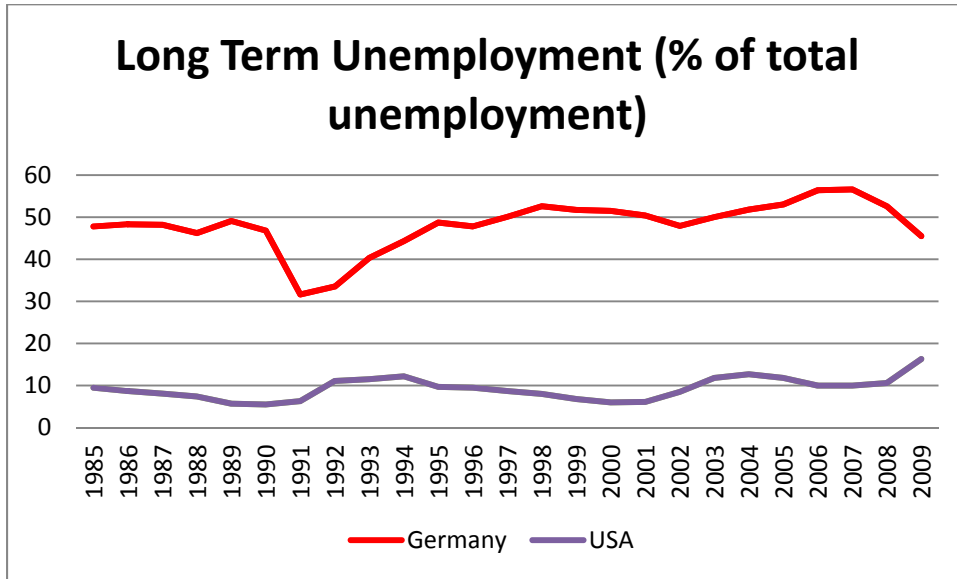


Figure 8: Long Term Unemployment as % of Total Unemployment, Q1 2011

