

# The Universalisation of Upper Secondary Education in Germany: Lessons for Tertiary Education?

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**The Universalisation of Upper Secondary Education in Germany: Lessons for Tertiary Education?** The expansion of tertiary education is high on the political agenda in the European Union. In this paper we analyse a necessary ingredient for the expansion of tertiary education – the universalisation of upper secondary education – in order to draw lessons for the expansion of tertiary education by analogy. We examine speed, differentiation and drivers of this universalisation in Germany and compare our findings with the experiences in the Czech and Slovak Republics in order to demonstrate more general trends in educational policies in Europe. We find that the speed of universalisation depends on whether a country is a forerunner or a laggard. General tracks expanded more than vocational tracks; in Germany the two tracks complement one another. Finally we find that conflicting interest groups hampered serious reforms in Germany until the first PISA tests in 2000 placed its students well below the average among OECD countries for literacy and numeracy. Reforms introduced in the last decades, however – driven by internationalisation – are likely to lead to a further expansion of tertiary education both in Germany and in what is today the Slovak and Czech Republics.  
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## 1. Introduction

Since World War II, participation in education in Europe – in particular in upper secondary education<sup>4</sup> – has expanded substantially. Particularly during the last decades, tertiary education has started to grow substantially and is still continuing to expand. Tertiary educational attainment is high on the European policy agenda: a central target of the Europe 2020 strategy (European Commission 2010) calls for at least 40% of the younger generation to have earned a tertiary degree – while the share of those quitting the education system with only a lower secondary degree should be less than 10%. The latter target

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<sup>4</sup> (Upper) secondary as opposed to lower secondary education is referred to as ‘level 3’ in the International Standard Classification of Education (ISCED) (see UNESCO ISCED website [http://www.unesco.org/education/information/nfsunesco/doc/isced\\_1997.htm](http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm)). ISCED level 3 is defined as “the final stage of secondary education in most OECD countries. Instruction is often organised more along subject-matter lines than at ISCED level 2 and teachers are typically required to have a higher level, or more subject-specific, qualifications than at ISCED 2. The entrance age to this level is typically 15 or 16 years.” (See OECD glossary of terms at <http://stats.oecd.org/glossary/detail.asp?ID=5450>) In Germany, ISCED 1997 mappings indicate that “Hochschulreife” (or “Abitur” which is equivalent to a baccalaureat degree) and “Fachhochschulreife” (a degree to enter a polytechnic school) are considered as upper secondary degrees (see UIS ISCED 1997 mappings at <http://www.uis.unesco.org/Education/ISCEDMappings/Pages/default.aspx>).

indicates that universalisation of upper secondary education is also on the European policy agenda if it has not already been achieved. Tertiary education is a social process that concerns millions of young people and a budget of billions of euros. It is recognised that educational expansion is necessary in order to keep up with technological developments (Goldin and Katz 2009). However, in order to avoid skill mismatch or over-education (Tsang and Levin 1985; Buchel et al. 2003), it is crucial to understand the potential dynamics of a further expansion of tertiary education.

In this paper we analyse the universalisation of upper secondary education in Germany in order to potentially draw lessons for the expansion of tertiary education by analogy. We examine speed of universalisation, differentiation and socio-economic versus political drivers and construct and analyse time series of enrolment rates in secondary and tertiary education for the post-World War II period. We compare our results to the experiences in the Czech and Slovak Republics both when they were combined as one country (the former Czechoslovakia) and as independent countries in the post-communist era in order to demonstrate more general trends in educational policies in Europe.

We study in particular the case of Germany as an example of a country that has experienced different educational systems: The Federal Republic of Germany (FRG) is characterised by a continental educational model whereas the educational model existing in the German Democratic Republic (GDR) between 1950 and 1989 was based on a Communist model. Since Germany has had experience with both systems during its history, it offers an interesting example of how the two systems can interact to shape current educational reforms and the future developments of upper secondary and tertiary education enrolment.

We compare our results with the Czech and Slovak Republics both when they were combined as one country (the former Czechoslovakia) and as independent countries in the post-communist era, because – as in Germany – these countries have experienced a communist period and have now adjusted to the Western European model of governance. In fact, the German and Czechoslovakian educational models in the pre-communist era were fairly similar: The Czechoslovakian educational system was inherited from the Austro-Hungarian Empire. However, the development of educational systems in the post-communist period was quite different – which invokes an interesting comparison.

The differences are two-fold: Firstly, whereas the vocational system is still strong in Germany, it has been the general/academic track that has expanded rapidly in post-communist Czech and Slovak Republics. Secondly, whereas the enrolment rates for vocational education in Germany were already high at the beginning of the 1950s, reaching the value of 86%, the Slovak region was a

laggard in expansion, both in comparison to Germany and in comparison to the Czech region. Prior to the communist reform of the educational system in 1948, only about one-quarter of the Czechoslovak population progressed from primary to secondary schools, which culminated in a so-called 'maturita' exam, successful passage of which was required for entry to university.

The paper is organised as follows. Section 2 discusses the theoretical background of the expansion of educational systems in Germany. Section 3 presents empirical data on enrolment rates at different education levels in Germany since 1950. Section 4 links the developments in the enrolment rate to educational reforms and societal changes. In section 5 we compare the results in Germany with those of the Czech and Slovak regions. Section 6 concludes and draws lessons from the expansion of upper secondary education for tertiary education.

## **2. Theoretical background: Economic, social, political underpinnings and explanations for the expansion of education in Germany**

Germany's current educational system is now decentralised and mainly continues the system followed by former West Germany. Upper secondary education in Germany consists of various different tracks: Traditionally, there has been a clear distinction between the general education track in *Gymnasia*, preparing for tertiary education at university, and the vocational education within a 'dual system' of part-time vocational school combined with apprenticeship training in companies. Thum (2012) provides an overview of the economic, social and political context for educational conditions in Germany:

### ***Economic context***

Immediately after 1945, Germany's economy suffered from scarcity and distress. Robinson and Kuhlmann (1967: 327) argue that universalisation of education is not favoured in such times as the industry pushes more towards selectivity of the educational system.

