

Shadow Education within the European Union from the Perspective of Investment in Education

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Introduction

Shadow education has been a widespread element of many educational systems across the world, especially those from East Asia (Bray, 2007). While it has also been present in the European Union (EU), relatively little has been done to provide a comprehensive picture of the participation and spending on private tutoring. A notable exception is a work by Mark Bray (2011) for the European Commission, which reviews the existing literature and summarises basic patterns. Among his main conclusions, he observes that the presence of shadow education in the EU is significant and the trend in participation is growing, but there is notable heterogeneity across the member states.

This response to the European Commission's ad-hoc question on investment in shadow education takes the work of Mark Bray as its point of departure. I collect the recent quantitative evidence and supplement it with my own estimates from the two waves of the Programme for International Student Assessment (PISA) 2009 and 2012. The main conclusions are:

- There is a variation in the participation rate in shadow education across the member states. Consistently with Bray (2011), I show that shadow education is the most widespread among the Southern (SE), Central and East European (CEE) countries and the least in Western (WE) and Northern Europe (NE). Moreover, I document a common growing trend in participation. Engagement in shadow education increases with the level of education.
- Spending on shadow education follows a similar pattern as participation, with relatively higher levels of expenditure among the SE and CEE countries. Although the data are scarce, for some countries I document a positive trend in spending. Private tutoring can impose a significant economic burden on household. It raises with the level of education and is especially high during the last year of secondary school.
- Individual tutors are relatively more popular than commercial companies in almost all member states. These are often school teachers, which might lead to a potential conflict of interest. Their engagement is especially high in SE and CEE. On-line learning is one of the fastest-growing parts of shadow education.
- Students in the SE and CEE countries are more likely to take enrichment, rather than remedial, out-of-school classes. The reverse is true for the NE and WE countries. Socio-economic status (SES) matters a lot for the demand for shadow education, but the strength of connection seems to depend on the stage of education. The effects of SES

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translate into big within-country variations in the participation and spending on private tutoring.

Section 1 of this review offers a definition of shadow education. In section 2, a general picture of participation and investment in shadow education among the member states is drawn. Section 3 discusses the supply side of the private tutoring market, namely the providers of private tutoring and its forms. Section 4 focuses on the demand side and looks at the motives for participation in shadow education and the influence of SES. Finally, conclusions are given in section 5

1. Definition

I follow Bray (2011) and define shadow education² as private supplementary tutoring of subjects that are part of core mainstream curricula (such as mathematics, language or science). Private tutoring of subjects that are not part of regular curricula (e.g. karate classes) is not considered as shadow education. This might create inconsistency in the definition of shadow education across countries, as some subjects are part of curriculum in some countries but not in others.

The definition of shadow education is relatively straightforward when applied to primary and secondary stages of education, but it becomes more blurred for pre-schooling and tertiary education. Because of the diversity of university programmes and lack of standardised curriculum, the definition of shadow education must be conditional on a student's programme. For instance, receiving tutoring in painting should be considered as shadow education when the student is enrolled in a university art programme, but not if the student is enrolled in an economics programme. Similarly, pre-education often has no established common curriculum and thus it is very hard to properly define its boundaries. For these reasons, I focus exclusively in this review on primary and secondary stages of education (i.e. ISCED 1-3). It remains an open question, however, how to classify preparatory courses for university entrance examinations. On the one hand, they usually take place at the end of secondary education and thus should be part of this stage. On the other, they might be based on content, which is not part of the secondary school curriculum. As they are an important part of parental spending, I include them in the scope of this review.

Finally, it must be stressed that shadow education can be provided formally or informally - not declared as an official activity and thus not covered by the tax system. As such, it is conceptually different from the term "shadow economy" (informal economic sector), although it partially overlaps with it.

2. A big picture of participation and spending on shadow education

Data on pecuniary investments in shadow education in the EU are scarce. Cross-country data, such as PISA or Trends in International Mathematics and Science Study (TIMSS), do not provide a detailed picture of educational spending. For instance, PISA contains only information about the total parental spending on education. Some countries include the question about private tutoring in their Household Budget Surveys (HBS) (e.g. Sztanderska, 2013), but the harmonised version EU-HBS, available through Eurostat, does not differentiate between

² Throughout this review, I also use the term 'private tutoring' as a synonym for 'shadow education'.

spending on official or shadow education. Consequently, the country-specific sources (mostly surveys) are, to the best of my knowledge, the only available source of data on spending.

