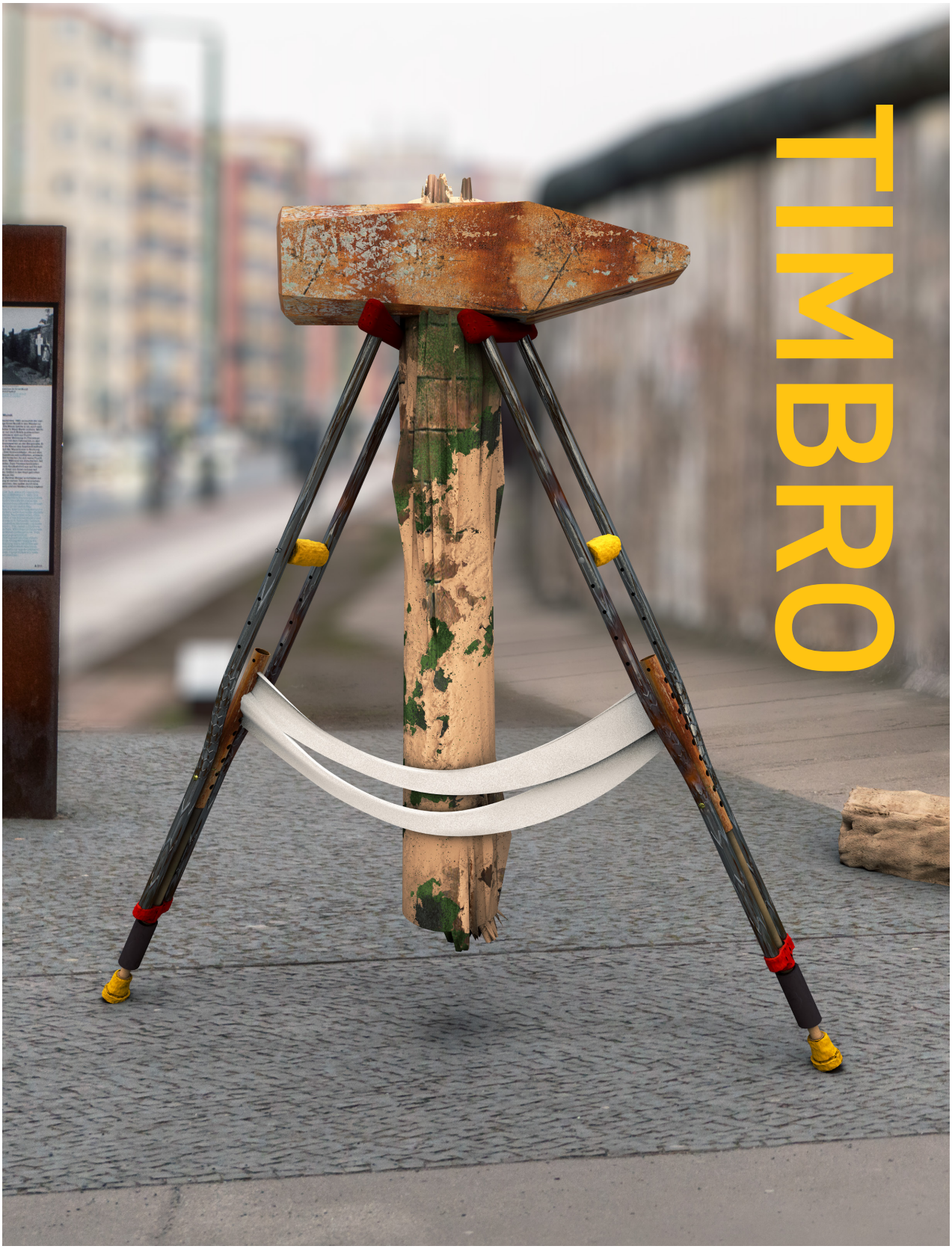

THE EAST GERMAN PHENOMENON

THE DEVELOPMENT OF PUBLIC HEALTH AND HEALTHCARE PROVISION AFTER THE FALL OF THE BERLIN WALL

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SUMMARY

- The reunification of West Germany and East Germany took place 30 years ago, ending a period of around 45 years during which Germany had been divided. Following reunification, extensive investments were made in the eastern part of the country in order to even out differences in infrastructure, industrial development and access to education and healthcare. In the field of healthcare, the previous state-run system in the East was replaced by the West German social insurance system, and the medical technology was updated as well.
- It is less well-known that, following the fall of the Berlin Wall, significant improvements in public health took place in the east of the country, where standards began to approach those of the west. This report summarises this development and the research conducted into public health and the provision of healthcare in the former East Germany.

Healthcare provision in the former East Germany

- When East Germany was a planned economy, the deterioration in economic growth not only affected investment in the welfare sector but also the ability to import products. This resulted in a shortage of medical technology and pharmaceuticals.
- Sickness insurance funds were centralised and socialised.
- There was a reduction in the number of doctors in private practice, which was replaced by public-sector 'polyclinics'.
- The provision of healthcare in the former East Germany focused on the working population's ability to contribute to the country's production, which had an adverse effect on older members of the population.
- From the early 1970s until the fall of the Berlin Wall, there was an increase in the differences in living standards and life expectancy, to the detriment of residents of East Germany.

Developments following reunification

- The per capita cost of healthcare provision tripled in the former East Germany, and the availability of modern methods of treatment improved significantly.
- The previous public-sector polyclinics were discontinued and replaced by practices with private doctors.
- The hospital sector was largely privatised, and the for-profit hospitals increased their market share.
- Older residents of the former East Germany became eligible to the West German

pension system, which increased their standard of living.

- The years following the fall of the Wall saw a dramatic reduction in the differences in public health – most notably, in the average life expectancy. Within a relatively short period of time after reunification, the life expectancy of both men and women in the east of Germany increased significantly, approaching the same levels as in the west.
- The average life expectancy increased most for the oldest age group (those aged above 65 years).
- Statistics for the reduction in morbidity rates show that this development is primarily explained by improvements in the treatment of cardiovascular diseases.
- From an international perspective, the relatively rapid change in the state of public health in the eastern parts of Germany is unique, and demonstrates the importance of economic growth, investments in healthcare, and a well-functioning pension system.