However, from the 1950s to the 1970s, the German economy experienced a boom (Buchheim 1997: 91) due to the reconstruction phase following the Second World War, the technological advances of the United States that implied that other economies could merely imitate newly invented technology and a human capital excess that could be used after the war (Buchheim 1997: 94-95). To take full advantage of this boom, a qualified work force was needed and a trend towards less selectivity implying universalisation in education was observed (Robinson and Kuhlmann 1967: 313, 387; see section 4).

### ***Political and social context***

We identify below several main social and political factors that play a key role for the development of education in Germany.

*Fear of change due to the two World Wars.* After the Second World War and the experiences with National Socialism, the public asked for peace, secured traditions and predictability: An important slogan of the time – giving evidence for this movement – by Konrad Adenauer was “No experiments!” (*Keine Experimente!*<sup>5</sup>).

*Historical suppression of reform during the Nazi regime:* Social sciences were not strongly developed during the National Socialist regime (Robinson and Kuhlmann 1967: 313). Movements towards an inclusive education system were seen as leftist (Roehrs 1998), and inclusive school systems were adapted to concepts of the national socialist government (Shirley 2010).

*Proximity to the Soviet-occupied zone and the Cold War:* The public was sceptical towards policy models close to those of the communist ideology. The Cold War increased the wish for security, tradition and ‘Western values’. Many reform ideas were seen as a ‘socialist’ or ‘communist’ (Robinson and Kuhlmann 1967: 325).

*Values and beliefs in the German society:* The roots of German educational values and beliefs are based on the elitist ideas postulated by the philosopher Alexander von Humboldt (1769-1859), a founding father of the *Gymnasium*. Education of weaker students was seen as economically unnecessary (Lenhardt 2002: 3) and based on a deeply rooted fear that weak students could make the strong weaker (Robinson and Kuhlmann 1967: 323). However, in the 1970s a “Copernican education rebound” (*Kopernikanische Bildungswende*) took place (Lenhardt 2002: 8), and the belief in an innate predestination for the different school types was replaced by the belief in a universal ability to become educated. At the same time, a large part of the German population was still not willing to give up the popular *Gymnasium* (Greinert 2010: 8-25; see section 4).

*Social policy context:* According to Esping-Andersen (1990) Germany can be classified as a conservative system, which means that the welfare state regime is characterised by “status differentiating” welfare programmes. Benefits are often distributed according to earnings and aim at reproducing social patterns (see Esping-Andersen 1990 and Horn 2007).

Finally, *Federalism and a highly differentiated party system* complicated nationwide reforms (Robinson and Kuhlmann 1967). The cultural sovereignty as a characteristic of the political system makes a nationwide reform difficult (Ertl and Phillips 2000: 404-405, Robinson and Kuhlmann 1967: 327, Wilde

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<sup>5</sup> Haus der Geschichte der Bundesrepublik Deutschland, Bonn, Germany. [http://www.hdg.de/lemo/objekte/pict/BiographieAdenauerKonrad\\_plakatAdenauerKeineExperimente/index.html](http://www.hdg.de/lemo/objekte/pict/BiographieAdenauerKonrad_plakatAdenauerKeineExperimente/index.html)

2002, Horn 2007, Wilde 2002: 41): major changes need to be unanimously accepted by the KMK (Kultusministerkonferenz, Standing Conference of the Education Ministers) – an institution through which cooperation in education and cultural matters among the different states takes place.

### *Theoretical explanations for the expansion of educational systems*

Stepping out of the German context into a more abstract setting, there are a number of studies providing various theoretical explanations for the expansion of educational systems. According to Beblavy et al. (2012), these studies can be grouped into functionalist, sociological and institutionalist explanations.

The functionalist explanation argues that market forces are the main drivers for educational expansion: demand and supply for higher education are generated by economic need (Collins 1971 and Goldin 1998).

In Germany this explanation applies when regarding the strong reform movement in Germany in the 1960s and 1970s, which advocated educational expansion (see section 4). As mentioned above, this movement was the result of a growing (political and social) demand for qualified workers and for improving the economic conditions of Germany (Robinson and Kuhlmann 1967).

The sociological explanation, on the other hand, provides explanations based on the role of education in society: education is a symbol of societal status and therefore expands when there is a need for various social groups to show societal strength (Bourdieu and Passeron 1977, Collins 1971 and 1979, Robinson and Fuller 1992).

In Germany, in the 1970s and 1980s, a strong demand for comprehensive schools can be observed (see section 4). This phenomenon can either be interpreted in view of the sociological or institutional approach.

The third line of explanation can be grouped under the institutional approach: a convergence towards a transnational culture determines the amount of education attained in a country (Meyer et al. 1992 and Ramirez and Boli 1987).

The line of argument of the institutionalist approach can be seen as applicable to the post-2000 period in Germany after the ‘PISA-shock’ in 2000, when German students were placed well below the average among OECD countries. The country is now ready to adapt to international standards and reforms have soared and had more influence than in the pre-2000 period (see Thum 2012 and section 4).

As shown above, from a theoretical point of view, Germany has traversed periods of functionalist, sociological and institutionalist explanations for expansion of education. The immediate post-war period can be characterised by a functionalist explanation, in which market forces played a considerable

role as economic needs were most urgent and skills were needed to rebuild the country and restore its economy. But then, having restored the economy, a period followed in which the role that education plays for society came to the fore. Social equality became an important issue and there was striving to provide 'education for the masses'. In the current stage, institutionalist factors are the most dominant as the universalisation of education has become a characteristic of most developed countries and international studies such as the PISA assessment rank countries according to their education systems.

Germany is an interesting case in terms of its dual system.<sup>6</sup> Functionalist theories would explain the dynamics of vocational training by the economic necessity for vocational skills. Bertocchi and Spagat (2004) take this functionalist explanation a step further and combine it with the sociological approach: at the initial stages of economic development, the vocational sector would expand relative to the general sector. But at later stages of economic development – as members of the lower classes become richer – the general education sector would increase vis-à-vis the vocational sector. The institutionalist approach would argue that general and comprehensive forms of secondary education rather than vocational training would expand as a result of pressure from global factors (Benavot 1983).