The information on the participation in shadow education is richer. There are more studies analysing this problem and PISA, along with TIMSS, can be used to analyse cross-country patterns. One has to keep in mind, however, that there are important limitations of the latter sources. TIMSS stopped asking about shadow education in 2003 and PISA's questions on this topic were changing from wave to wave, making the longitudinal comparison impossible (for more details, see Bray and Kobakhidze, 2014).

Obviously, relying on country-specific sources makes the longitudinal and cross-country comparisons challenging. Surveys differ with respect to their representativeness, sample size, questions, stage of education, quality and the population of interest. That is why I also supplement the analysis with my own estimates of the participation in shadow education using the data from the 2009 and 2012 waves of PISA.³

2.1 Participation

I start with the analysis of the participation rates, for which the data are more complete. Figures 1 and 2 present the share of *secondary school* students who reported out-of-school time spent with a paid tutor in the PISA 2009 and 2012 surveys. There is a significant variation in the participation rate among the member countries. It is the most widespread among Southern (SE), Central and East European (CEE) countries and the least in Western (WE) and Northern Europe (NE). Consistently across the waves, Greece, Poland, Latvia and Spain are at the top, with participation rates in 2012 between 27% and 45%. At the bottom of the ranking are the Scandinavian countries of Denmark, Sweden and Finland, with the 2012 rates smaller than 8%. The rates from 2009 are larger, but this is rather an artefact of the specific question from the PISA 2009, which might also cover free in-school but outside-school-time classes. That could explain why in 2009 the UK is among the top-ten countries, but in 2012 among the bottom ten. Nevertheless, these findings are consistent with the previous cross-country studies (Baker et al., 2001; Bray 2011; Huang, 2013).

Figures 3 to 6 display the participation rates collected from numerous studies. Although the studies are not directly comparable, the big picture is consistent with the results from the PISA. The countries from SE and CEE dominate the ranking and this has not changed much since the 1990s. Cyprus, Hungary, Poland, Lithuania and Greece are consistently found at the top, while Austria, Germany and the UK at the bottom.

The big advantage of country-specific analysis is that it allows a comparison of participation rates across educational stages and, for some countries, across time. In general, the later the stage of education, the higher presence of shadow education. Ireland, for instance, had the ISCED2 participation rate in 1994 at the level of 21%, while for ISCED3 the number was 32% (Figure 3). In Cyprus, the extent of shadow education in the early 2000s at the ISCED2-3 levels was almost 20pp higher than at ISCED1; after 2005 the gap decreased to 13pp (Figures 4 and 5). Similar patterns can be found in Greece (Figure 3), France (Figure 5), Germany and Poland (Figure 6). This not a universal relationship, however; the opposite is true for Italy, Scotland (Figure 4), Croatia and the UK (Figure 5).

³ PISA 2015 provides only information on the total out-of-school learning time and does not allow us to isolate private tutoring.

There is evidence for an upward trend in the participation rate. A study by Boguszewski et al., (2014) shows a monotonic increase in the ISCED3 rate from 38% in the 1998 to 53% in 2010 (Figures 3-5). Smyth (2009) reports a similar increase in Ireland, from 32% in 1994 to 45% in 2003 (Figures 3-4). Lamprianou and Lamprianou (2012) document that in Cyprus the ISCED1 (2-3) participation rate increased by 11 (5) pp from 2004 to 2006. In Austria, for ISCED1-3 it rose from 20% in 2010 to 24% in 2015, but fell again to 20% in 2016 (Feistritz, 2010-2016).

2.2 Spending

Patterns in spending on shadow education to a large extent resemble the patterns in participation. Figure 7 presents the private spending on shadow education as a percentage of the corresponding governmental spending on education. The highest share of spending is reported in Greece, which can be as high as 50% (ISCED2). In Romania, Cyprus and Poland the share is around 10%. Consistently with the participation rate, the share of spending is low among the WE countries, at around 1% in Austria, 1.5% in Germany and 3.2% in France. Relatively more spending in France could be related to active policies of the French government, such as the tax deduction on expenditures on private tutoring (Oller and Glasman, 2012). The share is low among the other SE countries - Italy and Spain. This is puzzling given their high participation rates. Although one cannot exclude a possibility that a high participation rate does not always correspond to higher spending, I believe the reason is poor quality of the data. One has to keep in mind that the size of estimates can be sensitive to the type of data. For instance, the survey of students in Poland yields an estimate of around 9% (Góźdz, 2012), whereas the Household Budget Survey indicates around 2% (Sztanderska, 2013).