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INTRODUCTION

Thirty years have passed since the reunification of western and eastern Germany, which took place one year after the fall of the Berlin Wall. In the summer of 1990, following the dismantling of the East German one-party state and subsequent democratic elections, both German nation states signed a treaty agreeing to an economic and socio-political union, with a common currency. On October 3, 1990, the states of the former German Democratic Republic (GDR), together with East Berlin, officially joined the Federal Republic of Germany. One year later, the parliament (the Bundestag) and the seat of government was relocated from Bonn to Berlin. Reunification was followed by a period of major investment in the eastern part of the country, not only in infrastructure and industry but also in the welfare sector. The political objectives were to even out the major differences that had existed at the time of the fall of the Berlin Wall in basic social structures, industrial development, living standards and access to education and healthcare. With regard to the provision of healthcare, East Germany's previous state-run system was replaced with the West German social insurance model, which was based on sickness insurance funds and a combination of local state hospitals, private hospitals and practices with private doctors. This system was part of a long tradition in Germany, extending as far back as the Bismarck era at the end of the 1800s. Large-scale investments were made during the 1990s in order to even out the differences that had emerged between the two former countries and to improve the healthcare infrastructure in the east, including the modernisation of buildings and equipment and the training of healthcare personnel. In consideration of the neglected healthcare system in the old East Germany, investments were made in order to introduce modern medical technology and new innovative pharmaceuticals, which had not previously been available. As a result of these investments and interventions, the per-capita cost of healthcare provision in the former East Germany tripled over the next ten years. In parallel with the medical investments – and equally as important – improvements were also made to the pension system, whereby older residents of the former East Germany experienced an increase in their standard of living as a result of their entitlement to the benefits of the West German system. One of the clearest positive effects of reunification and of the investments in the former GDR has been the improvements in public health – particularly with regard to the increases in average life expectancy. In the 20 years before the fall of the Berlin Wall, the health gap between West and East Germany had increased significantly. Within a relatively short period following reunification, the average life expectancy of both men and women in eastern Germany increased quickly, and is now close to the levels in the west. At the same time, however, problems remain in other areas, such as employment and industrial development, where changes have not taken place as quickly as had been hoped. The level of unemployment rose after reunification, and remains higher in the east of the country than in the west. Employment levels (including involvement in education, etc.), however, are broadly the same in both eastern and western Germany.

The rapid improvements in public health in eastern Germany have attracted relatively little attention, even though this development is unique and demonstrates the importance of not only economic growth and investment in healthcare provision but also of a well-functioning pension system. The positive developments in public health in the former East Germany can also provide knowledge of which factors have a positive or negative effect on public health. The purpose of this report is to summarise and present the research that has been conducted with regard to the development of healthcare provision and public health both prior to and following the reunification of the two German nation states.

HISTORY

Germany has been seen as the standard bearer for what the literature refers to as the Bismarck mode of financing and providing healthcare.[1] Mandatory sickness insurance was introduced in 1833 in order to provide workers with access to healthcare and protection against high treatment costs, and this represented the world's first universal healthcare system. Social conflicts and shared interests between employers and trade unions contributed to the system's emergence, along with the development of a more independent medical profession. Around the turn of the century, the relationship between the sickness insurance funds and the medical profession was strained; some of the sickness insurance funds employed their own doctors, whilst the independent doctors were, to varying degrees, affiliated with the social insurance system. Following a series of conflicts and strikes, the model of independent, privately practicing doctors began to gain ground, and, with some exceptions, remained intact throughout the Nazi and socialist regimes. The freedom of citizens to choose their own doctors (and, to some degree, hospitals) has been a key element of the system, and was expanded shortly before the outbreak of the First World War. Doctors' strong interest in being able to work independently with their patients contributed to freedom of choice among providers becoming a right for insured citizens.

Ever since its introduction, this system has built upon a clear delineation of financiers and purchasers on the one side, for which the sickness insurance funds have been responsible, and the practitioners on the other side, where independent care providers (both public and private) have been responsible for the provision of care. The organisation of the sickness insurance funds had been built upon traditional affiliations with trades and industries, and free competition between the insurance funds was not introduced until the early 1990s. The principle of solidarity with regard to the financing of and access to healthcare was initially linked to occupational affiliation and membership in the sickness insurance funds, although it was mandatory for both employers and employees to be registered and both groups contributed to the financing of the system. In 1885, however, just 10 percent of the population were registered with the social insurance system, although this figure gradually increased and, after the end of the First World War, the unemployed, housewives and (at a later stage) pensioners also became included. The self-employed and certain other groups were covered by private insurance, but are also covered by the social insurance system today (Busse et al, 2017).

The principles of the insurance were based upon solidarity and autonomy, which had been at the core of the development of the system and would eventually come to apply to the entire population, and with a greater range of benefits. Ever since the early 1900s, the model has remained relatively intact, with the exception of the period of National Socialism (1933-1945) and, in eastern Germany, the division of the country during the socialist period (1945-1989).

Healthcare provision during the National Socialism period (1933-1945)

During the Nazi period, the regime strengthened its grip of the healthcare system by means of centralisation and state control. This meant that the sickness insurance funds, doctors' organisations, local state authorities and other institutions were, to varying degrees, regulated and controlled by central authorities led by appointees of the Nazi Party. Representatives of employers and employees lost their influence and were only afforded a limited, advisory role. Compared to other institutions, professional doctors' organisations retained a relative degree of independence, partly on the condition that they accepted new legislation that

1. In Europe, countries with taxation-based systems have represented the alternative – often known as the Beveridge system, named after the British economist who was one of the founders of the British National Health Service.

prohibited strikes (Busse et al, 2017). The Nazi Party also used its national influence to pursue its ideological plans, by prohibiting Jewish doctors from practicing their profession and by identifying and finding groups that they regarded as being non-desirable and subjecting them to internment and placement in concentration camps. Prisoners of war, certain immigrants and other vulnerable groups with their own profession or employment were forced to contribute to the social insurance system without any reciprocal guarantee that they would be able to receive any benefit in return, or they were only given access to healthcare of a much lower standard. There is documentary evidence that parts of the medical profession participated in the identification of social groups (primarily Jews) who were regarded as non-desirables. A small number of doctors even participated in torture, medical experiments and mass murder at internment facilities and concentration camps. Some of these were prosecuted at the Nuremberg trials, resulting in long prison sentences or even the death penalty (Busse & Blümel, 2014). Although the Nazi government increased the state's control over the provision of healthcare by restricting the autonomy of the sickness insurance funds and of the medical profession as a whole, the fundamental structure survived.