### **3. Data analysis: The dynamics of secondary and tertiary enrolment rates between 1950 and 2011 in Germany**

We report gross enrolment rates, which are calculated as the share of all students enrolled in a certain school level or track, relative to the total population in the official age group for the respective educational level. It is important to note that gross enrolment rates can exceed 100% as there might be students enrolled in the certain tracks for which they are the official age. A more precise measure is the net enrolment rate, where only enrolled students of the official age for the respective track are considered – but due to data availability we can only report gross enrolment rates.

For enrolment in general tracks, the mid-year population is typically used. In Germany pupils are enrolled in first grade when they reach the age of six before August 1<sup>st</sup>, although the respective federal states (Länder) vary this date between June 30<sup>th</sup> and September 30<sup>th</sup>, a majority using June 30<sup>th</sup> (Sekretariat der KMK 2011: 100). In order to account for this variation, we calculate the population group corresponding to a certain school year by combining the population numbers of two age groups. We therefore implicitly assume a constant birth rate over the year.

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<sup>6</sup> Germany is usually characterised by the 'dual-corporatist' model of vocational training (Greinert 2002), which separates vocational training from general training, the latter of which takes place at the workplace.

For vocational education, the same official age group is assumed as for general upper secondary education (16.5 to 19.5 years). While general education in Gymnasia rarely lasts much longer than this official age, vocational school is frequently attended after some initial professional experience or some other basic vocational training. Therefore, the official population group for upper secondary education might differ significantly from the age of the students actually enrolled in vocational education. This implies that there is a large difference between net enrolment rates and gross enrolment rates.

### ***Enrolment rates in the FRG, 1950 – 2009***

Figure 1 presents enrolment rates for the primary, lower secondary (Hauptschule, Realschule and Gymnasium grades 5-10) and the general track of upper secondary education in public and private schools (Gymnasium grades 11-13, private Waldorf schools, *Gesamtschule* and evening schools, where data were available). Enrolment rates in the general upper secondary Gymnasium track were very low in the 1950s, not even reaching 4% but have been increasing steadily ever since. Enrolment rates to the Gymnasium have increased by almost 30%, which implies that the Gymnasium has diverged from being an elite institution. The particularly strong increase in enrolment rates in 2008 and 2009 is very likely due to the reform of the Gymnasium, which reduced the number of school years from nine to eight in many federal states<sup>7</sup>.

Figure 2 presents enrolment rates in upper secondary tracks, including vocational educational tracks (main types of vocational schools, technical Gymnasium). In contrast to the Gymnasium, enrolment rates for vocational education were already relatively high (86%) by the beginning of the 1950s and reached 90% in 2009. Participation in both vocational and general tracks expanded simultaneously, which we attribute to the creation of new intermediate forms of educational institutions between the traditional Gymnasium and the classical apprenticeship – e.g. the technical Gymnasium and full-time vocational schools (see Figure 3) – and to strong links with the private sector.

Figure 4 presents enrolment rates in tertiary education. After 1969 a period of strong growth in university enrolment rates set in, reaching 40% between 1997 and 2007. Since 2008 enrolment rates are growing strongly again, which

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<sup>7</sup> This change would imply a reduction of the official age group used for the calculation of enrolment rates for the upper secondary general track. We refrain from reducing the official age group, as the switch to eight years of the Gymnasium is happening gradually for the different federal states and was not yet implemented for all states by 2009. Nonetheless, these data points should be taken with caution.

is most probably due to the so-called ‘G8’ reform,<sup>8</sup> which reduced the number of school years in upper secondary education from nine to eight, and to the introduction of the Bachelor-Master system agreed upon by countries of the European Union signing the Bologna Declaration in 1999.

### ***Enrolment rates in the GDR, 1950 – 1989***

Figure 5 shows enrolment rates in different levels of education for the GDR. We use the number of graduates from the *Erweiterte Oberschule* (EOS) and the *Berufsbildung mit Abitur* (BmA) track, relative to the official age group of the last year of these schools<sup>9</sup> as an approximation for upper secondary education enrolment.

Figure 5 shows that enrolment rates are very low and do not increase much over the period in question. Our results, even though being an approximation, roughly correspond to what can be found in the literature: Fuchs (1997: 72), Rodden (2010: 349), Wilde (2002: 42), and Zymek (2009: 183) report values ranging from 8% to 15% for upper secondary enrolment rates.

Tertiary enrolment rates started at a very low level in 1951 (2.5%) and constantly grew during the following two decades until they reached 13% in 1971. However, a new political course promoted by Erich Honecker in the 1970s aimed to limit participation in higher education and to promote the preparation of students for professional life instead (see section 4). Enrolment rates in tertiary education started decreasing until they reached 9% in 1984. By that time, the GDR leaders had realised that they were lacking skills in technological innovation, which led them to allow more people to enter university and the enrolment rates increased again up to 10.5% in 1989.

Enrolment rates in vocational education in the GDR are also reported in Figure 5. A length of three years is assumed for this track in order to define the corresponding official age group, as education in the *Fachschule* (technical schools) lasted longer than general education in the EOS (Fuchs 1997: 50). The enrolment rate in vocational tracks exhibited very high levels at the beginning of the 1950s, decreased in the following years and reached a minimum of 45.5% in 1960. In the mid-1960s, the rate temporarily increased again up to levels around 80%, before it evened off at a level slightly above 50% and did not fluctuate again until the end of the GDR.

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<sup>8</sup> For tertiary education enrolment, the ‘G8 reform’ implies, firstly, that there are also 18-year olds enrolling in universities and thus our gross enrolment rate calculated on the basis of the age group 19-24 years is likely to overstate the net enrolment to a higher extent than it did before the reform. Second, during the transition process from the 9-year to the 8-year Gymnasium there are, during various years, twice as many students finishing the Gymnasium and thus qualifying for university than usual, which temporarily leads to higher tertiary enrolment rates.

<sup>9</sup> The EOS and BmA accounted for 75% of total upper secondary tracks (Fuchs 1997: 72). By using the number of graduates from these schools as an approximate value for enrolment rates, we thus neglect the remaining 25% of upper secondary schools and we assume that all students enrolled in these schools did graduate.

