
Decentralisation and educational achievement in Germany and the UK

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Abstract. We examine decentralisation in school-based education, with particular reference to two countries, Germany and the UK. In section 2 we explore the notions of devolution and decentralisation. We examine different types of decentralisation and some of the ideas with which it is associated including, in education, improving educational standards. In section 3 we consider the decentralisation of education in Germany and the UK. We examine the decentralisation of political authority, policies pursued at national and subnational levels, and the delegation of responsibilities to school level. We then compare achievement levels in the two case study countries and explore whether particular policies, pursued at subnational levels, might be associated with differing levels of attainment. We argue that decentralisation in the field of education is multifaceted and complex, with different types of decentralisation coexisting. Our analysis suggests that certain policies, pursued as a result of decentralisation, may be associated with different educational outcomes, but it is not possible to draw definitive conclusions particularly in light of the differing political, policy, and socioeconomic contexts.

1 Introduction

In this paper we address decentralisation in the field of education, focusing in particular on two European countries, Germany and the UK. Decentralisation is a concept with multiple meanings and it is important to understand how it is being used in this paper. We take as our starting point three key ways in which decentralisation has been defined and measured: fiscal, policy, and political authority. Fiscal decentralisation has been extensively investigated (eg Brennan and Buchanan, 1980; Grossmann and West, 1994; Oates, 1972; 1985; Rodden, 2003; Tiebout, 1956) with research having found a positive impact of fiscal decentralisation on education spending (Busemeyer, 2008; Nikolai, 2007). Political and policy decentralisation are rarely addressed in empirical research due to measurement difficulties, but there is evidence that both are increasing (Rodden, 2004).

In relation to education, Germany and the UK provide interesting cases as there is political and policy decentralisation to the region (Land) in the former and to constituent countries in the latter. There is also delegation of some responsibilities to school level in parts of the UK and Germany. The variation in policies pursued at subnational levels also provides an opportunity to investigate one key outcome variable—namely, educational achievement within countries. This is particularly important as one of the reasons often given as an advantage of decentralisation is that educational quality will improve. We thus seek to answer three key research questions:

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- What is the nature of political and policy decentralisation in the field of education in the UK and Germany?
 - What education policies have been pursued in subnational units (Länder and UK constituent countries) and to what extent is there delegation to school level?
 - What effects, if any, on levels of attainment can be discerned as a result of policies pursued by subnational units?

We argue that decentralisation in the field of education is multifaceted and complex, with different types of decentralisation coexisting. It appears that some policies, pursued as a result of decentralisation, may be associated with different outcomes in relation to educational attainment. However, different political, policy, and socioeconomic contexts do not allow for definitive conclusions.

In section 2 we examine understandings of decentralisation, with particular reference to education. The claims for the beneficial effects of decentralisation or delegation of responsibilities to school level on achievement are then explored. In section 3 we focus specifically on Germany and the UK. In each case the decentralisation of political authority, on the one hand, and legal, policy, and administrative decentralisation, on the other, are explored. The possible relationships between policies implemented at subnational levels and educational outcomes are then examined. In section 4 we discuss the findings.

2 Decentralisation

Across the world in both federal and unitary states, devolution is apparent to varying degrees (Rodríguez-Pose and Gill, 2005). The transfer of power downwards to regions is a highly significant recent development, which can involve the introduction of new political bodies at a subnational level and an increase in their power:

“Any form of devolution implies some degree of subnational legitimacy and some form of decentralisation of authority and resources” (Rodríguez-Pose and Gill, 2003, page 334).

Devolution and federalism have similarities in that both refer to the decentralisation of authority over certain policies, but there are important distinctions. Federalism is a system in which there is a constitutionally entrenched division of authority between a central level and subnational levels. It has been conceptualised as “an institutional device for the vertical separation of powers, which splits jurisdiction along territorial lines” (Obinger et al, 2005, page 9) and “structured by a set of institutions—through which authority is distributed or redistributed” (Rodden, 2004, page 489). Federalism may be seen as being distinct from decentralisation (see Dafflon and Madiès, 2009) but this is not always the case. Devolution describes a decentralisation process, which can take place in different types of state, including those that are constitutionally unitary, which gives a greater degree of self-rule to subnational units.

Within the European Union some level of political decentralisation exists in Austria, Germany, and Belgium (federal states) and Spain (Rodríguez-Pose and Gill, 2003). The United Kingdom has also transferred power to the constituent countries, with a unitary state being replaced by a quasi-federal one (Bogdanor, 1999; Jones et al, 2005). There are different forms of devolution that arise from different distributions of legitimacy:

“Devolution is a highly complex and heterogeneous process that operates at many different government levels, involves disparate actors and can take on a multitude of diverse forms” (Rodríguez-Pose and Gill, 2005, page 417).

Our interest in this paper is not only in the decentralisation of political authority but also in decentralisation to lower levels, as a result of which particular policies may be pursued or certain management and administrative responsibilities delegated.

In this context it is important to stress that the rationale for decentralisation varies. It can be to enhance service delivery and improve standards in public services, to provide greater overall economic efficiency, or to provide greater legitimacy to government (see Rodríguez-Pose and Sandall, 2008). So, in the case of devolution, political legitimacy is likely to be important and, in the case of delegation to providers, enhanced service delivery may be part of the rationale.

Reasons for different types of decentralisation also vary. In the 1980s financial motives were of paramount concern in some countries: decentralisation was expected to reduce costs and to generate revenue by utilising local sources of taxation. Recent decentralisation has been framed by a general paradigm shift in welfare policy, with moves towards the reorganisation of provision of services (Pollitt and Bouckaert, 2004) based on the ideas of New Public Management characterised by state withdrawal, privatisation, and localisation (see Hood, 1991). Delivery and financing have been decentralised in many areas: health care services, services for older people (Fotaki and Boyd, 2005), public employment services (Jahn and Ochel, 2007), and education (Eurydice, 2007; Hudson, 2007). Such public service decentralisation is regarded as providing more accountability and being more “representative and conducive to policy innovations” (Rodríguez-Pose and Gill, 2005, page 406).