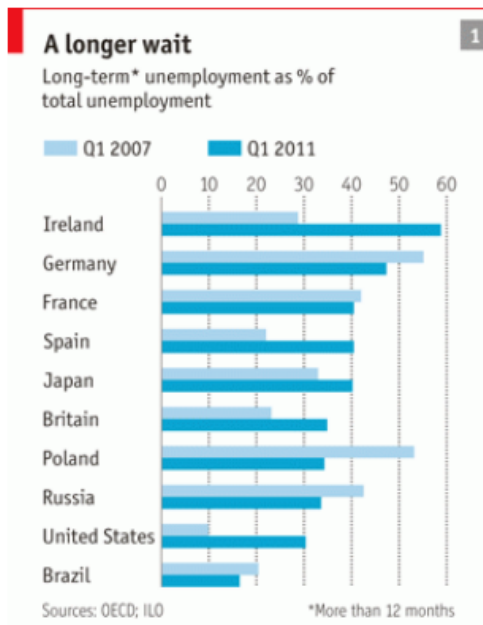
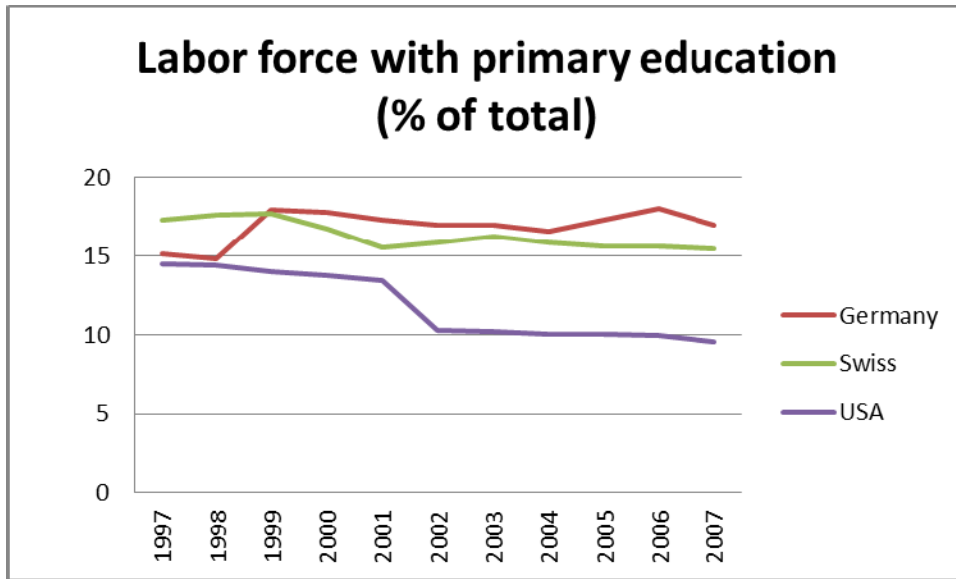
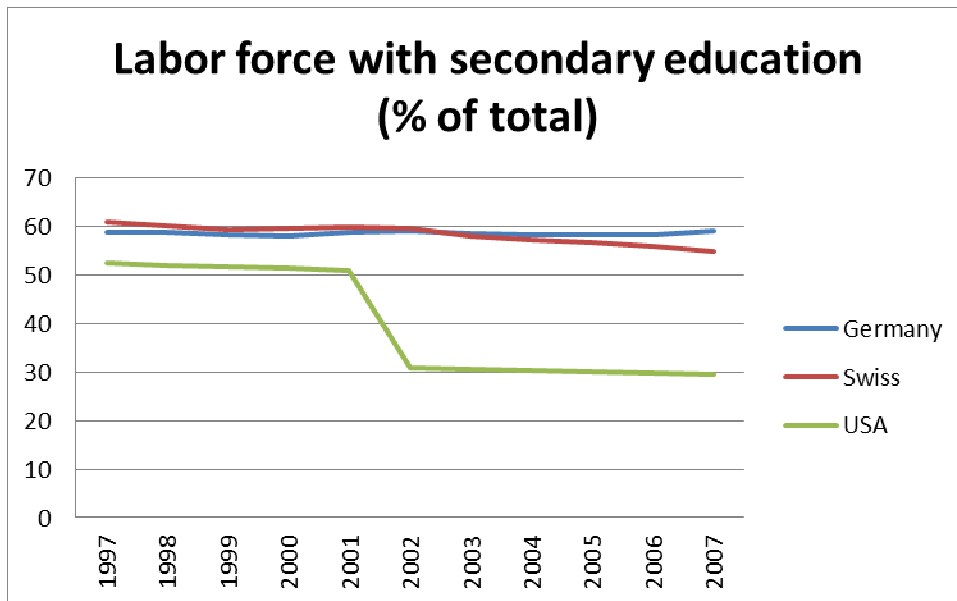