#### 4. Historical analysis: Responsiveness of enrolment rates to educational reforms and societal changes between 1950 and 2011 in Germany

##### *The Federal German Republic (FRG)*

In the 1950s and 1960s, German educational policy remained relatively reactionary. The allies considered the *Gymnasium* as a source of elitist and nationalist thinking and thus planned to replace it by a horizontally stratified system, following the US or Soviet example (Zymek 2009: 181). However, the *Gymnasium* was so strongly supported by the German elites, that the German politicians in the FRG were able to successfully resist these plans (Ibid.). There were first attempts to open access to university by creating opportunities to reach university by other means than the *Gymnasium*, in schools that offered a more vocational education. Indeed, ‘second-chance’ education (*Zweiter Bildungsweg*), the *Abendgymnasium* and the *Kolleg* was created for these purposes. However, enrolment rates did not respond to this reform, since by the end of the 1950s only 3% of the students enrolled in the upper secondary general track, attended the *Abendgymnasium* and *Kollegs*, while 97% attended the *Gymnasium* (Figure 6). These schools followed curricula close to those of the *Gymnasium* making them less attractive for lower-class students (Greinert 2010: 3).

By the end of the 1960s, the attempts at reform of the German education system – aimed at expanding higher education – continued during the next decade. The reforms were mostly a response to the fact that participation in the general track of upper secondary education (*Gymnasium*) and in tertiary education was very low compared to other countries and general demand for a qualified work force and an improvement of the economic condition was high (Robinson and Kuhlmann 1967: 327). Nonetheless, the elites and various interest groups continued to support the traditional German educational system, which blocked many radical reform plans (Zymek 2009: 181 ff.).

Due to the opposition of important interest groups, but also due to a lack of public finances caused by the slowdown of the economy, some of the more radical reform plans were abandoned by the end of the 1970s. Still, some reforms were implemented. The upper secondary track of the *Gymnasium* was subject to the *Oberstufenreform* in 1972: a flexible course system offering student the possibility to choose their own courses was introduced in order to move the character of upper secondary education closer to that of university studies (Zymek 2009: 185) – enhancing enrolment in tertiary education.

With respect to vocational education, reforms in the 1970s implemented new types of vocational education tracks, offering full-time education and a more general curriculum than the *Berufsschulen* of the dual system. These tracks gained popularity and demand for such schools increased. More radical

reform attempts of the 1970s – such as the complete integration of the general and vocational education in one school<sup>10</sup> – failed due to resistance from elites, employers and trade unions. These ideas also failed to attract much support in general from the German population, which was not willing to give up the popular *Gymnasium* (Greinert 2010: 8-25).

Since the end of the 1970s, the appetite for educational reforms had decreased and many reform projects were dying out. Nonetheless, some innovations from the reform period remained and were gaining importance, for instance the technical gymnasia and other new forms of vocational education (see Figure 3). Also new forms of private and comprehensive schools, the latter of which combined the three school levels on the lower secondary level, had been created in the 1970s and were gaining popularity in the 1980s and 1990s (see Figure 7). This popularity of new school forms might be explained by the fact that traditional views on education started to change (Zymek 2009: 184). The changes became visible through improved mobility within the educational system: Schneider and Thieben (2011: 152) show that in the 1990s and 2000s the share of students with an intermediate education diploma to continue to general upper secondary education (27%) was three times higher than it was in the 1970s.

During the last decade numerous reforms of the German educational system were put forward, following the PISA shock and the internationalisation of the education system as agreed under the Bologna Declaration (Zymek 2009: 188 ff). Concerning the upper secondary track of the *Gymnasium*, the G8 reform – reducing the number of school years in the *Gymnasium* from nine to eight years – was implemented in most federal states between 2007 and 2012. The aim of this reform was to approximate the systems of most other European countries, where secondary education does not take longer than eight years.

A similar development can be observed in higher education, where the Bachelor of Arts (BA) degree with a more generalised structure and fewer choice possibilities has replaced the previous German tertiary degree, simply called ‘Diploma’, following the Bologna Declaration. The actual specialisation is taking place only in the last year of the BA and especially at the Master’s and PhD level. Zymek (188 et seq.) argues that the BA is thereby becoming an extension of upper secondary studies. In the process, the expansion of upper secondary education might have a direct impact on the expansion of tertiary education. Zymek argues that the BA, as the first level of higher education, might go through a similar development to the one that the *Gymnasium*

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<sup>10</sup> Two such reform ideas were under discussion in the 1970s and were also implemented during some years in form of trials: the *Kollegstufe* experiment in North Rhine-Westphalia and the *Oberstufenzentrum* in Berlin. Both institutions were supposed to combine general and vocational upper secondary education in one track thus replace the *Gymnasium*. The *Kollegstufe* was even supposed to offer the possibility to receive two diplomas, the general and the vocational one.

experienced, moving from being an institution for elites to one that caters to a masspublic. Consequently, in the near future it might be that only the Master's degree, and even more so, the PhD will be reserved for an academic elite.

In 2009, 'second-chance' education was legally reinforced by the decision of the *Kultusministerkonferenz* – the assembly of the ministers of education of the federal states – on “access to higher education for qualified applicants without general qualification for higher education entrance” (*Kultusministerkonferenz* 2009, Sekretariat der KMK 2011: 262). The decision allows holders of certain higher vocational education diplomas to access universities, such that they no longer need the *Abitur*. This development builds on the European 'lifetime-learning' initiative and can be thus seen as another reflection of the internationalisation of the German educational system (*Sekretariat der KMK*: 262) as well as a means to expand upper secondary and tertiary education. Our data show a steep increase in upper secondary education enrolment rates in both the general and vocational tracks and in tertiary education since 2000 (see Figures 2 and 4). As explained above, the particularly strong increase since 2007 might be attributable to the transition from G9 to G8 and is thus rather artificial. However, the enrolment rates were already strongly increasing during the preceding years and thus part of the growth in enrolment rates might also be attributed to the recent reforms described above.

### ***The German Democratic Republic 1950 – 1989***

The education system of the GDR was under complete regulation of the state. As in the 1950s and 1960s, the socialist regime aimed to increase the educational level of the population – in order to be able to compete on technologically with Western countries – we observe that enrolment in upper secondary and tertiary education increased. However, it never exceeded levels of 10% to 15%, which underlines the elitist nature of these institutions (Figure 5).