2.1 Decentralisation in education

Within the EU there are examples of political authority in the field of education being decentralised to subnational units in countries as diverse as Belgium, Germany, Spain, and the UK. In terms of policies there has been a trend towards increasing influence for local and regional governments in relation to control of the curriculum and the hiring and firing of teachers (see Rodden, 2004). There is, however, never complete decentralisation as decisions relating to finances and personnel have varying degrees of centralisation (Bray, 1999; Hanson, 1995; Zajda, 2004). Decentralisation to a local level may be to provide local control and so a

“better fit between educational methods and clientele served, as well as greater accountability for educational results. If the local education authorities see themselves and are seen as responsible for educational delivery, reformers reason, educational quality will improve” (Carnoy, 2000, page 47).

There has also been decentralisation of management and administration to the school level, associated with the introduction of quasi-markets, competition, provider autonomy, school choice, school evaluation, and performance indicators (Adnett and Davies, 2005; Finkelstein and Grubb, 2000; Klitgaard, 2007; 2008; Koretz, 2008; Lubienski, 2006; 2007; Weiß, 2001; West and Currie, 2008). Some responsibilities have been delegated to schools in Belgium, the Netherlands, Spain, Sweden, and England, Wales, and Northern Ireland (Eurydice, 2007; 2008a). Decentralisation to this level has often been associated with seeking to make the education system more efficient, responsive, and accountable—the idea being that the redistribution of power to a school level will stimulate educational innovations designed to meet the needs of pupils, parents, and employers (see Astiz et al, 2002; Maslowski et al, 2007; OECD, 2008).

Research in the field of education has tended to focus on decentralisation (or delegation) of responsibilities to schools, so giving them autonomy in various domains. Variation has been found between countries in the extent to which school personnel *report* that decision making is taken at school level (see figure 1). More decisions are taken at school level in England than in Germany or Scotland (91% versus 30% and 30%, respectively) (OECD, 2008). However, such data may not be an accurate reflection of policy; they also conceal the extent and type of centralisation. For this

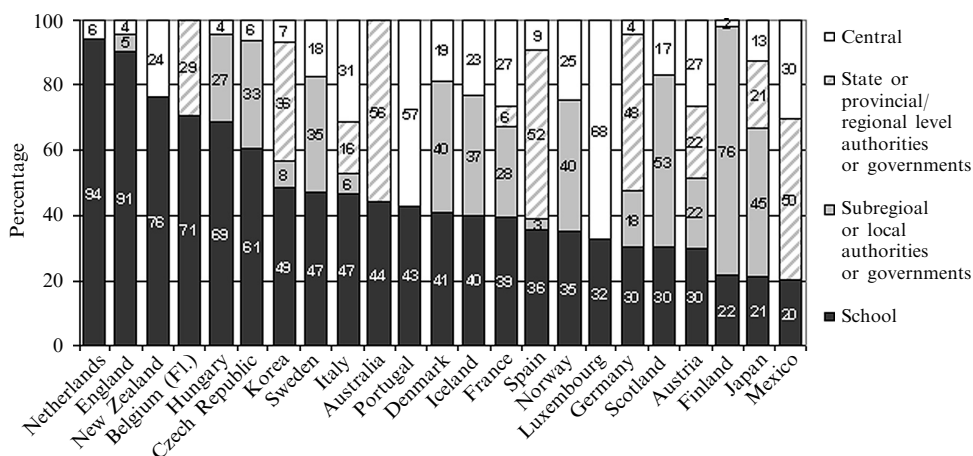


Figure 1. Percentage of decisions taken at each level of government in public lower secondary education, 2007 (source: OECD, 2008).

reason our analysis of decentralisation in Germany and the UK focuses not only on the type of decentralisation but also on the specificities of the policy decentralisation and administrative delegation.

Research on school autonomy has tended to focus on achievement (which is seen as being a key measure of quality). Early research comparing public and private schools in the USA (Chubb and Moe, 1990), which has since been contested (see Maslowski et al, 2007), found higher levels of achievement in schools with more autonomy in relation to curricula, allocation of resources, teaching methods, and staffing. Research on the effects of school-based management on achievement has had mixed results, although more recent studies have suggested that the specific design is important for performance to be enhanced (Briggs and Wohlstetter, 2003; Fullan and Watson, 2000; Leithwood and Jantzi, 2006; see Maslowski et al, 2007). Another body of evidence uses achievement data derived from the Programme for International Student Assessment (PISA), which assesses 15-year-old pupils' performance in reading, mathematical, and scientific literacy (OECD, 2001; 2007a; 2007b).

Positive associations between school autonomy (as reported by school personnel) and performance in reading literacy have been found by the OECD (2005); however, no account was taken of pupil background and school-level characteristics. Subsequently, Maslowski et al (2007), focusing on four domains of school autonomy—personnel management, financial resources, pupil policies, and curriculum—found that more autonomy in personnel management was related to higher levels of reading literacy, but that this relationship disappeared when school composition was taken into account. Interestingly, positive effects of school autonomy on pupils' performance have been found provided that there are also centralised examinations (Wößmann, 2002), which, it has been argued, provide incentives to enhance pupils' performance and not to promote other interests (Fuchs and Wößmann, 2007; Gundlach and Wößmann, 2003; Wößmann, 2007; Wößmann and Fuchs, 2007).

Whilst previous research has focused on decentralisation to the school level and pupils' achievement—albeit with mixed and contested findings—there is a paucity of research that explores both the possible effects of policies pursued as a result of decentralisation to subnational units and decentralisation associated with delegation of responsibilities to schools.