The development of social insurance in West Germany during the post-war period

The Second World War was followed by a period that saw the reconstruction of not only the healthcare system, but also other sectors in the three zones occupied by the victorious Allied powers. As part of this reconstruction, the healthcare sector in the British zone was initially more centralised, whilst the equivalent sector in the French zone was more decentralised. For a short period in the immediate aftermath of the war, there was an attempt by the sickness insurance funds, the trade unions and the Social Democratic Party to break the exclusive rights of privately practicing doctors to provide outpatient care, which hospitals were not allowed to do. At the same time, there was an attempt to introduce a centralised and standardised sickness insurance fund for the entire country. After the election in 1949 (which was won by the Christian Democratic Union Party) and the establishment of the Federal Republic, however, the system reverted to the previous structure that had existed before the Nazi Party came to power, with a variety of autonomous sickness insurance funds with occupational affiliations, and doctors' professional organisations subject to regulation and legislation by the state. The funding principle – with contributions from employers and workers – was strengthened, and employers' organisations and trade unions were also given representation on the boards of sickness funds.

As in many other Western countries, the 1950s and 1960s saw an increase in the costs of the system. The introduction of new medical technology, the training of more doctors and members of other healthcare professions and investments in more hospitals and healthcare facilities, as well as an expensive system of compensation, all contributed to this expansion. At the same time, groups that had previously been excluded from the insurance system of healthcare benefits – namely farmers, students and the disabled – now joined the system. In 1972, the federal states were given greater responsibility for financing and regulating major investments in equipment, as well as for the expansion and construction of existing and new hospitals. A principle of shared financing was introduced, whereby the federal states became responsible for capital costs (primarily concerning hospitals) and the sickness insurance funds took responsibility for the running costs. The idea was to improve the opportunities for cost control by being able to place restrictions on the availability of expensive medical technology and on the capacity of hospitals. Following the oil crisis of 1973 and the resulting macro-economic decline and restrictions on public spending, a period of cost-control for the healthcare sector began. Since then, the sickness insurance funds became subject to financial regulation, whereby the level of expenditure must correspond to the level of revenue. Both the federal government and the states (Bundesländer) have also increased the con-

trol of reimbursement systems and the contracts between the sickness insurance funds and the care providers. The reimbursement system is centrally regulated, although the parties are free to reach agreements on prices for reported performance. The total cost framework is controlled through different bonus and sanction mechanisms for staying within or for exceeding budget limits, respectively. The social insurance model in West Germany has been considered to be relatively successful, and has been adopted by other countries in Western and Central Europe, such as the Netherlands, Belgium, France, Switzerland and Austria. Healthcare is provided to all citizens and is distributed equally, just as in taxation-based systems such as that in Sweden. During certain periods, cost developments have been problematic, but these have been rectified relatively quickly through government regulation. Today, expenditure in the healthcare sector constitutes 11.3% of Germany's GDP, compared to 10.3% in Sweden and an EU average of 9.9% (OECD, 2020). Developments in public health have largely followed the international trend for industrialised countries.

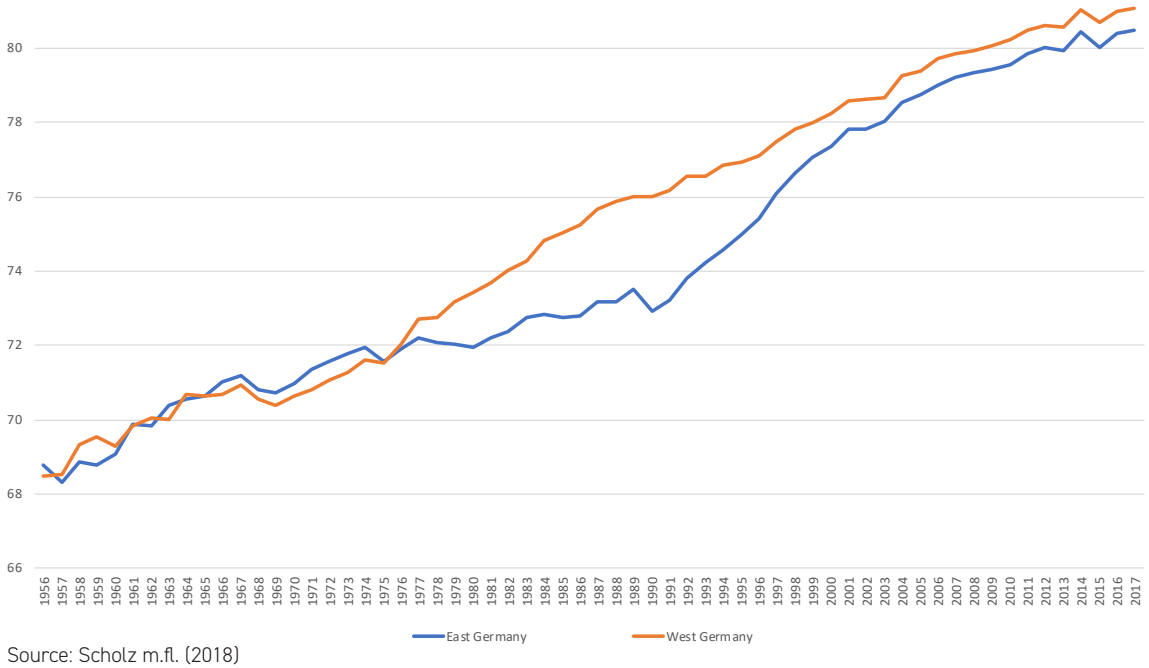
HEALTHCARE IN EAST GERMANY

Following the Second World War and the creation of the German Democratic Republic (GDR), the healthcare sector was reformed in order to ensure increased state control, although elements of the original Bismarck model were retained. With regard to fighting infectious diseases, state control was introduced reflecting the Soviet model, despite doctors' organisations objections. As a result of new legislation in 1950, the sickness insurance funds were centralised to form two large bodies, the financing of which was still shared by employers and workers. The largest of the new sickness insurance funds covered 89 percent of the population (primarily officials and workers), whilst the smaller fund covered farming cooperatives and the self-employed. Financing was regulated by the state (although with annual contributions) until 1971, after which the system had to contend with major underinvestment until the fall of the Berlin Wall in 1989. It was during this period that the healthcare sector in East Germany became unable to keep pace with the developments of new technology and innovative pharmaceuticals (McKee & Nolte, 2004). The quality of the care provided was inadequate, and the importing of pharmaceuticals from Western countries become more difficult due to poorer economic growth.

Problems related to economic growth can be linked to the economic system of the GDR, a planned economy with five-year plans, which was introduced in the early 1950s. The dominant companies were Volkseigener Betrieb ('company owned by the people') and other state-owned business groups (Kombinat). Agriculture was also nationalised, with the exception of a few family-owned businesses. At the beginning of the 1970s, a number of private companies that had previously been accepted were nationalised, following pressure from the Soviet Union. This resulted in further goods shortages and reduced access to modern products, which also adversely affected the healthcare sector.