In 1971 Erich Honecker replaced Walter Ulbricht as head of the SED (Socialist Unity Party of Germany) and changed the political course of the GDR: Honecker planned education strictly according to the current needs of the economy and industry. As a consequence, fewer students were allowed to enter university, while polytechnic classes in lower secondary school and vocational education were promoted. Indeed, our data indicate decreasing enrolment rates in tertiary education at the beginning of the 1970s. In case of upper secondary education, a first decrease in enrolment rates had already started by the mid-1960s; rates increased again by the beginning of the 1970s and fell from 1974 onwards.

In the 1980s the economy of the GDR weakened and the regime tried to return to a strategy of promoting a high level of education. These attempts

become apparent in our data through a slight increase in upper secondary enrolment rates, both in the general and the vocational tracks. However, these attempts were not successful as the economy weakened more and more, marking the end of the GDR.

After unification, the education system in the former GDR states adapted very rapidly to the West German system (Phillips 1995, Waterkamp 2010 and Pritchard 2002). The GDR educational system was not much appreciated by the West German population and the East Germans were eager to adopt the system of the old federal states in order to distance themselves from the socialist ideology and to be able to compete with Western Germany in terms of education.

## **5. Expansion of education in the Czech and Slovak regions**

The expansion of upper secondary education in Czechoslovakia began in the late 1940s and was motivated by political reasons. One of the major concerns in the post-war period was the economic backwardness of the Slovak region, hitherto predominantly agrarian. The raising of the industrial level of what is today Slovakia was of special importance in the first Five Year Plan after the communist coup d'état in 1948. The main aim of the Plan was to lay the foundations of socialism and naturally, socialist industrialisation places higher demands on the education of the workers (Selucký 1965: 49-50). Furthermore, the educational system was regarded as a superstructure and its main aim was "to prepare children and young people to live and work in a developed society and to prepare them for the defence of the socialist homeland" (Švecová 2000: 127).

Following the Soviet model, a single and uniform school covering the whole compulsory education was introduced in 1948. The tripartite system of upper secondary education was maintained at the upper secondary level. However, it was subject to frequent organisational and conceptual changes. The 'polytechnicalisation' of the academic track contributed to the decline of the general education and made it unattractive to students. In 1967, only 75.7% of planned students enrolled in the Czech region and only 71% did in the Slovak region (Výskumný ústav pedagogický v Bratislave 1968: 7). Following the Soviet invasion of 1968, it was prescribed that the overwhelming majority of pupils leaving basic school should undergo training for a manual profession, while the number of pupils at general schools was artificially kept very low (around 15%, see Figures 8 and 9) (Kotásek 1996: 36).

Following the collapse of the communism, radical reforms of the education system erupted. One of the leading mottos of the reforms in 1989 was the deconstruction (or even destruction) of the communist comprehensive school (Greger 2005: 6), which was viewed as a symbol of the socialist egalitarianism

(Greger et al. 2009: 51). The tripartite structure of the upper secondary education was eroded as the sentiment towards school structure existing before 1945 led to the re-introduction of 8-grade gymnasias, i.e. academic secondary schools that built upon the 4-grade elementary school and accepted students prior to completion of their studies at Basic school.

Subsequent educational reforms recommended expansion of the upper secondary attainment, especially regarding general educational tracks (Ministerstvo školstva 1994: 10-11; Ministerstvo školstva 2000: 13). However, no specific policies to achieve this goal were identified. Nevertheless, the movement from technical and vocational towards general tracks did occur (see Figure 10): Once the free school choice and freedom to establish schools were guaranteed, the process of educational expansion was market driven - people sought more education because the returns to education began to rise steeply. The socialist "equalizing" wage policy had significantly decreased economic returns to education and in this way weakened the role of schooling as a determinant in wage and income distributions (Matějů and Rěháková 1996: 161-162, Večerník 1992). However, the value of education began to increase during the transition (Večerník 1995, Filer et al. 1999, Chase 1997) and the return to education increased from approximately 2.5% in 1984 to 5% by 1993 (Chase 1997). Increasing returns to education served as a powerful incentive for students and their parents to opt for higher educational attainment and to choose general over vocational programmes.

Figures 8 and 9 depict the development of gross enrolment ratios at upper secondary level. In 1948 there was a significant difference between the Czech and Slovak regions – whereas 45% of the age cohort was enrolled in upper secondary tracks in the Czech region, only 21% was enrolled in what is today Slovakia. At the end of the first Five Year Plan in 1953, the net secondary enrolment rose by approximately 15 percentage points to 36.5% in the Slovak region and by almost 7 percentage points to roughly 52% in the Czech region of the country. By the early 1970s, the net secondary enrolment ratios equalized and then rose steadily until the mid-1980s.

The comparison to the Czech and Slovak regions shows two main issues. Firstly, the speed of universalisation depends on whether a country is a forerunner or a laggard: in contrast to Germany, which was the forerunner of educational expansion, the Slovak region and later Slovakia was a laggard - also in comparison to the Czech region. Prior to the communist reform of the educational system in 1948, only about one-quarter of the Czech and Slovak population progressed from primary to secondary schools, which culminated in a maturita exam needed for an entry to the university. Initially, there was a significant regional difference in gross enrolment rates – 45% in the Czech region and 21% in the Slovak region but by 1978 the gross enrolment in the

upper secondary education reached universal levels of 80% in both regions. Upper secondary education was universalized within three decades in both regions despite different starting points.

Secondly the comparison shows that differentiation of universalisation depends on political and economic factors. Despite the fact that both Germany and the Czech and Slovak regions have a communist past in which the vocational model plays an important role, in contrast to Germany, the post-1991 expansion of the general or academic track took place at the expense of the vocational track in both the Czech and the Slovak regions. Responding to increasing returns to education, students (and their parents) naturally favoured tracks leading to higher education. In 2009 the average success rate for gymnasia was 82.1% and ranged from as low as 24.2% in case of prestigious gymnasia in the big cities to 100% in case of private gymnasia (ÚIPŠ). Additionally, there are no strong links between vocational schools and firms in Slovakia, which were to a large extent broken in the post-communist period and the demand for vocational tracks increased only in regions with foreign investment and in response to active support of industrial vocational tracks by investors.