One should expect spending on shadow education to follow similar trends as in the case of participation. Unfortunately, the available longitudinal data are too scarce to verify this. The Austrian institute Abteilung Bildungspolitik shows a decline from 1.3% of the total governmental spending on education in 2010 to 1.09% in 2012, and stagnation afterwards (Figure 7, Feistritz, 2010-2016). On the other hand, spending on shadow education of Cypriot parents constituted 2.19% of the total household spending in 2003, but increased to 2.59% in 2009 (Lamprianou and Lamprianou, 2012). In the long run, the growth can be even more spectacular. Taking Greece as an example, in 1976 the total annual private spending on the 'cramming schools' (exam preparation) was 20% of all private spending on education and it rose to 30% after 1980 (Pematzoglou, 1987). In 2008, private tutoring constituted 82.4% of the private and 50.4% of public expenditures on secondary education (KANEP/GSEE, 2011; Kassotakis and Verdis, 2012).

The spending increases with the educational level. In Poland, in 2010, 4.1% of the total households used private tutoring and their average monthly spending was 142 PLN. This is a sizeable amount given that the mean monthly income at that time was 3,543 PLN (OECD). However, the expenditures at the ISCED 3 level were 112% of ISCED 2 and 134% of ISCED 1 (Sztanderska, 2013). Similar patterns can be observed in the case of Greece (Figure 7), where the ratio of spending on shadow education to the corresponding government expenditures is 16% for ISCED1 and over 50% for ISCED2 (KANEP/GSEE, 2011; Kassotakis & Verdis, 2012).

The economic burden on households can be especially high during the last year of secondary school, when students face high-stakes exams and university admission. This is particularly pronounced in SE and CEE. The analysis of Greek students by Psacharopoulos and

Papakonstantinou (2005) shows that expenditures on private tutoring in the last grade of secondary school were 9.6% of the income of household from the top 25% of income, and 26.4% from the bottom 25%. In Portugal, in 2005 a median student in the last year of secondary school spent between 71 and 140 EUR per month on private tutoring and the average hourly cost of tutoring was 10 EUR (Ventura et al., 2008, Neto-Mendes et al., 2012). This is a significant amount given that in 2005 the hourly gross median wage in Portugal was 3.6 EUR (OECD). In Lithuania in 2004, the final-year students paid for private tutoring an equivalent of 25% (1,339 EUR) of the average annual income (5,399 EUR); for preparatory classes the equivalent was 16% (870 EUR) (Būdienė and Zabulionis, 2006; OECD, 2011). In 2006 a typical Polish senior student took 2 hours per week of private classes, for which she paid the equivalent of 7% (548 EUR) of the average yearly salary (7,962 EUR) and took 1.5 hours of and preparatory courses accounting for 2.6% (210 EUR) (Murawska and Putkiewicz, 2006). In Slovakia, private classes account for 7% (558 EUR) and private courses 3.7% (300 EUR) of yearly average salary (8,130 EUR) (Kubanova, 2006, OECD). Croatian students in 2006 paid 1,044 EUR per year for total private tutoring (Dedic et al., 2006).

The cost of shadow education might also be significant in the WE countries. In a survey conducted among British parents of senior secondary students', around 60% of the parents indicated that "private tuition is too expensive" as a reason for not hiring private tutors (Ireson and Rushforth, 2011). This is plausible as the median cost per hour of tutoring in England in 2009 was £24, while the median hourly pay was only £11 (Tanner et al., 2009).

Expenditure and participation in shadow education differ by the type of school (Bray, 2011). In general students attending private schools participate more in shadow education than students from public institutions (Smyth, 2009; Bray, 2011). The profile of school matters as well. In Lithuania, students from schools with an academic profile (gymnasium) spend almost 24% more than those from general and vocational schools (Būdienė and Zabulionis, 2006). Among German secondary school students, 49% of those following an academic track attend private tutoring, while only 20-29% from other tracks (Guil and Bos, 2014). In Ireland, being in a vocational secondary school decreases the likelihood of engagement in shadow education by around 30% (Smyth, 2009).