Unlike other countries on the Soviet side of the Iron Curtain, East German healthcare institutions were not completely socialised. Certain doctors remained able to operate their practices independently, although most doctors were employed by state polyclinics, some of which were

Figure 1. Life expectancy at birth (years) for men and women in West Germany and East Germany, 1956-2017.



Source: Scholz m.fl. (2018)

located in direct connection to workplaces.[2] At the same time, the strict division between hospitals' inpatient and outpatient care was retained. The ownership structure was gradually changed, with reductions in the proportion of private hospitals – both those operated for profit and on a non-profit basis. By the time the Berlin Wall fell, just 7 percent of beds for inpatients were provided by institutions other than state-owned hospitals (Busse & Nolte, 2004).

Until the end of the 1960s, investments were made in local facilities focusing on areas such as primary care, preventive care and paediatric and maternal healthcare. These reforms also received attention in the West, where they were seen as the predecessors of modern healthcare systems. Until the end of the 1960s, various health indicators showed a similar development in both West and East Germany. From the beginning of the 1970s, however, investments in the healthcare sector were reduced, resulting in underfinancing and shortages of personnel, pharmaceuticals and modern medical technology. By the end of the 1980s, utilisation of the healthcare system was clearly lower in the GDR than in the Federal Republic.

Average life expectancy from the 1970s

During the period following the Second World War, both German states experienced a similar trend in average life expectancy, and this continued until the end of the 1960s. As in most other developed countries, life expectancy increased primarily due to advances in the ability to prevent and treat infectious diseases. In 1970, the average life expectancy was still the same in East Germany as in West Germany: around 73.5 years for women, and for men the life expectancy was actually 0.8 years higher in the East (68.1 years) than in the West (67.3 years) (Vogt & Kluge, 2014). Between 1970 and the fall of the Berlin Wall in 1989, however, there was a considerable increase in the health gap, to the detriment of the East German population (see Figure 1). As can be seen in the graph, the expected life expectancy at birth developed much more slowly in East Germany – even stagnating in certain years. The turbulence experienced in the immediate aftermath of the fall of the Wall also had a negative impact on the life expectancy in the former East Germany during a period of a few years.

The welfare policy of the GDR (including healthcare provision) was primarily focused on ensuring that citizens could contribute to high levels of industrial productivity and the success of the socialist economy. This entailed a prioritisation of the working population, whilst the health and access to healthcare of the non-working population was deprioritised. Instead, investments were made in family policy (including an attempt to increase women's labour force participation), occupational medicine and special benefits for groups who were considered to make a positive contribution to the country's economic development. Those groups that had left the labour market, mainly the elderly and other groups who were without employment, were granted less-favourable benefits. In the early 1970s, the income-based pension for an East German retiree was equivalent to just 26 percent of the average salary. In West Germany, the pension amounted to around 43 percent of the gross salary, which was equivalent to 63 percent of the salary after tax (Vogt & Kluge, 2014).

The disregard for the opportunities and access to services of the elderly largely applied to the healthcare sector, which was not only underfinanced but also lacked innovative pharmaceuticals and modern medical equipment. Generally speaking, the medical technology and pharmaceuticals that were available were about 15 to 20 years behind the standards of Western countries (Vogt & Kluge, 2014). The greatest impact of these shortcomings in both access to and the quality of healthcare was on the elderly. One clear example of this is the increased morbidity due to treatable diseases, such as those affecting the circulatory system, where the standard was clearly lower than in the West (Nolte et al, 2002).

2. As a type of healthcare facility, the concept of polyclinics takes different forms in different healthcare systems. Here, a polyclinic represents a relatively large outpatient facility in public ownership, providing specialist care.

THE TRANSITION PERIOD AFTER THE FALL OF THE BERLIN WALL

At the time the Berlin Wall came down, West and East Germany had completely different economic systems and political structures. West Germany was characterised by a market economy with a democratically elected parliament and government, whilst East Germany's economic system was based upon a planned economy and a communist dictatorship. West German companies were exposed to competition with global exports, whilst East German companies were protected from competition, and international trade was only possible within a very limited geographical area. Reunification was followed by a period of major investments in order to rebuild the neglected infrastructure of the former East Germany, involving, among other things, the road network and other transport infrastructure, the modernisation of industry and the introduction of a market economy.

The German federal government invested enormous resources in the form of financial support packages for companies in the former East Germany. Despite this, around 3,000 companies became bankrupt, which led to increasing unemployment and other social problems. The need for continued investment in the east led to an increase in taxation, and in 1991 the so-called solidarity contribution ('Soli') was introduced for residents throughout Germany – effectively an increased income and corporation tax intended to stimulate the new federal states. The continued investments in the east of the country not only concerned infrastructure and industry, but also the reform of the welfare sector. The political objectives were to even out the major differences that existed at the time the Wall fell with regard to basic societal structures, industrial development, living standards, and access to education and healthcare. To all intents and purposes, reunification resulted in the eastern states being integrated into the West German welfare system. At one point, the development of a 'third way' was discussed, as a compromise between the two systems. However, this was dismissed not only for political but also for legal and practical reasons, as well as a result of pressure exerted by interest groups. With regard to the welfare sector, the research literature tends to focus on two measures that contributed to the positive development of health standards in eastern states: the investments in and modernisation of healthcare provision and the improvements made to transfer-payment systems (particularly pension benefits).