3 Decentralisation and education in Germany and the UK

We focus here on Germany, a federal state, and the UK, where a limited form of political decentralisation (devolution) was introduced in 1998. It is important to stress that in the UK the devolved institutions are subordinate, constitutionally, to the UK Parliament (Leeke et al, 2003). Our decision to focus on these two countries is related to the fact that in both cases power in relation to education is vested, to a greater or lesser extent, with subnational units: regions in Germany and constituent countries in the UK. In addition, there is variation between the subnational units in each country in terms of the educational policies pursued.

In section 3.1 we examine the nature of decentralisation in Germany and the UK with respect to education. In section 3.2 we explore administrative decentralisation to school level and in section 3.3 the variations in attainment levels within each country, and possible explanations—in particular, policies associated with decentralisation to subnational units and delegation to schools.

3.1 Nature of decentralisation in Germany and the UK

We focus first on the nature of decentralisation in Germany and the UK, exploring political authority along with policy, legislative, and administrative decentralisation. We then compare the extent of decentralisation of responsibilities to school level in Germany and in the UK.

3.1.1 Germany

Political authority: In federal states, education is generally reserved for each member state without direct federal control (Lauglo, 1995), and Germany is no exception. Germany has a strong tradition of regional government dating back to the founding of the German Empire in 1871. Since unification in 1990, the Federal Republic has consisted of sixteen Länder: ten of the former West Germany, five new Länder of the former East Germany, and Berlin. The Grundgesetz (Basic Law) divides the federal government's legislative responsibilities into exclusive powers, concurrent powers, and framework powers. The field of education is within the legislative purview of the Länder. Before the Basic Law was amended by the federalism reform in 2006, the Federation and the Länder were able to cooperate, on the basis of agreements, in educational planning and in the promotion of institutions and scientific research projects of supraregional importance. The federalism reform of 2006 has been highly significant. The distribution between the Federation and the Länder has changed and there has been an almost complete withdrawal of the centre from education. The sixteen Länder now have essential responsibility for education policy (see Burkhart, 2009; Wolf, 2008; Wolf and Henkes, 2007).

The German Constitution refers the regulation, planning, designing, and supervision of the school system to the parliaments of the Länder (Arbeitsgruppe Internationale Vergleichsstudie, 2007), the main arenas of political decision making in relation to educational issues (Rürup, 2007). In the past the parliaments of the Länder made abundant use of their exclusive legislative competencies, so that the educational systems of the Länder differ in the length of primary schooling, secondary school types, and their pedagogical orientations. Although the primary responsibility for legislation and administration in education, so-called cultural sovereignty (Kulturhoheit), rests with the Länder, one decisive institution ensures that the development of the education systems in the Länder follow a similar direction: since 1948 the Conference of the Länder Ministers of Education and Cultural Affairs (Kultusministerkonferenz, KMK) has coordinated and harmonised education policy.

Policy, legislative, and administrative decentralisation: Owing to Länder sovereignty in the field of education, the German school system has a high level of decentralisation at the level of the individual Land. The public school administration at Länder level supervises the

implementation of the school acts and the administration of schools. Internal school matters rest with the *Länder*, with external school matters such as building and maintenance and the appointment and remuneration of nonteaching staff being the responsibility of local authorities. The autonomy of individual schools is relatively low (Senkbeil et al, 2004). Nevertheless, in some *Länder* individual schools have gained more autonomy (Rürup, 2007), although without demanding accountability, setting performance standards, or introducing systematic quality inspections.

Even though the legislative power in relation to education is exclusively in the hands of the *Länder* there is a need for coordination—for example, for mutual recognition of graduation certificates, for standardising the beginning and the duration of compulsory education, and for a standardised grading system. According to the constitution, the ‘unitary federal republic’ of Germany (Lehmbruch, 2000) is a nationwide unitary legal and economic unit with equal living conditions, so that there is a need for cooperation and consensus in nearly all fields of politics.

The KMK is highly significant in this context and provides an example of the joint decision trap described by Scharpf et al (1976) given the strong entanglement of the federal government and the states in Germany. Although it is possible for individual *Länder* (and, before the reform of federalism, the federal government) to act unilaterally, in practice it is politically difficult to enforce given the high degree of entanglement and standardisation characteristics for German federalism. Thus, given the regulations in place in relation to standards, it has been argued that the new legislative changes “are only marginal in character” (Burkhart, 2009, page 352) and that policies will be coordinated across all sixteen *Länder*.

Notwithstanding the possible limitations of the reform, one element of the institutional educational structure that has remained untouched is the secondary school system. Pupils are generally selected at the age of 10 to 12 years into different types of school (between two and five); only one of these, the *Gymnasium*, paves the way to university⁽¹⁾ by awarding a distinctive, high-value leaving school certificate, the *Abitur*. There are two other types of school, the *Hauptschule* (for the lowest-ranking pupils) and the *Realschule* (for middle-ranking pupils). In addition, a small proportion of pupils attend the comprehensive *Gesamtschule*, catering for all ability levels.

With German reunification, the West German stratified secondary school system was adopted. The reorganisation in the new *Länder* also resulted in an expansion of the institutional variety: in some *Länder* there are three school types (*Gymnasium*, *Hauptschule*, *Realschule*), in others two (*Gymnasium*, and *Hauptschule* and *Realschule* combined), and in others five. Most *Länder* are, however, changing their school system and bringing together the *Hauptschule* and *Realschule* (Baumert et al, 2008; Fuchs, 2009).

There is an ongoing debate about the evaluation of educational institutions. The focus has been to secure comparability between the *Länder* by introducing nationally formulated standards and centralised final examinations including the *Zentralabitur* (the general qualification for university entrance) (Füssel and Leschinsky, 2008). Although Bavaria, Baden-Württemberg, and Saarland have always had a centralised system, after 2000, partly as a result of the PISA studies (see later), there was a nationwide move to introduce a centralised *Abitur* examination at the end of the *Gymnasium*. Of the sixteen *Länder*, only Rhineland-Palatinate has retained decentralised examinations set at school level (KMK, 2009). In 2002, the KMK adopted a resolution to introduce national *Bildungsstandards* (educational standards). In 2003 and 2004 educational standards were also adopted for the primary sector, the school-leaving qualification for the *Hauptschule* and the intermediate school-leaving certificate (*Mittlerer Schulabschluss*).