Finally, in this review I focus on outside-family forms of shadow education, as family tutoring does not involve monetary costs. However, the time spent with children can also be considered as investment. While it is reasonable to expect that almost all students receive some help from their parents, many receive it also from other family members. For instance, Collas (2013) documents that almost a quarter of French secondary students declare that they have received such help. Moreover, more students declare that they received free tutoring from a non-family member (12%) than students who took private paid classes (11%). Interestingly, while there is a clear positive association between the level of socio-economic background and paid tutoring, a reverse relationship is reported for family tutoring.

3. Supply of Shadow Education

Shadow education is provided either by individuals (formally and informally) or by organised companies (formally).⁴ In general, there are no consistent regulations across member states

⁴The organised providers are not only for-profit companies; shadow education can be also provided by non-profit organisation such as church or local communities (Bray, 2011; Oller and Glasman, 2012).

regarding shadow education and practically everyone can be a tutor (Bray, 2011). Figure 2 presents the PISA 2012 data on the share of secondary students who had out-of-school classes with a private tutor or organised by a commercial company. In all countries, except Germany Latvia and Bulgaria, private tutors are more popular than companies. The gap is the largest in Hungary, where 25% of students had a tutor, but only 7% had classes organised by a company. Similarly, in Croatia, Portugal, Italy and France. At the other end of the spectrum is Germany, where 10% of students had an individual tutor, but 14% engaged in shadow education through an organisation. In Greece, the country with the largest total participation, students are equally likely to use either forms. Interestingly, there are no clear geographical patterns with respect to popularity of either type of provider.

Individual providers are usually university students and teachers, both active and retired (Bray, 2015). Figure 8 presents the PISA 2006 data on the percentage of students participating in out-of-school-time lessons in a breakdown by school and non-school teacher (OECD, 2011). On average around one-third of providers are school teachers, which is consistent with the other studies from Austria, Czech Republic and France (Rosenwald, 2006; AK Wien, 2012; Oller and Glasman, 2012; Statsny, 2017). Countries with the highest share of school teachers are from CEE (Latvia, Poland, Slovakia, Romania) and SE (Portugal, Italy), which is likely an effect of the low public spending on teacher salaries (Popa and Acedo, 2006; Bray, 2011). The involvement of teachers is especially problematic as it creates a conflict of interest within public education. The problem of private tutoring by public teachers is often ignored by the educational authorities and teacher unions, as it provides supplementary income to underpaid teachers.

Shadow education can be delivered in a one-to-one environment, in small groups or in a large traditional classroom. There is a significant variation in the tutor/student ratio among the member states. For instance, as reported in Silova and Bray (2006), in Lithuania the majority of students have individual classes, whereas in Poland or Slovakia the division is approximately half-half between the one-to-one and classroom environments. This has important implications for spending on shadow education, as the cost of tuition could be even one-quarter smaller when the number of students is two, compared to individual lessons (Tanner et al., 2009).

The recent decade has witnessed an emergence of a new form of shadow education - internet-based tutoring. As estimated by research firm Global Industry Analysts, on-line learning is an industry worth globally around 100 billion USD (GIA, 2017). One should expect that e-learning will become an important element of shadow education as well. The online platforms improve the matching between students and tutors while the internet forums reduce information asymmetries, voice and video transmitting technologies allow distant education. It might also mean that commercial companies will dominate private tutoring, as they can exploit network effects and have greater resources to create e-learning platforms and organise massive on-line courses.

4. The Demand for Shadow Education

The determinants of the demand for shadow education are complex and multi-dimensional. In this section, I focus on two dominant aspects, individual motives and the influence of socio-economic condition.

Individual goals are shaped by macro-level conditions. Bray (2011) argues that shadow education in SE and CEE substitutes for low public spending on education, whereas in WE and

NE the competitive labour market motivates students to improve their performance and skills. Consequently, shadow education should have a remedial character in the former group of countries, but enriching in the latter. Figure 1 presents the PISA 2009 data on the share of secondary students who had out-of-school remedial and enrichment classes. The results are puzzling, as students in countries like Latvia, Poland, Portugal or Romania are more likely to attend enrichment than remedial classes. 54% of students in Latvia participated in the former type of lessons, while only 14% in the later. Conversely, 10% and 25% of students from Austria attended enrichment and remedial classes, respectively, whereas in Luxemburg these numbers were 0.5% and 12%. More research is needed to fully understand the motivation of students across EU countries. On the one hand, there could have been an improvement in the provision of public education and a corresponding change in students' motivation, in the SE and CEE countries. On the other hand, one could interpret these findings as evidence that public education systems in countries like Austria or Luxembourg provide enrichment classes, so that students use shadow education mostly for remedial purposes.⁵