Healthcare provision

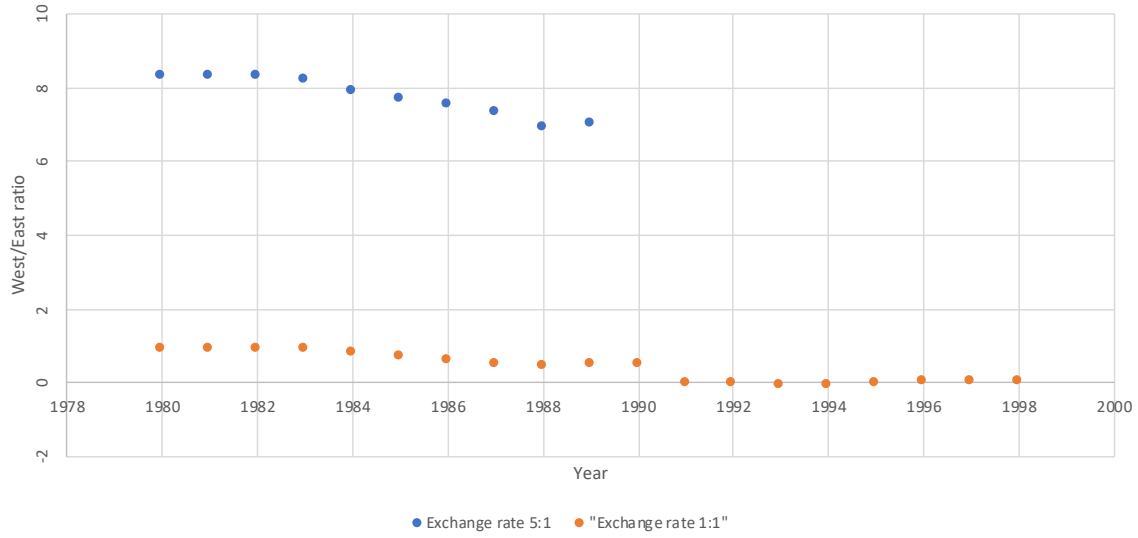
In the summer of 1990, the two German states agreed on a treaty for a currency, economic and socio-political union, which marked the beginning of the integration and standardisation of the two states' welfare systems. As mentioned earlier,

Table 1. Changes in ownership structure within the hospital sector in Germany, 1991-2012.

Ownership	Public		Private, non-profit		Private, profit-driven		Total
Year	Beds (thousands)	Proportion	Beds (thousands)	Proportion	Beds (thousands)	Proportion	Beds (thousands)
1991	367	61%	207	34,6%	24	4,0%	598
2000	284	54%	201	38,4%	39	7,4%	524
2004	256	52%	180	36,7%	54	11,0%	490
2010	223	48%	164	35,5%	75	16,2%	462
2012	218	48%	162	35,2%	79	17,2%	458
Difference	-41%		-22%		+229%		-23%

Source: Busse & Blümel (2014).

Figure 2. West/East ratio for healthcare costs per capita, 1980-1998.



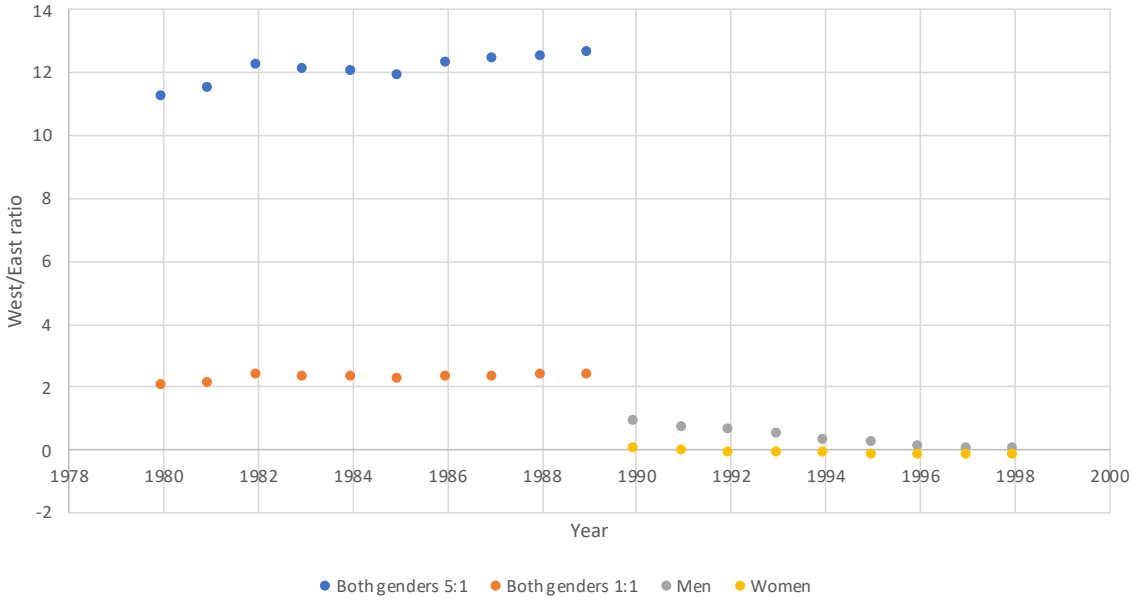
Source: Vogt & Kluge (2014)

a compromise had also been proposed, which would have seen the introduction of one central sickness insurance fund for all citizens in eastern Germany, but this was rejected. Instead, the West German social insurance system was gradually introduced in the eastern states. With regard to outpatient care, the previously state-run polyclinics were granted a transition period of five years, after which they would have to compete on equal terms with privately operated outpatient care providers. The result of this was that, already in 1992, 91 percent of the polyclinics' doctors had moved to private practices. Only handful of polyclinics in Berlin managed to survive the exposure to competition and the transition to the new system (Busse & Blümel, 2014).

In West Germany's hospital sector, there had been a mixture of public, non-profit and profit-driven hospitals, the market shares of which had remained quite stable over a prolonged period. Following reunification, however, there was a reduction in the proportion of beds for inpatients in publicly owned hospitals, whilst there was an increase in the private, profit-driven hospitals (see Table 1).

The developments within the hospital sector can be explained by the restructuring that took place in the former East Germany, where private investors took over public hospitals. The table shows that the proportion for public hospitals reduced dramatically, whilst the private, profit-driven hospitals increased both in number and as a proportion of the beds offered. This development has mainly taken place in the east of the country, which can be explained by the for-profit operators' access to capital for new investments. The market share of the private, non-profit elements of the hospital sector, which are mainly found in western Germany, has remained relatively unchanged, and the reduction in the number of beds in total reflects a long-term trend within the hospital sector as a whole. This development indicates the widely recognised problems of dismantling private, non-profit care providers, which had taken place in East Germany during the socialist period, and which are difficult to re-establish with the same form of ownership. This phenomenon also applies to countries such as Sweden, where small-scale healthcare facilities and nursing homes that had previously been operated as foundations were taken over by health authorities, alongside increases in public funding. In western Germany, however, the private, non-profit healthcare facilities have retained their independence and are financed within the social insurance system. The organisations that operate non-profit facilities lack the financial capital to which private, profit-driven companies have access. Therefore, non-profit organisations cannot make the extensive investments that are needed in order to establish themselves in new markets.

Figure 3. West/East ratio of pension benefits per capita, 1978-1998.