Figure 9: Percentages of total labor force with primary education only



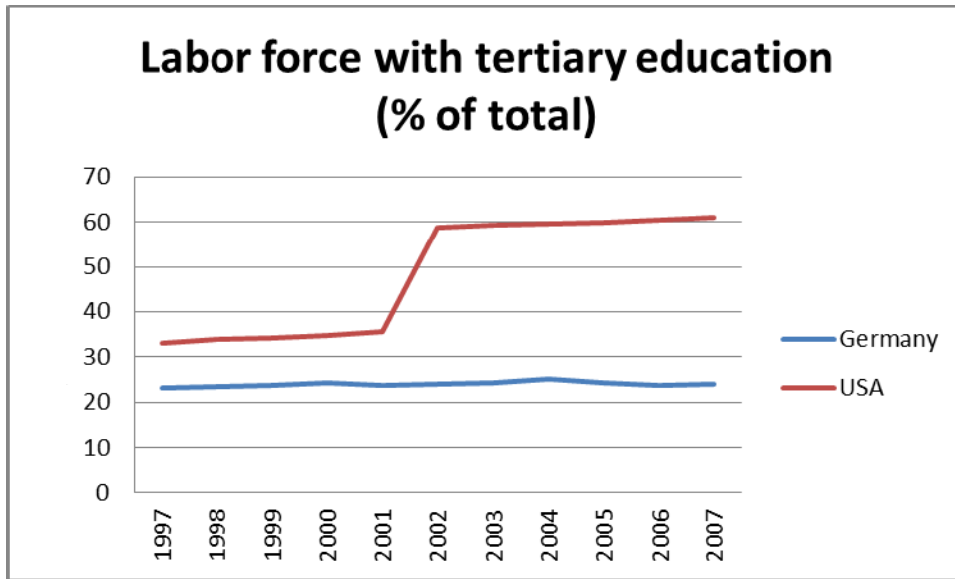
Source: World Bank, 2011

Figure 10: Percentages of total labor force with secondary education



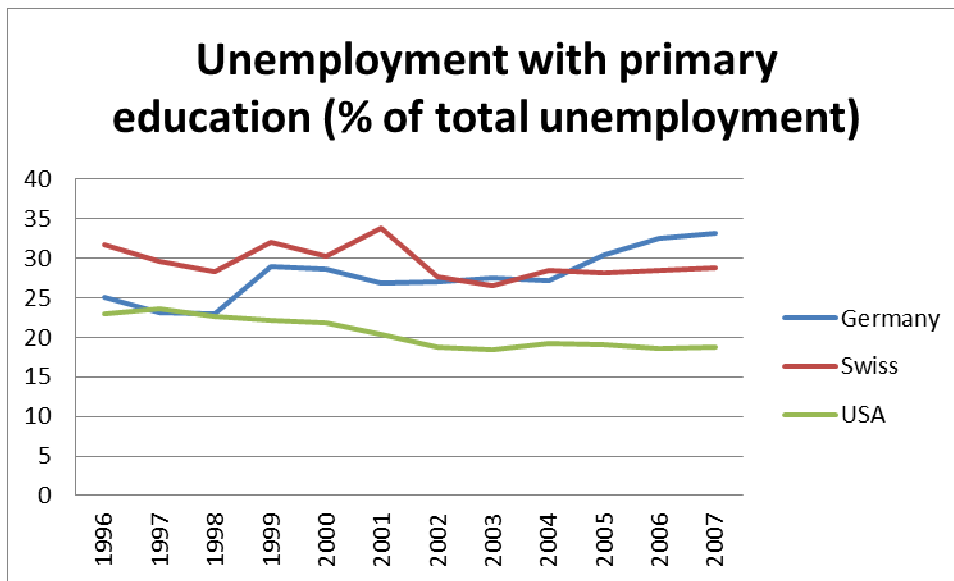
Source: World Bank, 2011

Figure 11: Percentages of total labor force with tertiary education



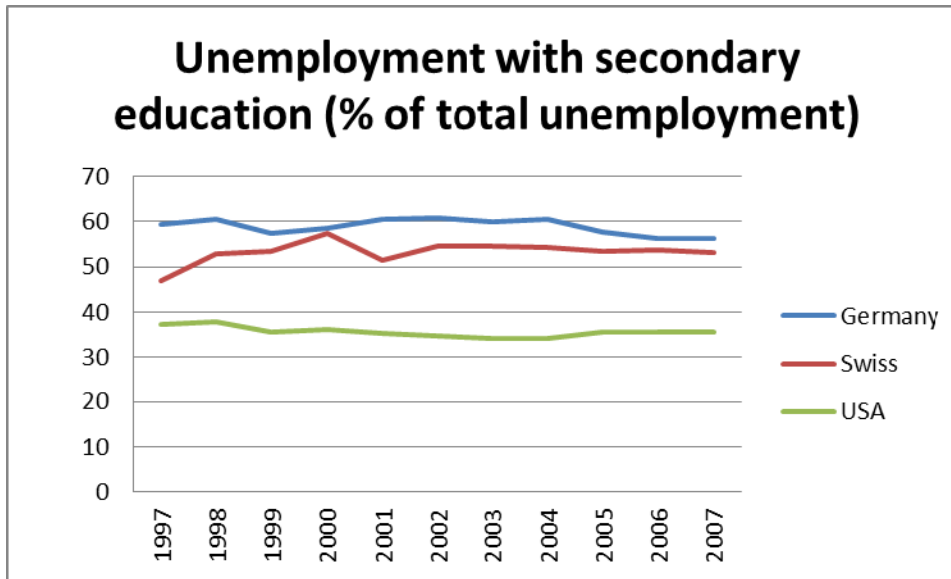
Source: World Bank, 2011

Figure 12: Unemployment levels among those with primary education only



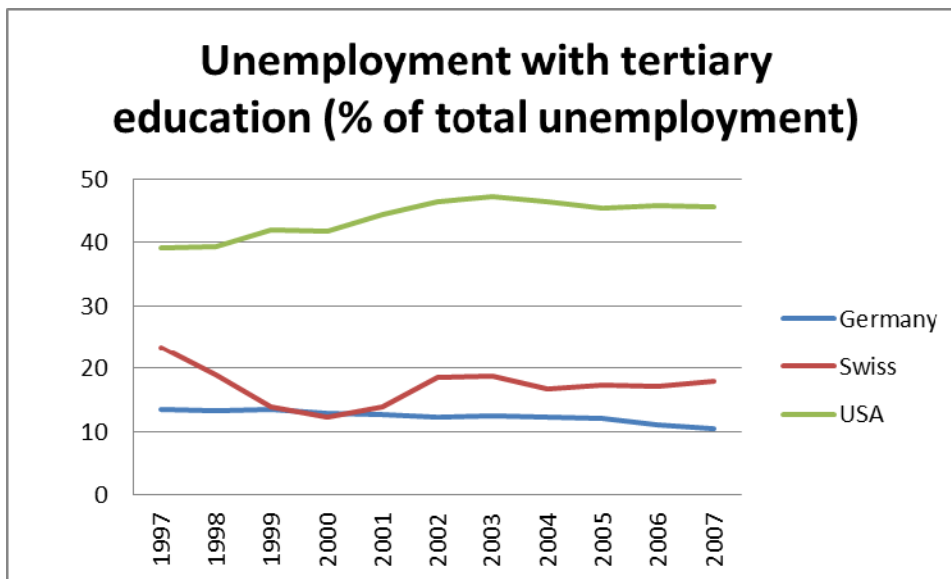
Source: World Bank, 2011

Figure 13: Unemployment levels among those with secondary education



Source: World Bank, 2011

Figure 14: Unemployment levels among those with tertiary education



Source: World Bank, 2011

Table 8: GDP Growth by Sector - USA

USA	1981-1990		1991-2000		2001-2010		2019
	Growth	Weight of GDP	Growth	Weight of GDP	Growth	Weight of GDP	Projected Weight
Agriculture	21%	2.3%	5%	1.6%	39%	1.2%	1.1%
Services	107%	67.4%	76%	73.2%	46%	77.3%	79.2%
Industry	51%	30.3%	47%	25.2%	30%	21.5%	19.7%
Manufacturing	58%	20.7%	40%	17.8%	31%	13.8%	12.6%
GDP	85%		62%		43%		

Source: World Bank, 2011

Table 9: GDP Growth by Sector – Germany