Student's socio-economic status (SES), especially household income and parental education, was found to be an important determinant of the demand for shadow education (e.g. Schneider, 2004; Collas, 2013; Statsny, 2016). In general, one should expect wealthier households to invest more in private tutoring, simply because they have more resources available. In Lithuania, for instance, parents with at most secondary education spend 50% less than parents with a university degree (Būdienė and Zabulionis, 2006). One reason could be that low-SES students are less likely to participate in shadow education. In France, children of parents with annual income above 68,000 EUR are almost four times more likely to receive private tutoring than children of parents with income below 18,000 EUR (Collas, 2013). Similar correlations were found in Austria (Feistritzer, 2010-2016), Germany (Schneider, 2004), Ireland (Smyth, 2008 and 2009), Poland (Murawska and Putkiewicz, 2006; Safarzynska, 2013), Slovakia (Kubanová, 2006) and the UK (Ireson and Rushforth, 2011 and 2014). Another reason could be that low-SES students engage in the cheaper forms of shadow education. For instance, Polychronaki (2004) and Sianou-Kyrgiou (2005) find a negative association between the size of out-of-school class and socio-economic status.

The influence of SES might differ by educational stage. As reported by Lamprianou and Lamprianou (2012), Cypriot parents with lower income are less likely to engage and pay for private education than high-income parents. The difference is only significant, however, in the primary stage of education. At the secondary stage, socio-economic status is not relevant, implying that low-SES parents invest a higher portion of their income. Interestingly, households from the bottom 25% of income distribution prefer private providers over public ones. In Greece, Psacharopoulos and Papakonstantinou (2005) find the same relationship between SES, spending on shadow education and the level of schooling. Similarly, there is a positive correlation among German secondary school students between their achievement and participation in shadow education (Guil and Bos, 2014), but not among primary school students (Luplow and Schneider, 2014).

The importance of SES implies that engagement in private tutoring should differ across regions, especially between rural and urban areas. Besides higher income, urban areas have more educated parents, more competitive educational markets, a bigger supply of private tutors and

⁵ In addition, Bray and Kobakhidze (2014) report two problems with the question about out-of-school classes in the PISA 2009. Firstly, students might interpret these as out-of-school-*time* classes and include activities, which are taking place in public schools. Secondly, the understanding of terms 'enrichment' and 'remedial' can vary across languages.

lower transportation costs (Bray, 2011; Silova, 2010; Statsny, 2016). Būdienė and Zabulionis, (2006) report that in Lithuania the mean spending on shadow education was almost twice as high in the urban areas compared to the rural. In France, secondary students from Paris were almost 2.5 times more likely to receive private tutoring than their colleagues from villages (Collas 2013). However, the urban-rural gap might also depend on the type of tutoring and providers. In Slovakia, students from the capital are almost ten times more likely to take private courses than students from villages, but ‘only’ 38% more likely to take single private lessons. Also, the providers of shadow education in Bratislava are significantly less likely to be public school teachers and more likely to be university students, which could be a consequence of higher salaries in the public sector and the existence of large institutions of higher education (Kubanova, 2006). On the other hand, the cost of tutoring can be higher for students from cities. Statsny (2017) documents that in Czech Republic prices for tutoring are almost 30% higher in Prague than in the rural eastern regions.

5. Conclusions

The existing studies show a diverse picture of shadow education in Europe. In particular, CEE and SE have higher levels of participation and spending than WE and NE. The common feature is the growing trend in the size of shadow education, which is likely to accelerate in the upcoming decade because of the expansion of on-line tutoring. Policy-makers should therefore devote more attention to the potential negative consequences of shadow education.

There is an efficiency-equity trade-off connected with the expansion of private tutoring. On the one hand, it allows students to improve their skills and knowledge, which is especially important in countries with low public spending on schools and teachers. On the other hand, the unequal access to shadow education creates an additional gap between students with low and high SES. The worsening equalities of opportunities might further increase the already-high income inequalities.

The involvement of public school teachers in shadow education increases their income, but also leads to a conflict of interest inside the schooling system. Teachers might exert pressures to attend their out-of-school classes, by favouring those using their service, by deliberately lowering in-school teaching standards or by increasing requirements. At the same time, students might feel a peer or societal pressure to attend the class, which might further reinforce teacher’s expectations and requirements. The outcome of this vicious circle is that the system will not provide a level playing field.