Source: Vogt & Kluge (2014)

Prior to reunification, the per-capita costs of healthcare were significantly higher in West Germany than in East Germany. This can be explained both by the better access to healthcare and the better quality of and access to modern technology and innovative pharmaceuticals. Comparisons of the cost levels, however, are complicated by the different exchange rates during the pre-reunification period. West Germany applied a market mechanism for exchange rates, where 1 West German DMark was equivalent to between 5 and 10 East German Ostmarks. In the GDR, both German currencies were regulated on a 1:1 basis, which represented a clear overvaluation of the Ostmark. Figure 2 shows the differences in the total per-capita healthcare costs for residents of West and East Germany both before and after reunification. For the period prior to reunification, both exchange rates of 1:1 and 1:5 are used. Following reunification, the same currency is used for the entire country (1:1).

The market valuation of the currencies shows that healthcare costs were significantly higher in West Germany during the years prior to reunification. Even when the overvalued exchange rate (1:1) is applied, the cost of healthcare in the West was almost double that in the East. Within just a few years after reunification, healthcare costs in the east of the country had already reached the same levels as in western Germany (Vogt & Kluge, 2014).

According to Eibich & Ziebarth (2013), analyses of regional variations in the reunited Germany show that western Germany has a higher level of utilisation of outpatient care provided at doctors' surgeries and healthcare centres, whilst the eastern part of the country has a higher level of utilisation of inpatient care (i.e. admissions to hospitals and similar institutions). To a certain extent, this can be explained by tradition, as there had been a tradition of access to outpatient care in West Germany, whilst the hospital sector had accounted for a greater proportion of healthcare provision in East Germany.

The West German sickness insurance funds quickly expanded into the former East Germany, after the proposal to have one central sickness fund for the whole eastern population was rejected. These funds were also subsidised with funds from the federal government, while also being exposed to competition resembling the market situation in the west. Access to care homes and

geriatric care was also improved by means of targeted investment. At the same time, there was a reduction in the proportion of resources allocated to preventive care and rehabilitation, which had previously been generous in East Germany (Busse & Blümel, 2014).

Since reunification and the standardisation of the healthcare system in the two parts of Germany, the country has been subjected to reforms involving the system's financing, cost-control and efficiency drives.

Changes to the pension system

In conjunction with reunification, the West German government invested major resources in measures designed to even out the differences in the infrastructure and living standards of the two countries. During the first few years, a total in excess of DEM 160 billion (SEK 730 billion) was transferred to the eastern part of the country in order to introduce the West German system of social insurance. In addition to the healthcare sector, these enormous contributions were also invested in other sections of the welfare system, which was being realigned to meet the standards in West Germany. One of the most important changes was the improvements to the systems of transfer payments (mainly the pension system), which accounted for the largest part of the investment. During the second half of the 1990s, expansions of the pension system provided former East Germans with the same rights to receive pensions, which were paid out in western currency. Before the Berlin Wall was brought down, there had been major differences in the transfer payments system for the elderly, with regard both to the level of benefits and the development of these over time. In East Germany, the elderly had a significantly lower relative income than the working population. In 1985, a household in which the head was a retiree had an income that was 36 percent that of a worker's household; the equivalent figure for West Germany was 65 percent. Comparisons show that a retiree in East Germany received a pension that was 40 percent that of a retiree in West Germany (Gjonca et al, 2000).

Changes to the pension system resulted in significant improvements of the benefits provided by individual pensions, which led to an increase in the standard of living for the elderly. This is considered to be one of the most important explanations for the increases in life expectancy. There was a significant reduction in the income gap between pensioners in the east and the west, and, by 1999, a pensioner in the east received a pension that was 87 percent that of a pensioner in the west. The biggest improvement was experienced by female pensioners in eastern Germany. This can partially be explained by their longer working life, which entitled them to a higher pension in the new system. Comparisons of pension levels between West and East Germany are also affected by which currency exchange rate is applied (see the previous section concerning the impact of exchange rates on healthcare costs). Figure 3 shows the development of pension benefits between East and West Germany, both before and after reunification. It shows that there were considerable diffe-

Table 2. Life expectancy at birth for East- and West Germany since the 1960s.

Year	1960	1970	1989	1990	1997
	Men				
East (GDR)	66,45	68,16	68,7	69,23	72,41
West	66,41	67,28	69,91	72,72	74,49
	Women				
East (GDR)	71,42	73,36	74,64	76,31	79,65
West	71,84	73,63	76,71	79,12	80,61

Source: Busse & Blümel (2014).

rences prior to reunification, regardless of which exchange rate is applied. Following reunification, the figures show a levelling and a standardisation – primarily for women. Improvements to the pension system in the east of Germany enabled the previously disadvantaged population in the east to experience a higher standard of living. Several researchers identify this increase in living standards as being one of the most important explanations to the reduction of the differences in public health between the two parts of the country.

Differences in economic growth and unemployment

After reunification, elderly former East Germans in particular have experienced an improved quality of life, primarily by means of improved pension benefits and better access to modern healthcare. The younger and working-age segments of the population, however, have had to contend with industrial restructuring, which in many cases has resulted in unemployment. Although various public health indicators show a positive development that also includes these groups, this is a process that takes place much more slowly. Prior to reunification, the differences between young and middle-aged West and East Germans were smaller than those for the elderly. At the same time, indicators for economic growth and unemployment show that the eastern regions have not caught up with the western parts of Germany. Economic growth is significantly lower, while unemployment is higher. The restructuring that took place was intended to transform and adapt businesses in the east into competitive companies operating under market conditions. Even though this process was successful in several industries, many companies were forced out of business.

When making comparisons between the western and eastern parts of Germany, it should be remembered that the differences in economic growth and unemployment that exist apply to regions that have some of the highest levels of GDP per capita in the EU. If we compare eastern Germany with other regions in the EU, it becomes clear that, in several cases, the federal states of the former East Germany are at the same level as other regions in Western Europe and even in the Nordic countries. For example, the per-capita GDP of eastern Germany is at the same level as that of Tuscany, Catalonia and Middle Norrland in Sweden, and is higher than that of Portugal, Estonia and Andalusia (Eurostat, 2020).

Table 3. Breakdown of the contribution of different diseases to differences in morbidity between western and eastern Germany, 1991-2000.

Year		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total difference	Women	2,61	2,35	1,72	1,69	1,43	1,24	0,91	0,88	0,52	0,46
	Men	3,35	3,16	2,89	2,86	2,45	2,22	1,99	1,7	1,59	1,61
Cardiovascular diseases	Women	1,91	1,7	1,33	1,43	1,34	1,33	1,07	1,19	1,16	1,14
	Men	1,59	1,47	1,31	1,34	1,22	1,21	0,97	0,93	0,86	0,93
Cancer	Women	0,02	0,05	0,02	0,04	-0,04	-0,07	-0,05	-0,05	-0,11	-0,17
	Men	0,06	0,13	0,23	0,18	0,22	0,17	0,2	0,2	0,26	0,31
Infectious diseases	Women	-0,04	-0,05	-0,05	-0,05	-0,07	-0,06	-0,06	-0,06	-0,1	-0,12
	Men	-0,12	-0,12	-0,14	-0,12	-0,13	-0,12	-0,09	-0,08	-0,1	-0,12

Source: Luy (2004).