⁽¹⁾ There are other ways to enter university but the *Gymnasium* is the normal route.

3.1.2 *United Kingdom*

Political authority: Devolution in the United Kingdom was enacted by the Labour government in late 1990s, and Scotland now has an elected parliament with primary legislative responsibility over much domestic policy, Northern Ireland has an elected power-sharing assembly with wide-ranging legislative competence, and Wales has an elected assembly with no primary legislative responsibilities (Shaw et al, 2009).

The recent history of the education systems of the four countries of the UK (England, Scotland, Wales, and Northern Ireland) has been addressed elsewhere (Raffe et al, 1999). Of significance in this context is that, by 1994, prior to political devolution, for most fields of education the Department for Education and Employment was responsible for England and relevant ‘territorial’ departments for Scotland (Scottish Office), Wales (Welsh Office), and Northern Ireland (Department of Education Northern Ireland) (see Raffe et al, 1999).

Increased political authority followed from 1999 when the Scottish Parliament, the National Assembly for Wales, and the Northern Ireland Assembly assumed executive and (in Scotland and Northern Ireland) legislative responsibility for education. This has resulted in different levels of responsibility in the constituent countries of the UK. Scotland has a parliament and executive (the Scottish government): the former can pass acts and the latter can make secondary legislation in areas other than those made at a UK level. In Wales there is a Welsh Assembly but no separate executive and legislature. The Assembly can make delegated or secondary legislation in devolved areas (of which education is one) but primary legislation in devolved areas is made by the UK Parliament. The situation in Northern Ireland is complex, but the Assembly can make primary and delegated legislation in those areas that are transferred (Leeke et al, 2003).

Legislative, policy, and administrative decentralisation: The local administration of schools varies across the UK. In England, Scotland, and Wales schools are administered by local authorities and those in Northern Ireland by education and library boards (see Raffe et al, 1999). The role of the local authority also varies between countries, with Scottish local authorities having more power and responsibility than those in England, largely as a result of neoliberal, quasi-market reforms in England.

The state-maintained school systems in the UK vary. England and Wales have a similar legislative framework, that for Northern Ireland is broadly similar, whilst that for Scotland is completely separate. Nonetheless, across the UK, primary schools cater for children of all abilities. At secondary level, systems and structures differ. In Scotland and Wales there is a comprehensive (all-ability) system. In England the system is broadly comprehensive, although around 5% of secondary schools are academically selective grammar schools. In addition, a significant minority of nominally comprehensive schools, predominantly those that control their own admissions,⁽²⁾ use a variety of different methods that enable a proportion of pupils to be selected—for example, on the basis of aptitude and ability in a subject area (West et al, 2011); and virtually all state-funded religious schools give priority to children on the basis of their religion (see Allen and West, 2009). In Northern Ireland there is an academically selective system, with grammar schools and secondary (nonselective) schools.

⁽²⁾ Either religious schools or foundation schools, many of which opted out of local authority control following the Education Reform Act 1988 (see West et al, 2004).

The legislative and policy context is important. In England and Wales the Education Act 1980 enabled parents to express a preference for the school of their choice for their child.⁽³⁾ The Education Reform Act 1988 introduced formula funding, whereby individual school budgets were determined predominantly on the basis of the number of pupils on roll. Official school performance tables ('league tables') of public examination results were also published. Incentives were thus created for schools to maximise their income and their pupils' examination results via the newly created quasi-market (Le Grand and Bartlett, 1993). Underpinning the reforms was the view that parents would choose the 'best' schools for their child, based on the information available—in particular, examination results—and that the ensuing competition between schools would result in educational standards increasing (see also West, 2010). Local management of schools was also introduced in England and Wales, and schools (headteachers and governing bodies) became responsible for deciding how the school budget should be spent. The same legislation introduced a national curriculum and programme of assessment in England and Wales.⁽⁴⁾

In Scotland the Education (Scotland) Act 1981 gave parents the right to nominate a school they wished their child to attend (make a 'placing request') if they wanted him or her to attend a school other than the local school. In relation to funding, local authorities decide on the level of support to be given to schools. Individual schools are responsible for managing their own day-to-day expenditure via devolved school management, but unlike in England the school's 'normal complement' of staff is paid by the local authority (Eurydice, 2008b). There are nonstatutory curriculum guidelines⁽⁵⁾ and a nonstatutory testing programme.

Across the UK there are external examinations at the end of compulsory education (age 16) and at the end of upper secondary education (age 18). In England, Wales, and Northern Ireland these examinations are run by private examination boards that compete with one another for business.⁽⁶⁾ In Scotland there is a central examination system with examinations being set by a central examination board.⁽⁷⁾

There are thus policy differences across the UK. And since devolution other aspects of policy in relation to choice and diversity have diverged: in particular, official school performance tables are not published in Wales, Scotland, or Northern Ireland (see West, 2010). Differences between England and Scotland are particularly clear: thus, there is considerable involvement of the private sector in the school system in England whilst in Scotland approaches to provision are more traditional with a greater focus on professional values as opposed to choice and diversity (Shaw et al, 2009; West and Currie, 2008).

3.2 Administrative decentralisation to school level in Germany and the UK

It is clear from our discussion that education policies and systems differ within sub-national units in both Germany and the UK. In both countries education is decentralised along a range of different dimensions. In particular, policies vary in terms of academic selection. In Germany and in Northern Ireland the school system is selective. In England

⁽³⁾ Similar legislation was enacted in Northern Ireland.

⁽⁴⁾ Similar legislation was introduced in Northern Ireland.