A proper design of the educational system might be the key to reduce the negative effects of shadow education, without limiting its remedial and enriching roles. In the context of CEE and SEE, increasing salaries of public school teachers should decrease their incentives to engage in private tutoring. In a broader context, the expansion of comprehensive education should weaken the connection between a student’s income and his/her educational path. Abolishing tracking at early grades, might reduce competition between students, push shadow education to later stages of education and thus eliminate one gap between wealthy and low-income children. Similarly, limiting the number of high-stake exams reduces the need for costly preparatory courses, which are often aimed at particular test requirements, not at deep learning and understanding. Finally, the accountability system should not be solely based on the test-measured level (or gain) of students’ performance. Incorporating qualitative evidence on teachers’ teaching methods might focus schools’ attention on in-class learning.

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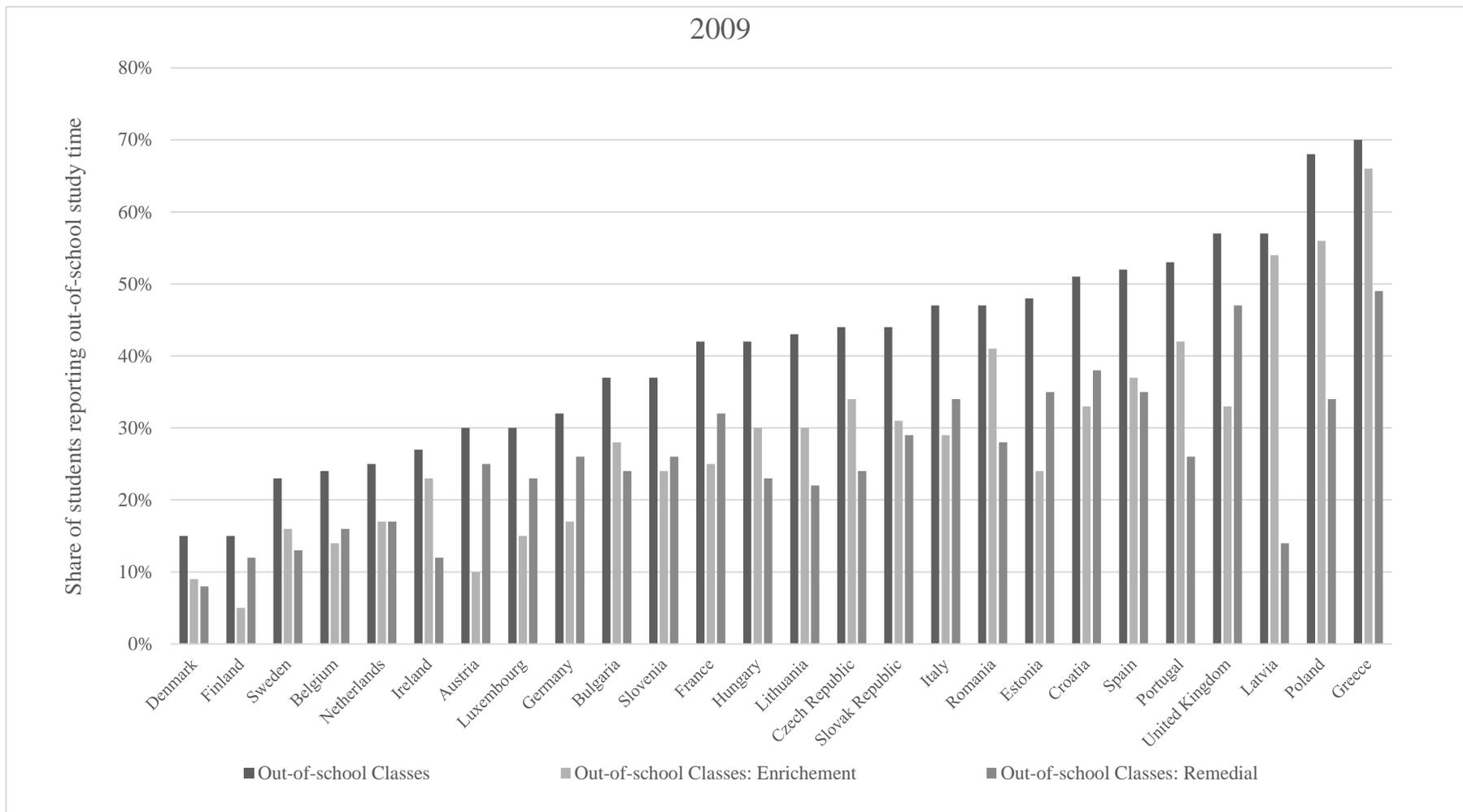


Figure 1: Participation in Shadow Education by Type of Class in 2009

Source: Author's computations based on data from OECD PISA 2009.