DEVELOPMENTS IN PUBLIC HEALTH

After the Second World War, the development of public health in the two German states was consistent with that of other industrialised countries. No major differences were noted between the countries. The improvements that were achieved in both East and West Germany in the period up until the 1970s can be explained by a reduction in sickness and morbidity related primarily to infectious diseases, as well as a reduction in infant mortality. The factors that contributed to this development were improved medical treatments, vaccinations and the prescription of antibiotics for diseases such as pneumonia, tuberculosis and measles (Vogt, 2013). This development was similar in both German states, as well as in several other countries in both Western and Eastern Europe.

As shown earlier, in the two decades prior to the fall of the Berlin Wall, East Germany experienced an increase in average life expectancy that was clearly worse than that in West Germany. With regard to morbidity statistics, trends in the East were also worse than those in the West. At the same time, it can be seen that the trends concerning several public health indicators were similar in both countries until the end of the 1960s. In the period 1970-1989, there was a significant increase in the gap between East and West Germany. This gap was at its largest immediately after the fall of the Wall, but this was followed by continual reductions in the differences in public health between the two former states until the year 2000.

The table shows that, up until 1970, men in East Germany had a somewhat longer life expectancy than men in West Germany. For women during the same period, the differences were small. During the 1970s and 1980s, the differences increased markedly for both genders, although, since reunification, women in eastern Germany in particular have almost caught up with the levels in the west. In total, the life expectancy in the eastern states of Germany increased by 6.3 years for women and 7.4 years for men between 1990 and 2009. During the same period, the life expectancy in the west only increased by 3.5 years for women and 5.1 years for men. That means that the gap in life expectancy between East and West decreased från 2.8 years for women and 3.5 years for men n 1990 to 0.04 years for women and 1.1 years for men in 2009. Viewed in a broader, international perspective, the East Germans' increase in life expectancy is remarkable in both its size and its speed (Vogt, 2013).

Further analysis shows that it was mainly the older segments of the population that experienced an increase in life expectancy. Eastern Germans aged over 65 years reached the same average life expectancy for the equivalent age group in the west relatively quickly following reunification. For those aged 0-65 years, this change took place more slowly. In the period immediately after the fall of the Wall, the gap even increased somewhat for men aged 0-65 years. The positive outcome for the oldest members of the population in the east can be explained by the previous situation in East Germany, where effective treatments were lacking and the elderly were deprioritised. However, the rapid improvement came as a surprise to researchers, and Vaupel et al (2003) summarised the development in an article entitled "It's never too late". By improving economic and social conditions, combined with advances in medical technology, it is possible to make considerable improvements to the health and life expectancy of the elderly.

There were also variations in this development within the former GDR, whereby residents of cities with university hospitals demonstrated a faster increase in life expectancy. Even in this case, age played a clear role, where eastern Germans aged over 65 years caught up with the western level of life expectancy more quickly following reunification. Both men and women aged over 65 years who lived in university cities in the former East Germany attained the western level of life expectancy already in 1997, whilst this level was not reached by other eastern Germans in the

same age group until 2007. The trend for citizens aged 0-65 years does not show the same development connected to residence in cities with university hospitals. The differences in life expectancy between east and west, however, were significantly smaller for this age group. One conclusion from the study is that the timing of the modernisation of hospital care had a substantial effect on life expectancy, especially for the elderly (Vogt and Vaupel, 2015).

Developments of public health in former East and West Germany can also be studied using data concerning morbidity and cause of death. The differences in the trends for morbidity are also distinguishable for different disease groups. As previously discussed, both German states had similar developments in life expectancy until the end of the 1960s. This was explained, as was the case for many other countries, by the reduction of illness due to infectious diseases, which was achieved by preventive measures and effective treatments. In the following decades too, the differences in morbidity were relatively similar in both states.

Luy (2004) has analysed the extent to which the reduced morbidity gap between western and eastern Germany can be explained by different types of diseases. Table 5 shows how different disease groups contributed to the reduction of the gap between the countries. The values in the table shall be interpreted as follows: in 1991 (for example), morbidity due to cardiovascular diseases in women resulted in a contribution of 1.91 years to the total difference in morbidity, which, in that year, was 2.61 years.

It is obvious that the reduced differences in total morbidity are due, above all, to the reduction in morbidity for cardiovascular diseases. For cancer and infectious diseases, the differences between the former countries are very small. Following more specific analyses, several researchers have concluded that the differences during the 1970s and 1980s were that citizens in West Germany experienced continued improvements in life expectancy as a result of better treatment and reduced morbidity for cardiovascular diseases, which did not take place in East Germany.

The development in East Germany was, however, not unique, as the majority of countries on the eastern side of the Iron Curtain demonstrated similar trends, with an increased deficit with regard to average life expectancy when compared to countries in the West (Bobak & Marmot, 1996). In these comparisons, too, it is apparent that the recovery in terms of life expectancy primarily applies to the older members of the population (Vogt & Kluge, 2014).

The developments that took place prior to the fall of the Berlin Wall were thus not unique to East Germany, but part of a common trend for the former socialist economies in Eastern Europe. The developments since the fall of the Berlin Wall, however, differ between the various countries. Compared to West Germany, all the Eastern European countries experienced a worse development of the average life expectancy at birth from the early 1970s. The previous description of East Germany – namely, that the gap between West and East increased from the beginning of the 1970s – also applies to the other countries behind the Iron Curtain. The fall of the Berlin Wall marked the beginning of a period in which all countries experienced increased life expectancies. This development, however, has taken place more quickly in the former East Germany, whilst the gap relative to western Germany remains in countries such as Poland, Czechia and Hungary (Nolte et al, 2000; Vogt & Kluge, 2014).

The development of the subjective health, whereby citizens assess the state of their own health, shows a slightly different picture. A survey of working-age citizens (aged 20-59 years) shows that, prior to the fall of the Wall, women's perceptions of their health were worse than men's perceptions. However, this gap was wider in East Germany than in West Germany. Following reunification, there was a reduction in the gap between the genders, although this took place more in the east of Germany than in the west. In the eastern parts of the country, the level of women's self-assessed health has surpassed that of men. This has been interpreted as a result of the stresses caused by reunification, in the form of economic reforms

and unemployment in the eastern region, which primarily had a negative effect on the health of working-age men (Kühn et al, 2019).