⁽⁵⁾ The new Curriculum for Excellence has, however, been supported by funding for an additional 100 teachers to support its implementation (Scottish Government, 2009).

⁽⁶⁾ Schools are able to select their examination boards for subjects offered.

⁽⁷⁾ In England, Wales, and Northern Ireland, General Certificate of Secondary Education examinations (or pre-vocational equivalent) are taken in individual subjects by most pupils (16 years); General Certificate of Education Advanced levels may be taken (18 years); generally required for entry to higher education. In Scotland the Scottish Certificate of Education examinations Standard Grade (16 years); Higher Grade/Advanced Higher Grade examinations (18 years) (generally required for entry to higher education).

Table 1. School autonomy in relation to different aspects of school management (lower secondary) (source: Eurydice, 2007; 2008a).

| | School autonomy | | |
|--|-----------------|---------------|---------------|
| | Germany | UK: England | UK: Scotland |
| <i>Resources</i> | | | |
| Use of budget for capital expenditure | no | limited | no |
| Use of budget for operating expenditure | no | full/relative | full/relative |
| <i>Staffing</i> | | | |
| Selection of school head | no | full/relative | no |
| Dismissal of school head | no | full/relative | no |
| Selection of teaching staff for vacancies | no | full/relative | limited |
| Dismissal of teaching staff | no | limited | no |
| <i>Curriculum</i> | | | |
| Content of compulsory minimum curriculum | no | no | full/relative |
| Choice of additional subjects added as options | limited | full/relative | full/relative |
| Choice of teaching methods | full/relative | full/relative | full/relative |
| Choice of text books | full/relative | full/relative | full/relative |

Notes: Full/relative: the school takes decisions subject to limits set by national laws with no external intervention, or subject to predetermined general framework specific to education, or following consultation with education authorities at local, regional, or central level; limited: school takes initial decisions but has to have these approved, or the school takes a decision based on a set of options predetermined by the higher authority.

there are some fully and some partially academically selective schools alongside comprehensive schools. In Scotland and Wales there is no academic selection.

There are also a number of other differences between and within subnational units in relation to the responsibilities delegated to school level, as reported by EU member states (Eurydice, 2007; 2008a).⁽⁸⁾

Table 1 focuses on Germany and the two most distinctive countries in the UK in terms of education policy: England and Scotland. As can be seen, there is considerable variation: in relation to resourcing and staffing, delegation to school level is more extensive in England than in Scotland and Germany. In all countries there is some autonomy in relation to a number of aspects of the curriculum.

In light of the focus given to decentralisation and attainment in the literature, we now turn to our two case study countries and examine differences between and within them.

3.3 Variation in achievement levels: Germany and the UK

The OECD's PISA, first administered in 2000, covers three domains: reading, mathematical, and scientific literacy. It provides information on the knowledge and skills of 15-year-old pupils in these areas.⁽⁹⁾ It does not aim to focus on curricular competences but on everyday knowledge and skills that young people will need when they enter postsecondary education and the labour market. The overall findings from PISA over the years have revealed differences in levels of achievement in

⁽⁸⁾ These are, in our view, likely to be more accurate in terms of the formal position than those provided by the OECD via individual headteachers, given the scope for the questions posed to be interpreted differently.

⁽⁹⁾ Data relating to school autonomy can be derived from the school-level questionnaire in the PISA studies, which are completed by the headteachers of the participating schools. Questions relate to their autonomy in the fields of personnel management, financial resources, pupil policies, and the curriculum.

Table 2. Mean standardised Programme of International Student Assessment scores in Germany and the UK, 2006 (source: OECD, 2007b).

| | Germany | UK |
|-----------------------|---------|-----|
| Reading literacy | 495 | 495 |
| Mathematical literacy | 504 | 495 |
| Scientific literacy | 516 | 515 |

participating countries, in different domains and along different dimensions including gender and socioeconomic status (eg OECD, 2001; 2007a). Our focus in this paper is on the PISA data for 2006 and, as shown in table 2, few differences in mean performance between Germany and the UK were found.

Our interest in this paper is with variations within countries. In the following sections we build on the work of Allmendinger and Leibfried (2003) and associate indicators of 'quality' with measures of the level of 'dispersion'. At a given mean, which can serve as an indicator of quality, the dispersion is used to indicate the inequality of the result. In this way we can classify both individual German Länder and constituent countries of the UK in terms of their quality and inequality. The typology we use is based on a cross-classification of level and differentiation and yields four types: egalitarian, high competence; unequal, high competence; egalitarian, low competence; and unequal, low competence.

3.3.1 *Germany*

In addition to the international PISA comparisons, the competences of 15-year-old pupils in German Länder have been assessed via a national extension study (PISA-E). We draw on these data in this section. Table 3 reveals that the highest attainment across all domains (mathematical literacy, reading literacy, and scientific literacy) was in Saxony followed by Bavaria.

Table 3. Mean performances and 5th and 95th percentile for the Programme of International Student Assessment 2006 in Germany (source: PISA-Konsortium Deutschland, 2008).