Although both Czechoslovakia and the GDR converged to the pre-communist continental educational model based on early tracking after the fall of communism in the case of Czechoslovakia and the unification in the case of Germany, there has been a stark difference in the strength of the vocational tracks. This difference could be attributed to the existence of quasi markets: There is freedom to establish educational institutions and freedom of school choice in Czechoslovakia so, when the broken links between companies and vocational schools weakened the incentive to invest in specific skills and the end of the wage equalizing policy created incentives to invest in general skills, private institutions were more than eager to meet the demand for general upper secondary education unmet by the public sector.

## **6. Conclusion: Lessons from the expansion of secondary education for tertiary education**

In this study we analyse enrolment rates – their speed, differentiation and drivers for different levels of education – in the FRG and the GDR since 1950, with the aim of deriving lessons for the expansion of tertiary education. In order to demonstrate more general trends in educational policies in Europe, we compared the results with those from the Czech and Slovak regions as the German and Czechoslovakian educational models in the pre-communist era were fairly similar.

A comparison with the Czech and Slovak regions shows that starting expansion later can speed up the process through a catching-up effect:

enrolment in secondary education increased from 1953 to 1982 by around 200% in what is today Slovakia (see Figure 9), whereas in Germany the increase was only around 30% over the same period. The comparison further shows that a weak link with the private sector combined with high returns to higher education can decrease the expansion of vocational tracks as general tracks expand.

In Germany, a strong expansion of the general track of upper secondary education (*Gymnasium*) has taken place in the FRG since the 1950s, which did not happen at the expense of the vocational track. This can be attributed to the appearance and expansion of intermediate tracks between general and vocational education during the last three decades and to the remaining strong links with the private sector. More radical reforms favouring educational expansion were prevented mainly due to the opposition of interest groups, who were reluctant to give up the traditional *Gymnasium*. However, a change of societal views on education in the 1980s and 1990s resulted in an increased demand for intermediate types of school between general and vocational education, as well as comprehensive schools.

It was only in the 2000s, after the unfavourable PISA outcomes of German pupils – commonly denominated as the ‘PISA shock’ – that various reform attempts were undertaken in the framework of the internationalisation of education. This internationalisation was driven by European laws and initiatives such as the Bologna Declaration, the ‘life-time learning’ initiative and shifts in societal attitudes towards education.

Many of these reforms aimed at facilitating an easier and faster transition from upper secondary education to tertiary education: upper secondary education ends one year earlier and the curricula of both the upper secondary general track and the Bachelor studies have become more general. With these changes, the BA degree might become an extension of upper secondary education, while specialisation will take place during the Master’s and doctoral studies. All this is likely to lead to a further expansion of tertiary education, as has already happened for upper secondary education. Indeed, enrolment in tertiary education had stagnated since the beginning of the millennium, but has started to increase recently. Whether this development persists and whether it is indeed attributable to the recent reforms needs to be verified once data for more years following the reforms will be available.

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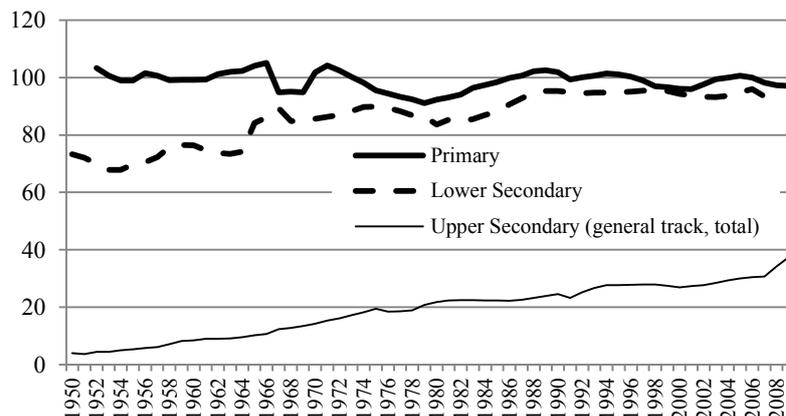
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## Appendix

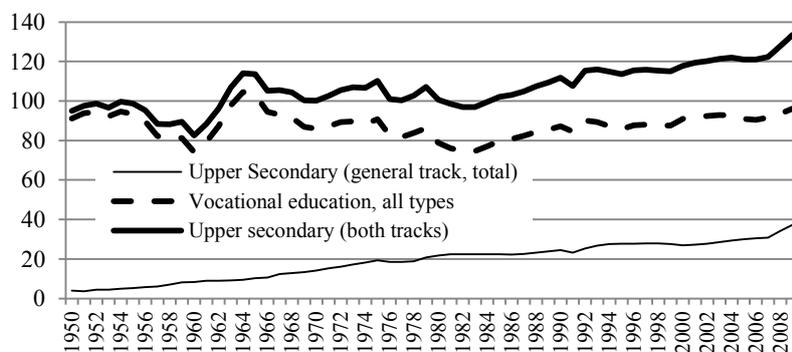
Figure 1: **Enrolment rates in primary, lower secondary and upper secondary (general track) in the FRG, 1950 – 2009 (in percent)**



Note: The data include enrolment in Gymnasium (yearly data available 1950-2009), Gesamtschule (yearly data available 1971-2009), Waldorf Schule (yearly data available 1980-2009) and Abendschule (yearly data available 1958-2009).

Sources: BMBF, Statistisches Bundesamt (2000), Köhler (1978, 1990), EUROSTAT and authors.