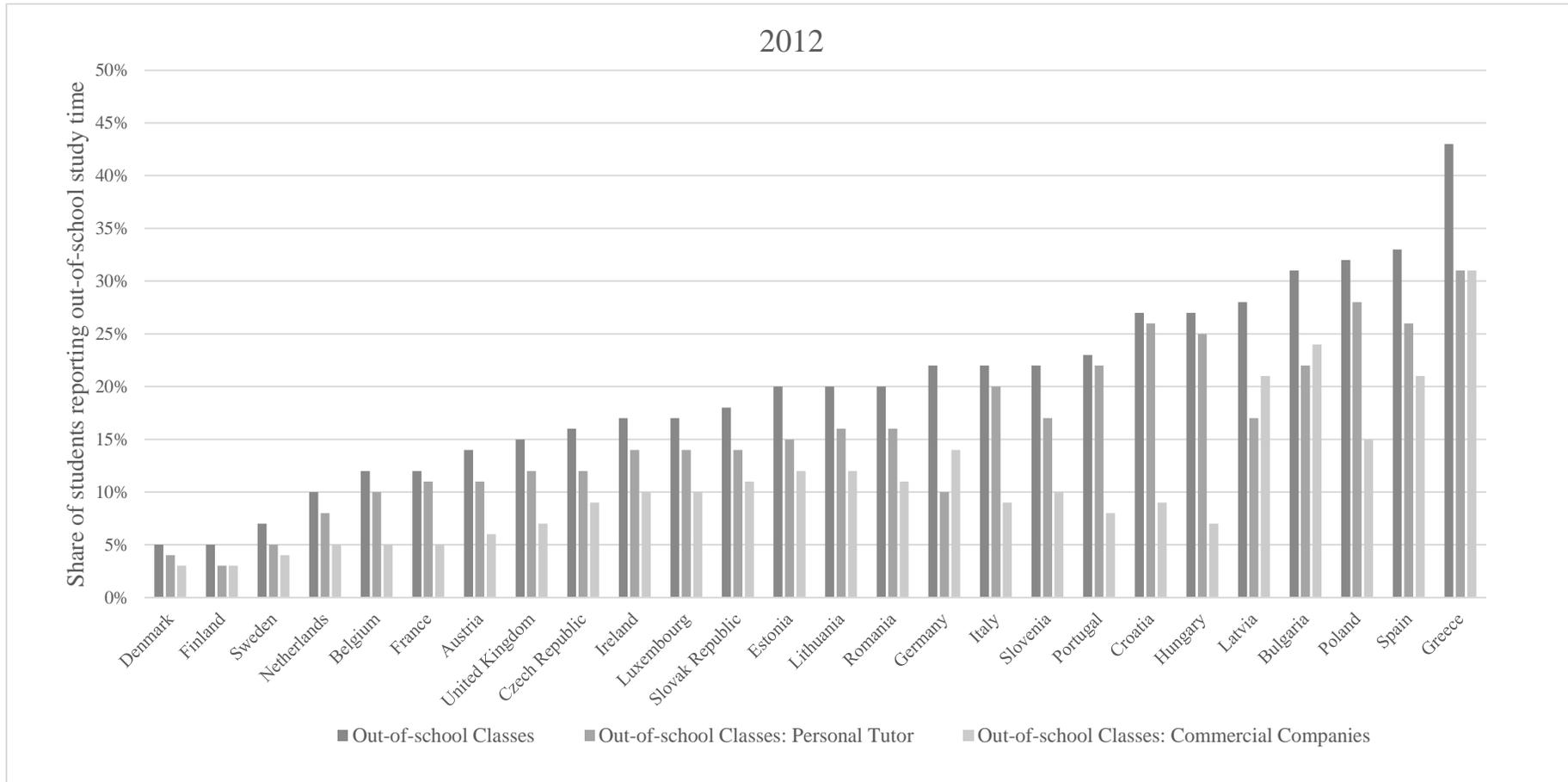


Figure 2: Participation in Shadow Education by Type of Provider in 2012

Source: Author's computations based on data from OECD PISA 2012.