Explanations for the improvements in public health in the east

Changes in a country's public health are often the result of a process that spans over a long period. Increases in life expectancy and improvements in public health are generally only achieved relatively slowly. However, the levelling of the differences in average life expectancy between the east and the west of Germany was achieved surprisingly quickly. Several researchers view this development as an interesting natural experiment that can provide knowledge about which factors influence average life expectancy and other measures of public health (Vaupel et al, 2003; among others). The developments between the two regions demonstrated a similar pattern until the end of the 1960s, which makes it possible to identify the factors that may have contributed to the differences during the period between 1970 and the fall of the Berlin Wall in 1989. The reasons behind both the negative development in the GDR and the post-reunification improvements have been discussed by several researchers. Luy (2004) summarises these possible explanations in eight points:

1. The deterioration of environmental conditions in East Germany

2. The impact on health of mining and storing uranium

3. The selective migration from East to West of healthy individuals

4. The immigration of healthy foreigners to West Germany

5. The adverse conditions and failings in the work environment in East Germany

6. The psychological reactions to the all-encompassing political oppression

7. The differences in lifestyles and other risk factors for cardiovascular diseases

8. The shortage of modern pharmaceuticals and medical technology in East Germany

Accordingly, the search for explanations in the literature has been based upon both the deterioration during the last 20 years of the socialist system in East Germany and the improvements made in the 20 years following reunification. When searching for reasons for the rapid development in life expectancy, one guiding factor is that both the previously increasing and the later decreasing gap between western and eastern Germany in all essential areas were caused by changes within the age group 60-80 years.

According to Luy (2004), it is by focusing on the factors that changed during the periods immediately before and after reunification that it becomes possible to identify the explanatory factors. Factors such as the mining of uranium can be rejected, as the regions where this was conducted experienced better developments in public health than other regions in eastern Germany. In addition, the actual level of migration from East to West was too low to have any impact on health differences. Furthermore, this migration consisted primarily of older East Germans who had been granted permission to leave the country. Environmental aspects – both in general terms and with regard to specific workplaces – can also be rejected, as they were not subject to any radical changes in conjunction with reunification. Instead, Luy identifies factors such as the access to geriatric care and the care of the sick in nursing homes. Changes in lifestyle factors that affect the risk of exposure to different diseases is also rejected, as these changes were minimal. Other researchers identify factors such as the access to new pharmaceuticals and modern medical technology, as well as the general raising of living standards for the elderly by means of improved pension benefits.

In a study, Grigoriev & Pechholdova (2017) analysed the development both in morbidity for diseases for which there are good opportunities for treatment and cures, and in morbidity that can be related to lifestyle and other factors that are external to the healthcare system. The results showed that the reduced gap between west and east primarily applies to the former group. There has been a significant reduction in morbidity for diseases such as tuberculosis, skin cancer, rheumatic heart conditions and kidney infections, as well as in morbidity related to neonatal care. One exception to this is diabetes, where the gap has reduced but certain differences have remained. For the second group of diseases, the development is less clear. Morbidity due to cirrhosis of the liver and alcohol abuse have remained higher in the east. The differences increased immediately after the fall of the Berlin Wall, but the subsequent development has been towards a reduction in differences. A similar pattern can be seen in traffic-related deaths, where East Germany had a lower level before reunification, after which it increased dramatically as a result of the increased access to motor vehicles and a greater amount of traffic. In recent years, however, these differences for traffic-related deaths have largely disappeared, in tandem with the improvements made to the road network and other safety measures. With regard to suicide, the mortality rates in East Germany hade been higher, but gradually decreased following reunification.

CONCLUSIONS

The reunification of West and East Germany 30 years ago was followed by an extensive programme of investments aimed at bringing the two considerably unequal parts of the country together. With regards to the welfare sector, healthcare provision was improved as a result of investments in modern medical technology and innovative pharmaceuticals, as well as in geriatric care. Another important component was the improvements made to the pension system, which raised the living standards of older citizens living in the east.

During the final 20 years of the socialist period in the GDR, there was an increase in the gap in average life expectancy between the two German states as a result of the deterioration in living standards and failings in the availability of modern healthcare. Another explanation is that the elderly and other groups outside the workforce had reduced access to healthcare in East Germany. Following reunification, several improvements to public health took place in the east of the country – first and foremost the average life expectancy of the elderly, which increased markedly. With regards to the reduction in morbidity, this development can mainly be explained by improvements in the treatment of cardiovascular diseases. For infectious diseases, no major differences were noted either before or after reunification. This has been interpreted as an indication that access to modern healthcare is a more important explanation for the reduced morbidity than preventive care. The improvement in living standards – primarily for the elderly in the form of better access to healthcare and better pension benefits – is also likely to have contributed to improved public health.

Problems within other areas in the eastern areas of Germany, however, still remain, such as in employment and industrial development, where improvements have not been achieved as quickly as had been hoped. Unemployment increased in the period following reunification, and remains at a higher level in the east than in the west. However, these comparisons must be considered against the backdrop that western Germany has had strong growth and the highest level of economic development in the entire EU. When compared to most other EU regions in Eastern Europe, as well as several regions in Western Europe, the former East German regions have achieved a similar or better economic standard, as well as lower levels of unemployment.

In an international context, the relatively rapid changes in the state of public health in the eastern areas of Germany are unique, and demonstrate the importance of not only economic growth but also investment in the healthcare and pension systems. The improved public health in the former GDR, and the reduction of the health gap between the western and eastern parts of Germany, have provided knowledge concerning which factors have a positive or negative effect on public health. In particular, the significance of access to modern healthcare technology and of the general standard of living – especially for the elderly – have been highlighted.

The developments both before and after reunification have also raised questions about how good living opportunities and conditions for citizens are best created in a wider perspective. Under the planned economy of the GDR, sickness insurance funds were centralised and controlled as financial institutions, while healthcare providers were socialised and operated almost exclusively under the control of the public sector. This, in combination with the dictatorial system of government, resulted in a less diverse and transparent system. The case of East Germany shows how institutions within the healthcare sector, and in society in general, can contribute to major differences in areas such as public health. It also illustrates how openness and sound incentive structures can lead to investments from both public institutions and the private sector, resulting in greater development capacity and improved welfare. If there is one crucial lesson to draw from the improvements

in public health in the former East Germany since the fall of the Berlin Wall, it is this: *institutions matter.*

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