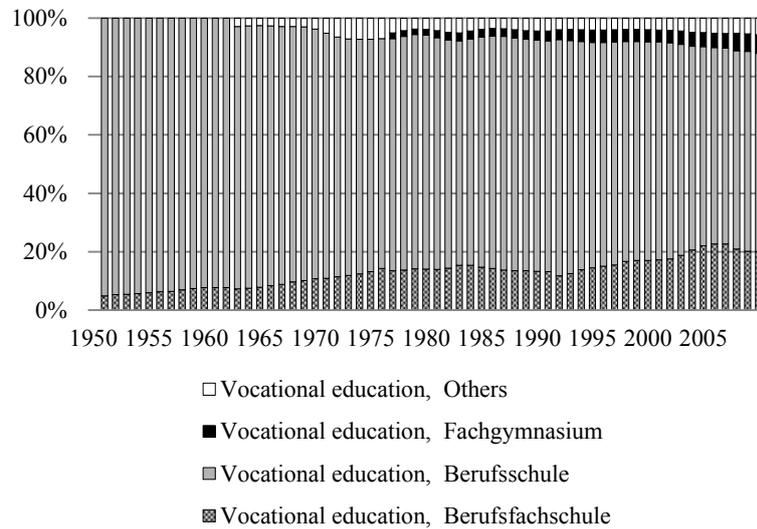
Figure 2: **Enrolment rates in upper secondary education (general track), vocational education and both in the FRG, 1950 – 2009 (in percent)**



Note: The data on upper secondary schooling include enrolment in Gymnasium (yearly data available 1950 – 2009), Gesamtschule (yearly data available 1971 – 2009), Waldorf Schule (yearly data available 1980 – 2009) and Abendschule (yearly data available 1958 – 2009).

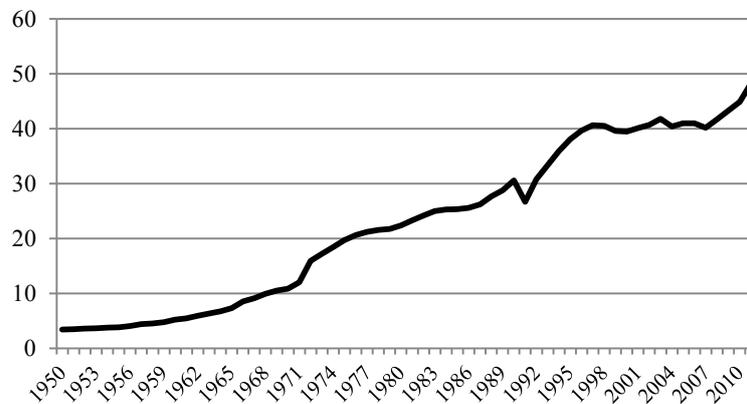
Sources: BMBF, Statistisches Bundesamt (2000), Köhler (1978, 1990), EUROSTAT and authors.

Figure 3: **Distribution of enrolment across tracks in upper secondary level vocational education in the FRG, 1950 – 2009**



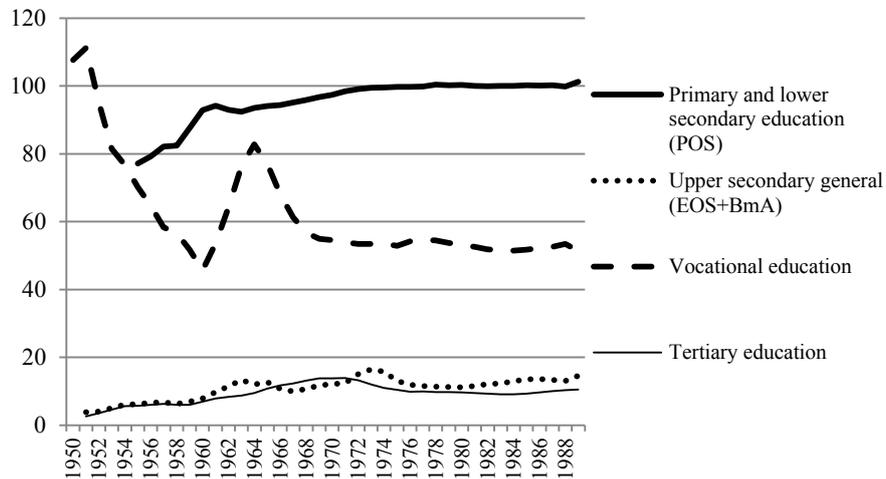
Source: BMBF, Statistisches Bundesamt (2000), Köhler (1978, 1990), EUROSTAT and authors.

Figure 4: **Enrolment rate in tertiary education in the FRG, 1950 – 2011 (in percent)**



Source: BMBF.

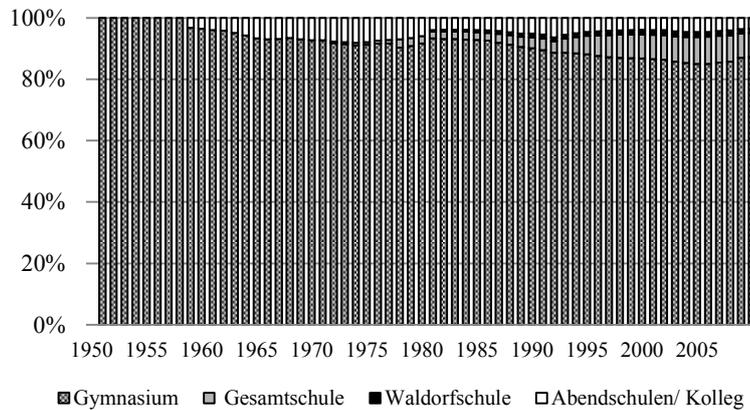
Figure 5: Enrolment rates in primary and lower secondary, upper secondary, vocational and tertiary education in the GDR, 1950 – 1989 (in percent)



Notes: For upper secondary level no enrolment data were available, only numbers of graduates in EOS and BmA. These numbers, relatively to the population of the official age of the last upper secondary school year, were used as an approximate measure for enrolment rates. Data for POS enrolment only available from 1955 on, data on enrolment in upper secondary and tertiary only available from 1951 on.

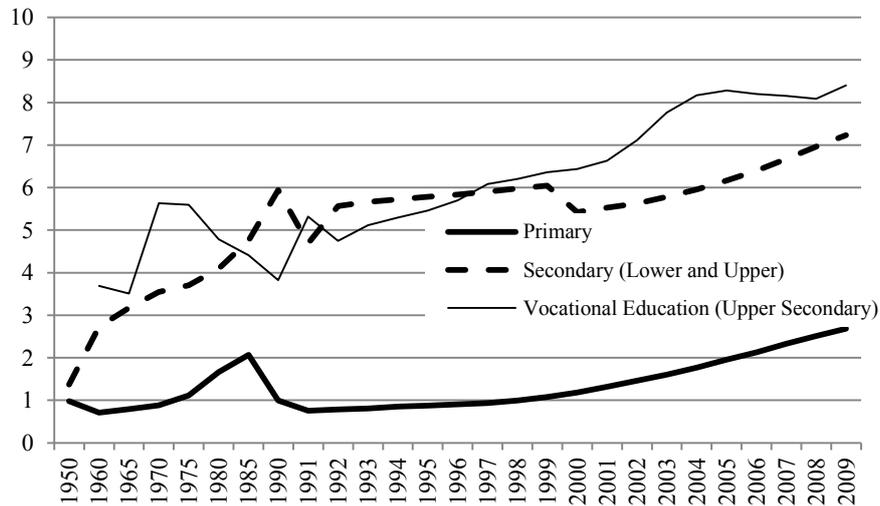
Source: Diebolt (1998), Franzmann (2006), own calculations.