Germany	1981-1990		1991-2000		2001-2010		2019
	Growth	Weight of GDP	Growth	Weight of GDP	Growth	Weight of GDP	Projected Weight
Agriculture	39%	1.9%	-3%	1.3%	12%	1.0%	0.6%
Services	135%	59.6%	15%	66.4%	80%	69.8%	71.9%
Industry	106%	38.5%	-13%	32.4%	65%	29.2%	27.5%
Manufacturing	115%	28.6%	-12%	23.5%	59%	22.3%	20.3%
GDP	121%		24%		74%		

Source: World Bank, 2011

Table 10: GDP Growth by Sector - GBR

GBR	1981-1990		1991-2000		2001-2010		2019
	Growth	Weight of GDP	Growth	Weight of GDP	Growth	Weight of GDP	Projected Weight
Agriculture	75%	1.9%	-20%	1.5%	21%	0.8%	0.6%
Services	118%	61.0%	52%	68.8%	63%	76.0%	80.2%
Industry	67%	37.1%	19%	29.7%	27%	23.2%	19.1%
Manufacturing	77%	23.5%	16%	19.9%	7%	13.0%	9.0%
GDP	97%		48%		53%		

Source: World Bank, 2011

Table 11: GDP Growth by Sector - Switzerland

Switzerland	1981-1990		1991-2000		2001-2010		2019
	Growth	Weight of GDP	Growth	Weight of GDP	Growth	Weight of GDP	Projected Weight
Agriculture	108%	3.2%	-38%	2.0%	66%	1.3%	1.0%
Services	149%	64.0%	12%	68.6%	110%	71.6%	72.5%
Industry	118%	32.8%	-11%	29.4%	102%	27.2%	26.5%
Manufacturing	111%	22.1%	-6%	20.2%	104%	19.4%	19.1%
GDP	137%		13%		107%		