| | Mean (5th percentile, 95th percentile) | | |
|-------------------------|--|-----------------------|---------------------|
| | reading literacy | mathematical literacy | scientific literacy |
| Baden-Württemberg | 500 (301, 653) | 516 (355, 676) | 523 (349, 674) |
| Bavaria | 511 (314, 661) | 522 (356, 673) | 533 (355, 684) |
| Berlin | 488 (272, 661) | 495 (321, 665) | 508 (320, 682) |
| Brandenburg | 486 (272, 668) | 500 (338, 672) | 514 (347, 679) |
| Bremen | 474 (271, 645) | 478 (317, 641) | 485 (318, 655) |
| Hamburg | 476 (256, 655) | 488 (312, 662) | 497 (313, 670) |
| Hessen | 492 (284, 659) | 500 (330, 670) | 507 (333, 672) |
| Mecklenburg-W Pomerania | 480 (293, 641) | 500 (350, 652) | 515 (351, 677) |
| Lower Saxony | 484 (296, 611) | 489 (339, 634) | 506 (347, 656) |
| North Rhine-Westphalia | 490 (290, 655) | 493 (327, 654) | 503 (326, 663) |
| Rhineland-Palatinate | 499 (305, 658) | 500 (339, 652) | 516 (341, 679) |
| Saarland | 497 (322, 646) | 498 (353, 648) | 512 (354, 667) |
| Saxony | 512 (343, 654) | 523 (374, 664) | 541 (382, 691) |
| Saxony-Anhalt | 487 (276, 650) | 499 (339, 654) | 518 (348, 680) |
| Schleswig-Holstein | 485 (286, 651) | 497 (339, 659) | 510 (344, 670) |
| Thuringia | 500 (312, 651) | 509 (355, 664) | 530 (367, 680) |
| Germany | 495 (299, 657) | 504 (339, 664) | 516 (345, 672) |

Given that the focus of PISA 2006 was on mathematical literacy, we now explore in more detail the differences in terms of competence and differentiation between Länder (the results for other domains are broadly comparable).

Table 4 shows the different quadrants into which different Länder fall: Saxony is illustrative of an egalitarian, high-competence system; Hessen of an unequal, low-competence system; Rhineland-Palatinate of an egalitarian, low-competence system. The dimensions we have proposed are related to a key problem: the association between poor educational outcomes and low social background. The Länder with a more egalitarian and high-competence-producing school system tend to be the ones with a comparatively weak link between social origin and scores in tests of competence (PISA-Konsortium Deutschland, 2008). In other education systems such as in Bremen, Rhineland-Palatinate, and Schleswig-Holstein the link between the social background of pupils and their competence is much stronger. In the group of more egalitarian and high-competence-producing systems we find education systems with two types of secondary school (Gymnasium and Realschule/Hauptschule) in Saxony and Thuringia and three types (Gymnasium, Realschule, and Hauptschule) in Bavaria and Baden-Württemberg. Differences between the Länder in relation to the number of school types do not seem to provide a clear explanation for their higher performance. These Länder also differ significantly in terms of sociodemographic variables such as pupils' socioeconomic background, migration background, and child poverty rates.

Given that there are no clear-cut policy differences between Länder that might account for the variation, the question arises of whether delegation of particular responsibilities to the school level might account for differences observed. To explore this issue, it was possible to use data from the German supplementary sample of PISA (PISA-E) carried out in 2003. Headteachers' reports of school autonomy were utilised (these are not comparable with the data in table 1 which relate to officially reported policies). Autonomy in personnel management was found to be low (6%) as was autonomy

Table 4. Effects of level and differentiation in the German Länder: competence in mathematics, PISA-E 2006 (source: PISA-Konsortium Deutschland, 2008).

| Level of competence | Differentiation of competence | |
|---------------------|--|--|
| | low (egalitarian) | high (unequal) |
| High | <p><i>Model 1</i></p> <p>Saxony (523, 290)</p> <p>Bavaria (522, 317)</p> <p>Baden – Württemberg (516, 321)</p> <p>Thuringia (509, 309)</p> | <p><i>Model 3</i></p> |
| Low | <p><i>Model 2</i></p> <p>Rhineland-Palatinate (500, 313)</p> <p>Mecklenburg-W Pomerania (500, 302)</p> <p>Saxony-Anhalt (499, 315)</p> <p>Saarland (498, 295)</p> <p>Schleswig-Holstein (497, 320)</p> <p>Lower Saxony (489, 295)</p> <p>Bremen (478, 324)</p> | <p><i>Model 4</i></p> <p>Hessen (500, 340)</p> <p>Brandenburg (500, 334)</p> <p>Berlin (495, 344)</p> <p>North Rhine-Westphalia (493, 327)</p> <p>Hamburg (488, 350)</p> |

Note: The German mean serves as the basis for classifying the level and differentiation of competence into the categories of 'high' and 'low'. The first figure in the parentheses designates the Länder's mean competence level (average for Germany 2006 = 604). The second figure in the parentheses following each Länder's name designates the bandwidth of competence between the 95th and the 5th percentile (average for Germany 2006 = 25).

in formulating the school budget (10%). However, autonomy in deciding on budget allocations within the school was very high (94%) as was autonomy in terms of student policies (86%), with curricular autonomy being lower (68%) (see appendix A, table A1).

Multivariate analyses using data arising from PISA 2003 were carried out (see appendix A, table A2) to explore the variables associated with attainment.⁽¹⁰⁾ Our interest is in administrative decentralisation to school level which varies between Länder. Having controlled for background factors and school structural factors (models 1 and 2), model 3 analyses the effects of autonomy. Schools with autonomy over personnel management had higher mean mathematical literacy scores than those without. In relation to autonomy in formulating the school budget and student policies there were no statistically significant associations. Schools reporting autonomy over the curriculum had lower mean student mathematical literacy scores than schools without; these results may, however, be explained by the fact that it was not possible to control for central examinations which have only recently been introduced.

3.3.2 UK

Although the UK has participated in each round of PISA, it participated as one country in 2000. In 2003 the results for the UK were deemed unreliable as England did not achieve the required response rate even though Scotland did. In 2006 Scotland and England took part separately but as part of the UK (Grek et al, 2009).

Table 5 reveals that there were relatively few statistically significant differences between countries for mathematical literacy. The highest attainment was in Scotland which was significantly higher than that in Northern Ireland. Wales was significantly lower than England. Wales was significantly lower than the other countries for reading literacy. In relation to overall scientific achievement the mean scores in England, Wales, Northern Ireland, and Scotland are similar, although England's mean score was higher than that for Wales (Bradshaw et al, 2007).