Figure 6: Distribution of enrolment across tracks in upper secondary general education in the FRG, 1950 to 2009



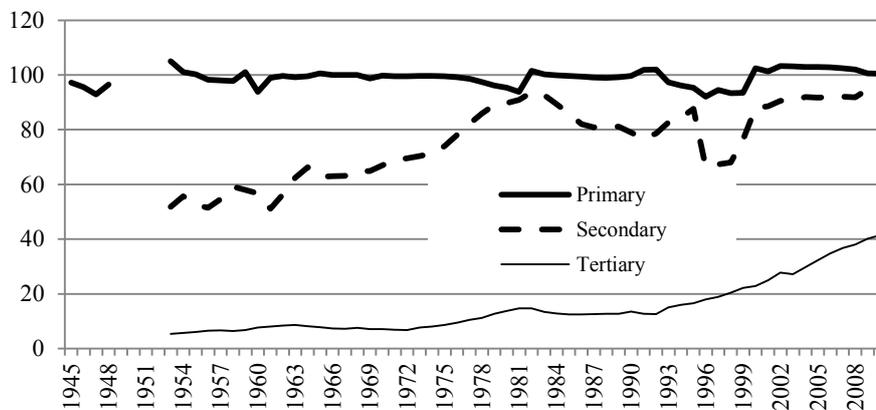
Source: BMBF, Statistisches Bundesamt (2000), Köhler (1978, 1990), EUROSTAT, own calculations.

Figure 7: **Enrolment rates in private education, primary, secondary level and vocational education, in the FRG, 1950 – 2009 (in percent)**



Notes: Between 1950 and 1960 only 10-year-data and between 1960 and 1990 only 5-year-data are available. Source: BMBF, Statistisches Bundesamt (2000), Köhler (1978, 1990), EUROSTAT, own calculations.

Figure 8: **Gross enrolment rates in the Czech Republic**

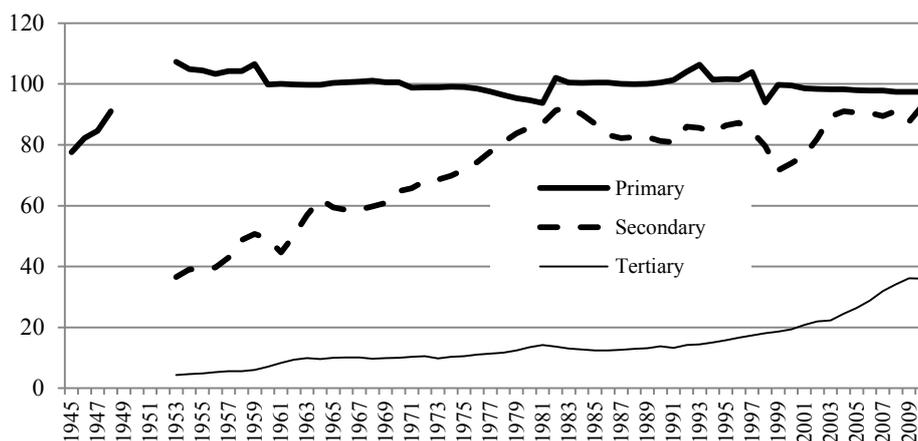


Notes: Primary and secondary gross enrolment ratio is expressed as the number of enrolled students as a percentage of the official age-group for a given level of education. Tertiary enrolment ratio is the sum of full-time tertiary level students as a percentage of the mid-year population in the 5 year age group after the official secondary school leaving age. All data are reported for full-time students. Since 1990, gross enrolment ratio at the primary level includes also first four years of multi-year gymnasia, which overlap with 8-9 year “basic schools”. Secondary level thus refers only to students in upper secondary tracks. The dip in

1996/97 reflects the change in length of compulsory schooling when part of the children was allowed to continue their studies at upper secondary schools after the eighth grade and part of the student body remained at primary schools.

Source: Statistical yearbook of education, various years. Ústav pro informace ve vzdělávání. Czech Statistical Office.

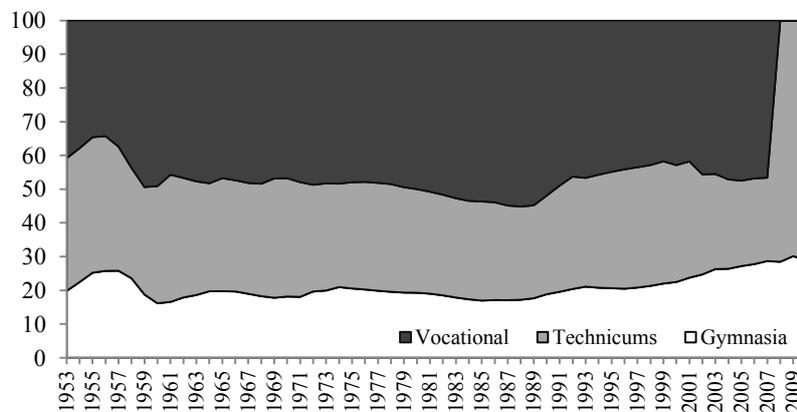
Figure 9: **Gross enrollment rates in Slovakia**



Notes: See Figure 8.

Source: Statistical yearbook of education, various years. Slovstat.

Figure 10: **Distribution of students across tracks, Slovakia**



Note: In 2008 all vocational tracks were renamed to 'technicums' ("stredná odborná škola") and henceforth reported as 'technicums'.

Source: Statistical yearbook of education, various years. Slovstat.