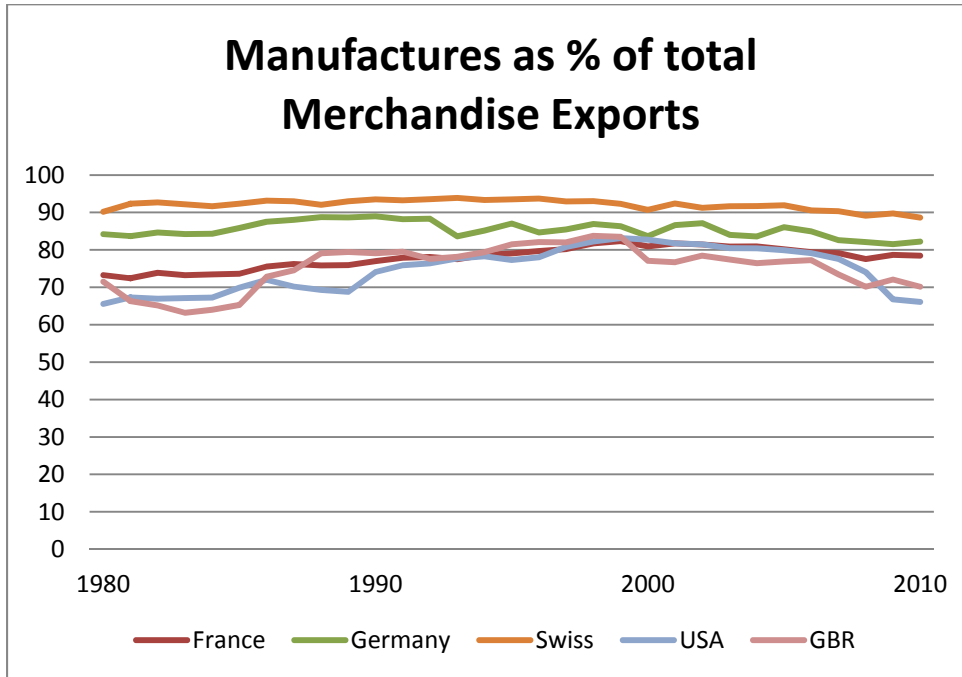
Source: World Bank, 2011

Table 12: GDP Growth by Sector - France

France	1981-1990		1991-2000		2001-2009		2019
	Growth	Weight of GDP	Growth	Weight of GDP	Growth	Weight of GDP	Projected Weight
Agriculture	80%	4.4%	-15%	3.2%	21%	2.3%	1.4%
Services	120%	67.1%	14%	72.4%	108%	77.0%	81.2%
Industry	80%	28.5%	-9%	24.3%	66%	20.7%	17.4%
Manufacturing				3.2%	36%	12.9%	8.9%
GDP	106%		17%		96%		

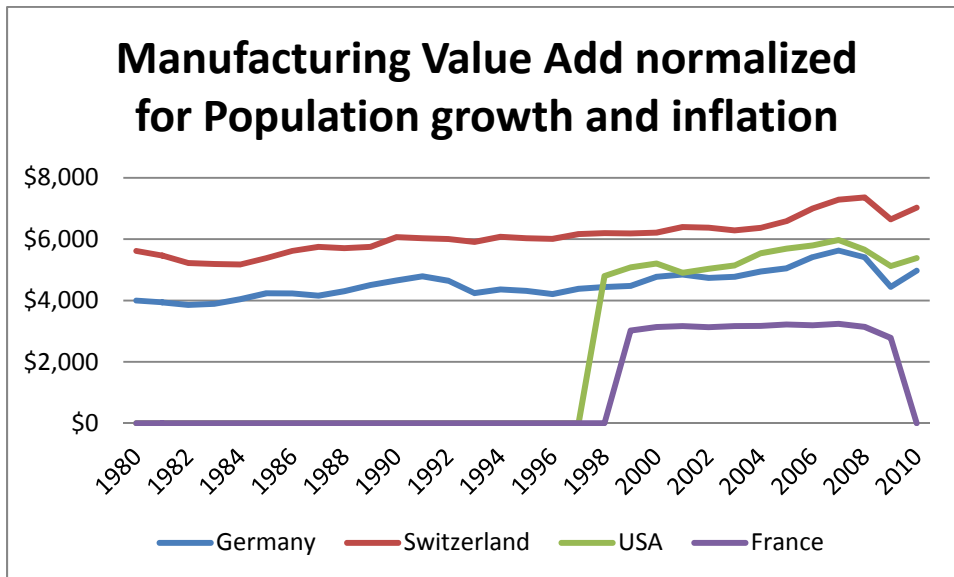
Source: World Bank, 2011

Figure 15: Manufactures a Percentage of Total Merchandise Exports



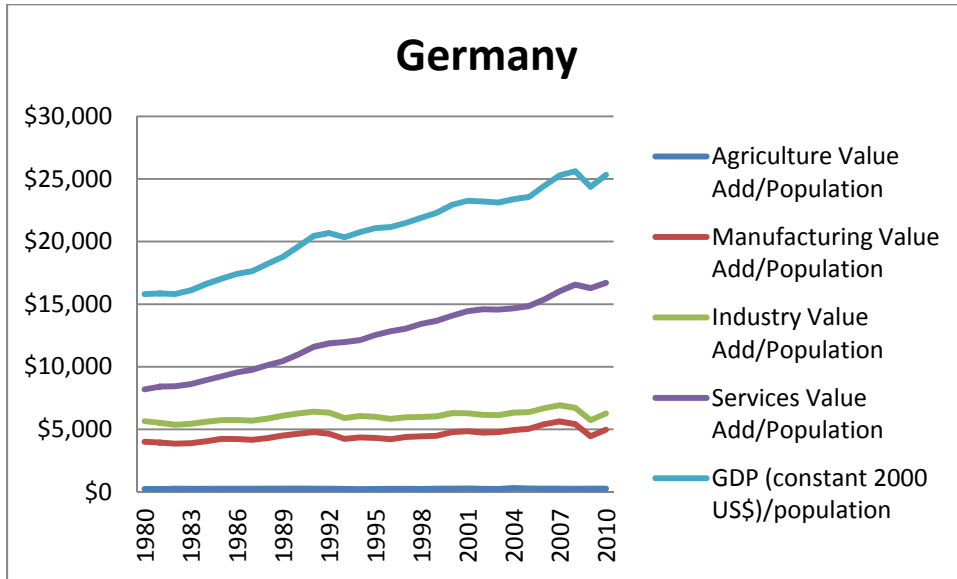
Source: World Bank, 2011

Figure 16: Manufacturing Value Add Normalized for Population Growth and Inflation