Table 5. Mean performance and 5th and 95th percentiles for the Programme of International Student Assessment 2006 in the UK (source: Bradshaw et al, 2007).

| | Mean (5th percentile, 95th percentile) | | |
|------------------|--|-----------------------|---------------------|
| | reading literacy | mathematical literacy | scientific literacy |
| England | 496 (317, 654) | 495 (350, 643) | 516 (336, 686) |
| Northern Ireland | 495 (311, 659) | 494 (341, 647) | 508 (320, 686) |
| Scotland | 499 (334, 650) | 506 (367, 647) | 515 (350, 679) |
| Wales | 481 (312, 635) | 484 (351, 621) | 505 (339, 673) |

As the focus of PISA 2006 was on mathematical literacy, we now explore in more detail the differences in terms of competence and differentiation between constituent countries of the UK (the results for other domains are broadly comparable).

Table 6 shows the different quadrants into which different countries fall: Scotland is illustrative of an egalitarian, high-competence system; Northern Ireland is illustrative of an unequal, low-competence system; and Wales of an egalitarian, low-competence system. The question arises as to why these differences exist. The countries do vary in terms of the characteristics of their population.⁽¹¹⁾ In particular, more children live

⁽¹⁰⁾ The individual data for the German Länder for 2006 were not available.

⁽¹¹⁾ The proportion of non-white residents in the UK varies [9% in England, 2% in Wales and Scotland, 1% in Northern Ireland (NISRA, 2002; ONS, 2009; SCROL, 2009)]; there are differences in performance between pupils from different ethnic groups, (DfES 2006) but more of the variance in achievement is accounted for by deprivation than by ethnicity (DfES, 2006).

Table 6. Effects of level and differentiation in the UK: competence in mathematics, Programme of International Student Assessment 2006 (source: Bradshaw et al, 2007).

| Level of competence | Differentiation of competence | |
|---------------------|---------------------------------------|---|
| | low (egalitarian) | high (unequal) |
| High | <i>Model 1</i> Scotland (506, 279) | <i>Model 3</i> |
| Low | <i>Model 2</i> Wales (484, 270) | <i>Model 4</i> England (495, 293) Northern Ireland (494, 306) |

Note: The UK mean serves as the basis for classifying the level and differentiation of competence into the categories of 'high' and 'low'. The first figure in parentheses designates the national mean competence level (average for UK 2006 = 495) and the second is the bandwidth of competence between the 95th and the 5th percentile (average for UK 2006 = 292).

in the poorest households (the bottom quintile in terms of household income) in Wales (29%) than in Northern Ireland (27%), England (25%), or Scotland (24%) (DWP, 2008). Given the strong links between poverty and low attainment, this may help account for the lower mean performance of Wales.

Moreover, there are differences between the countries of the UK in terms of the policies that have been pursued. This is most clearly exemplified if England and Scotland are compared: there is much more delegation of responsibilities to school level in the former than in the latter and, although their mean performance is similar, the results are more dispersed. This suggests that policies other than those related to delegation of responsibility to the school level may help us understand the differences observed. One plausible policy relates to secondary school selection. Previous research involving the analysis of attainment data in public examinations at the age of 16 reveals that in Scotland levels of inequality have shown a relative tendency to become narrower over time whilst in England they have not (Raffe et al, 2006). This may be a reflection of "schools' stronger comprehensive ethos and their lower social segregation" (page 10). This is because social segregation is associated with lower levels of later attainment as school composition has an impact on attainment of all pupils at the school (see Croxford, 2009). Analyses of PISA data have also found that schools in Scotland are less socially segregated than those in England (Jenkins et al, 2007) and that there are more inequalities in achievement where there is an academically selective education system (Alegre and Ferrer, 2009). Segregation levels are also higher where more pupils attend schools with autonomy over admissions (Alegre and Ferrer, 2009) and this is the case with a third of English secondary schools (West et al, 2011).

4 Discussion and conclusion

We set out to examine the nature of political authority and policy decentralisation in the field of education in the UK and Germany; the education policies pursued by national subunits; the extent of delegation to school level; and the association between different policies pursued at subnational levels and attainment.

In Germany political authority for school-based education is vested with the regions (Länder), and in the UK it is vested to a greater or lesser extent with the constituent countries. In both cases there has been an increase in political authority at subnational levels.

The education policies pursued in Germany and the UK vary across subnational units. In the UK there are some clear differences between the constituent countries; this is particularly clear if we focus on the two most distinctive countries, England and Scotland. In Scotland there is no selection by ability to secondary schools, whilst in England there are policies that enable pupils to be selected. In Scotland there is relatively little administrative and management responsibility vested with individual schools, whereas in England there is considerable delegation to school level associated with the introduction of a quasi-market in school-based education. Turning to Germany, there is academic selection across the country although the number and types of schools vary between Länder. In a significant proportion of schools, certain responsibilities are delegated to school level.

A major debate in the literature has been concerned with the extent to which policies which result in power being delegated to schools are associated with higher educational standards. We used the results of PISA 2006 to compare the mean performance and dispersion across subnational units in Germany and the UK. Achievement levels were similar in Germany and the UK in terms of overall mean performance in PISA 2006. Within each country we found differences in terms of the indicators of quality and measures of the level of dispersion. Some of the differences observed are the result of pupil characteristics (sociodemographic variables such as poverty and socioeconomic background), but there are indications that policies implemented at subnational levels may also be significant.

Using data from the German extension study of PISA 2003, it was found that some responsibilities delegated to school level were associated with higher mean scores in mathematical literacy. In particular, in those schools where the headteacher reported autonomy over personnel management, scores were higher; this might be because such schools are able to utilise their teaching staff and teaching methods to meet the specific needs of the pupils in the school. Interestingly, schools reporting autonomy over the curriculum had lower mean scores than schools without: this finding may be explained by the fact that it was not possible to control for centralised examinations, which were only introduced in 2002.

In the UK the mean performance scores for the constituent countries varied to some extent. However, when the two countries with the most diverse systems, England and Scotland, were compared, it was found that mean scores were similar, but that dispersion was greater in England. We postulate that the reasons for this dispersion may be related to the school system in place in Scotland which is fully comprehensive, unlike that in England where policies allowing for various types of school selection have been pursued.

Our analysis confirms the view that decentralisation is multifaceted and complex. We have extended previous research by exploring different types of decentralisation in the field of education and found that policies pursued as a result of decentralisation differ and may be associated with differing educational outcomes. Although much of the debate in relation to decentralisation in education has focused on the delegation of management and administration to schools, more attention could be given to the relationship between subnational policies and outcomes; of particular interest are those relating to pupil selection, admissions, and assessment. Given the evidence relating socioeconomic background to achievement, it is important to know how this interacts with policies pursued, in order to provide further insights into the possible consequences of different types of decentralisation on pupils' educational outcomes and how these might be optimised.

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Appendix

Table A1. School autonomy in the German Länder in different aspects of school management (lower secondary), 2003 Programme of International Student Assessment (source: PISA German supplementary national sample PISA-E, 2003; own calculations)

| | Autonomy in | | | | |
|-------------------------|--------------------------|-----------------------------------|--|----------------------|----------------|
| | personnel management (%) | formulating the school budget (%) | deciding on budget allocations within the school (%) | student policies (%) | curriculum (%) |
| Brandenburg | 1.4 | 1.4 | 87.5 | 92.7 | 77.5 |
| Berlin | 2.6 | 5.7 | 95.3 | 84.9 | 71.7 |
| Baden-Württemberg | 8.7 | 12.8 | 100.0 | 91.1 | 57.0 |
| Bavaria | 8.7 | 12.5 | 98.6 | 80.9 | 59.6 |
| Bremen | 5.9 | 22.4 | 100.0 | 86.3 | 64.7 |
| Hessen | 7.6 | 14.9 | 95.1 | 92.8 | 65.4 |
| Hamburg | 4.0 | 4.4 | 97.1 | 80.7 | 64.0 |
| Mecklenburg-W Pomerania | 5.4 | 2.3 | 84.1 | 88.7 | 74.1 |
| Lower Saxony | 12.5 | 14.1 | 97.4 | 88.9 | 80.5 |
| North Rhine-Westphalia | 11.3 | 6.2 | 97.9 | 96.5 | 85.2 |
| Rhineland-Palatinate | 4.7 | 4.7 | 96.5 | 87.0 | 70.1 |
| Saarland | 2.7 | 12.5 | 96.9 | 88.0 | 53.1 |
| Saxony | 5.1 | 3.8 | 88.6 | 83.9 | 60.3 |
| Saxony-Anhalt | 4.2 | 20.5 | 95.2 | 91.1 | 71.1 |
| Schleswig-Holstein | 5.9 | 12.0 | 90.4 | 66.7 | 61.0 |
| Thuringia | 3.9 | 8.4 | 88.0 | 77.7 | 73.3 |
| Germany | 5.9 | 9.9 | 94.3 | 86.1 | 68.0 |

Table A2. Regression coefficients and standard errors (in parentheses) for the effect of pupil and school factors on student mathematical literacy of 15-year olds, PISA-E-2003 (source: own calculations with STATA 11).

| | Model | | |
|---|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 |
| Gender (0 = girls, 1 = boys) | 16.15*** (1.047) | 26.29*** (0.826) | 26.17*** (0.865) |
| Without migration background | 33.66*** (1.742) | 30.59*** (1.199) | 30.54*** (1.263) |
| Parents' education background | 6.512*** (0.349) | 1.979*** (0.272) | 1.972*** (0.285) |
| Parents' occupational status (Highest International Socioeconomic Index of Occupational Status) | 1.451*** (0.0408) | 0.539*** (0.0317) | 0.520*** (0.0334) |
| Kindergarten attendance (0 = yes, 1 = no) | | -15.91*** (1.999) | -16.44*** (2.105) |
| Hauptschule (secondary general school) | | -38.42*** (7.055) | -35.07*** (7.753) |
| Schule mit mehreren Bildungsgängen (integrated school of realschule and hauptschule) | | 17.53** (6.883) | 19.60*** (7.562) |
| Realschule (secondary school) | | 41.21*** (6.951) | 44.96*** (7.638) |
| Integrierte Gesamtschule (integrated comprehensive school) | | 13.29* (7.012) | 15.33** (7.692) |
| Gymnasium (grammar school) | | 110.9*** (6.789) | 112.4*** (7.456) |
| Autonomy in personnel management (0 = no, 1 = yes) | | | 18.36*** (5.887) |
| Autonomy in formulating the school budget (0 = no, 1 = yes) | | | 1.706 (2.835) |
| Autonomy in deciding on budget allocations within the school (0 = no, 1 = yes) | | | 1.871 (2.850) |
| Autonomy in student policies (0 = no, 1 = yes) | | | -1.697 (3.453) |
| Autonomy in curriculum (0 = no, 1 = yes) | | | -15.98*** (4.235) |
| Constant | 380.8*** (2.850) | 396.6*** (6.880) | 406.5*** (8.864) |
| Observations | 34129 | 33907 | 30516 |
| R ² | 0.181 | 0.444 | 0.443 |

Notes: *** $p < 0.01$; ** $p < 0.05$.

Calculations clustered at school level. Pupils from immigrant families and pupils whose parents have both a comparatively low educational background and occupational status obtain lower mathematical literacy levels; background characteristics of students explain about 18% of total variance in mathematical literacy of students (model 1). Models 2 and 3 control for the different school types in the German Länder. Pupils who had not attended a kindergarten for at least one year show lower mathematical literacy scores than those pupils who had (model 2). Model 3 analyses the effects of autonomy on mathematical literacy. Schools with autonomy over personnel management issues have higher mean mathematical literacy than schools with lower autonomy. Schools with curricular autonomy have lower mean student mathematical literacy scores than schools without.

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