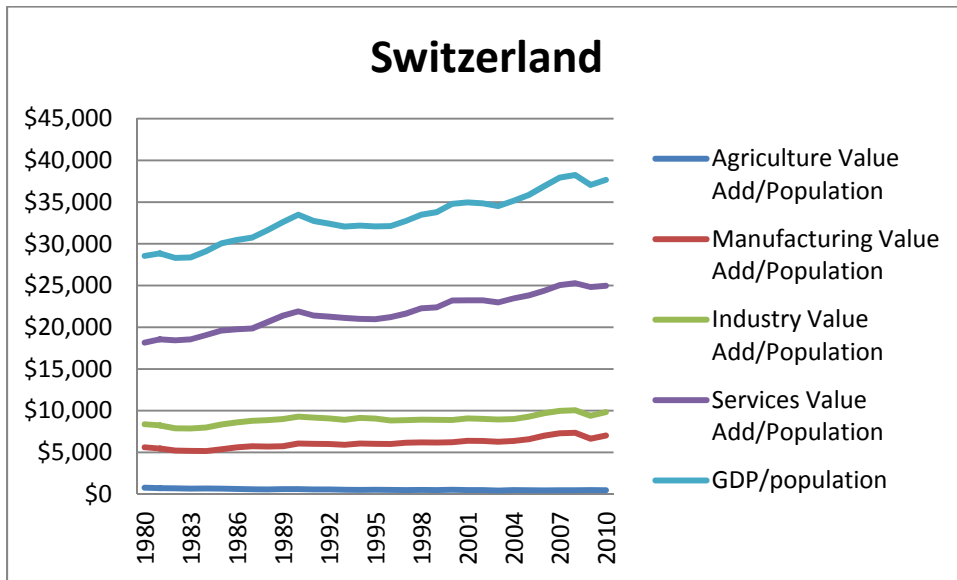
Source: World Bank, 2011

Figure 17: Value Add Per Capita in Constant 2000 USD by Sector – Germany



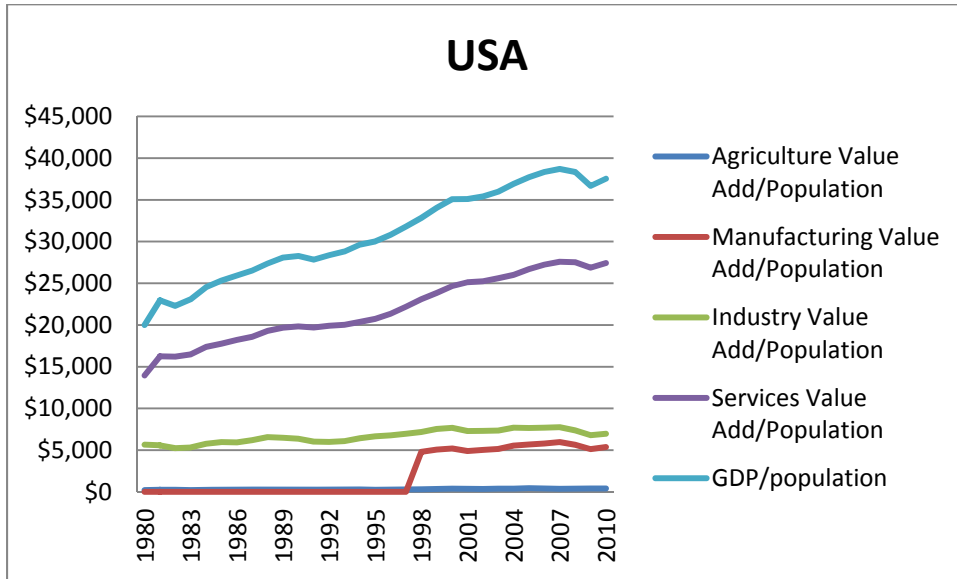
Source: World Bank, 2011

Figure 18: Value Add Per Capita in Constant 2000 USD by Sector – Switzerland



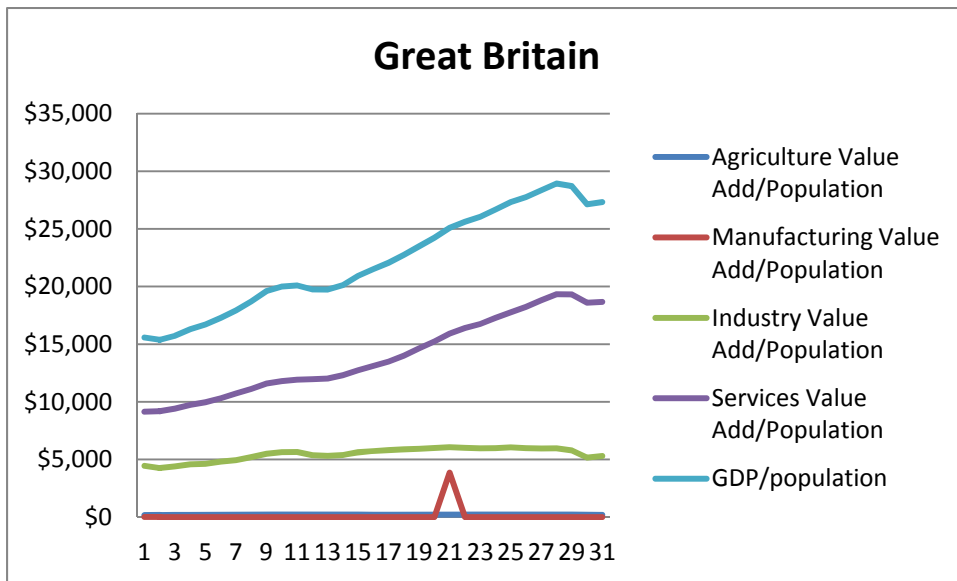
Source: World Bank, 2011

Figure 19: Value Add Per Capita in Constant 2000 USD by Sector – USA



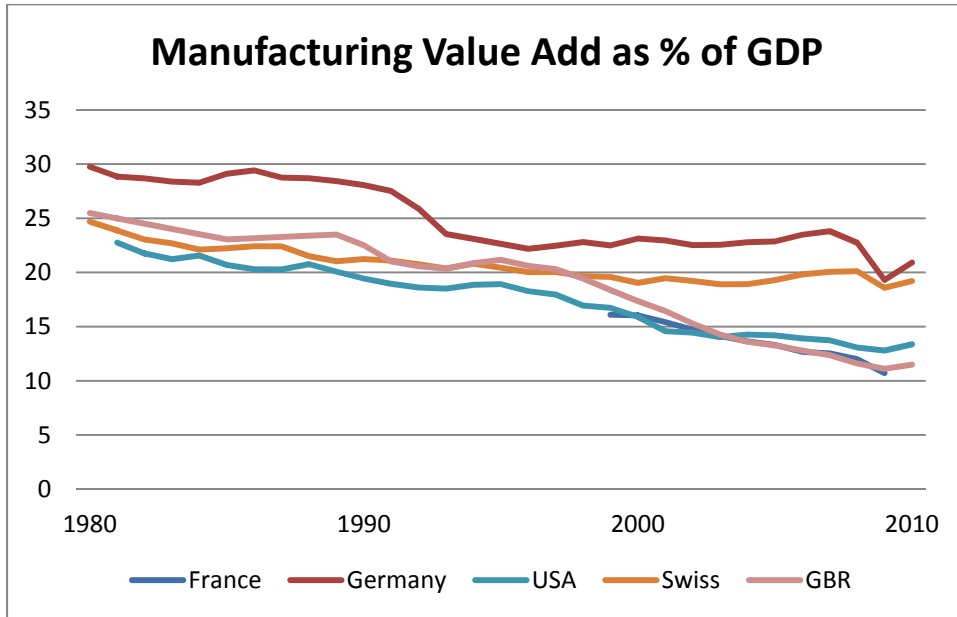
Source: World Bank, 2011

Figure 20: Value Add Per Capita in Constant 2000 USD by Sector – Great Britain



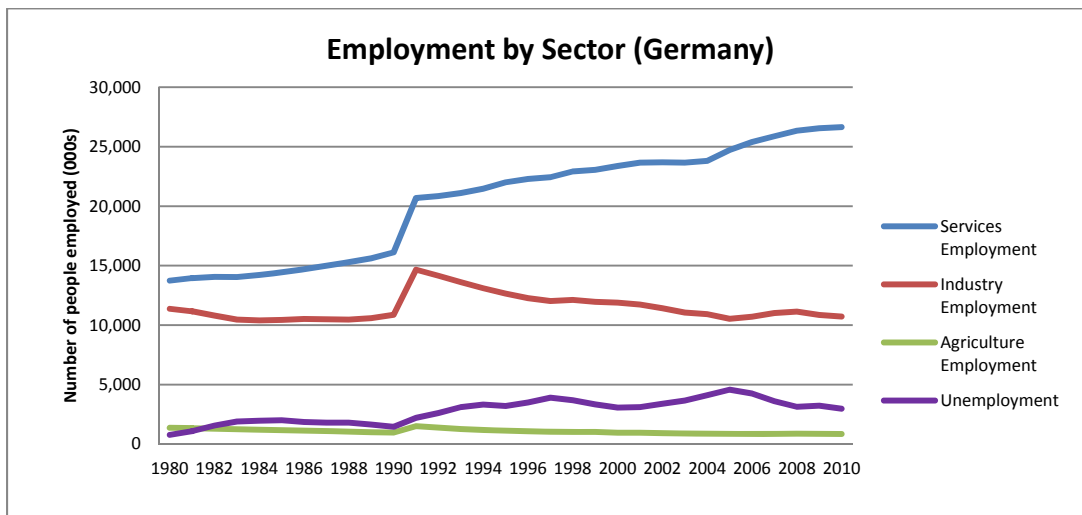
Source: World Bank, 2011

Figure 21: Manufacturing Value Add as % of GDP



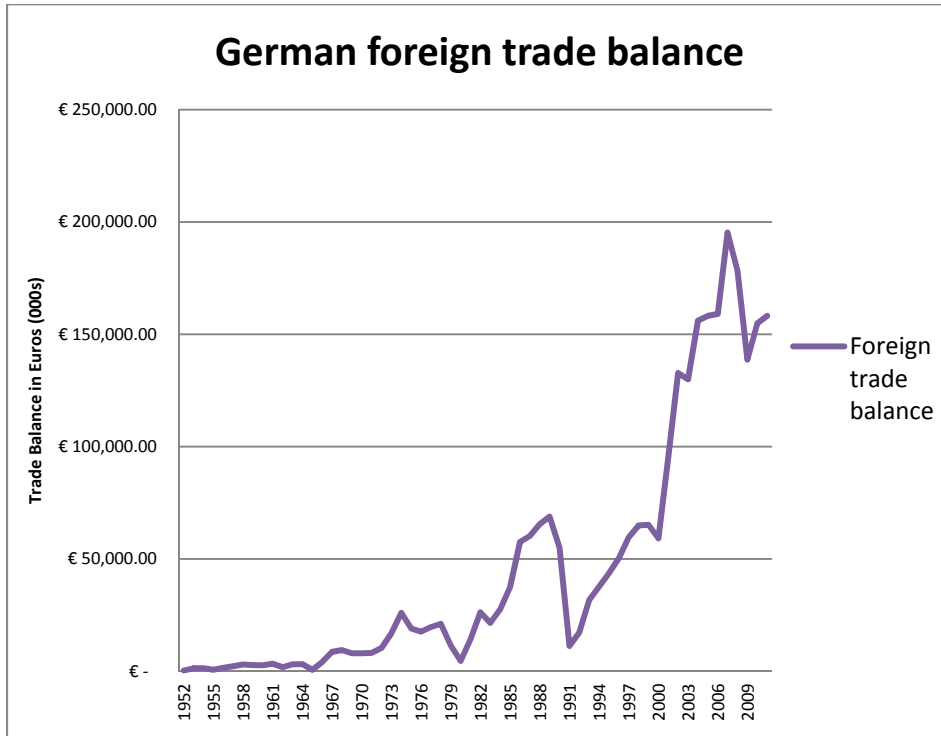
Source: World Bank, 2011

Figure 22: German Employment by Sector



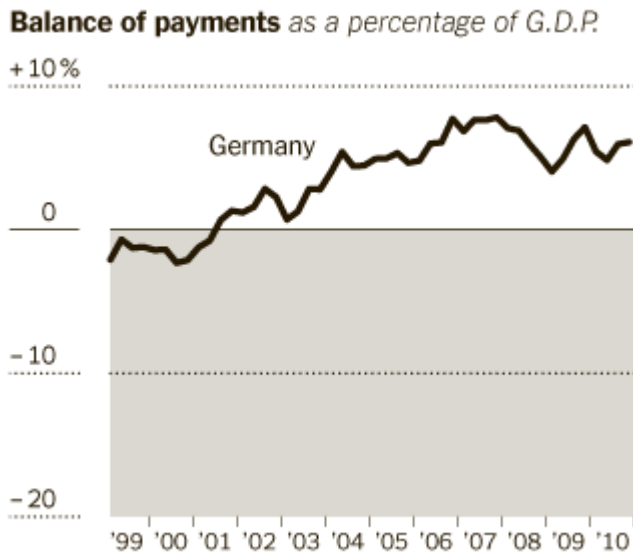
Source: Bureau of Labor Statistics

Figure 23: German Foreign Trade Balance



Source: Federal Ministry of Economics and Technology (Germany)

Figure 24: Balance of Payments as Percentage of GDP



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