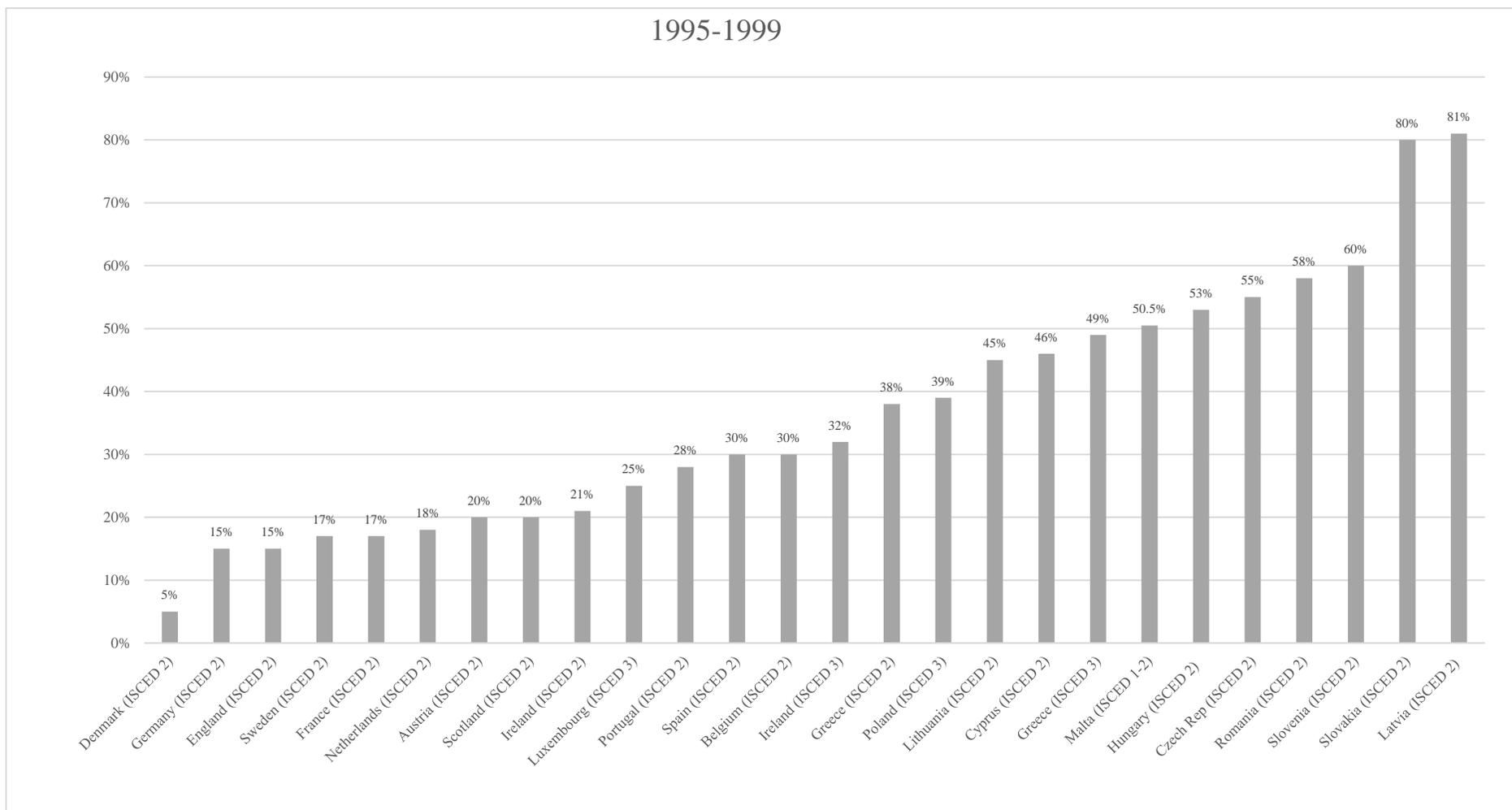


Figure 3: Participation in Shadow Education, 1995-1999

Sources: Baker et al. (2001), Boguszewski et al. (2014), Fenech & Spiteri (1999), Haag & van Kessel (2000), Kassotakis & Giovanni (2002) and Smyth (2009).

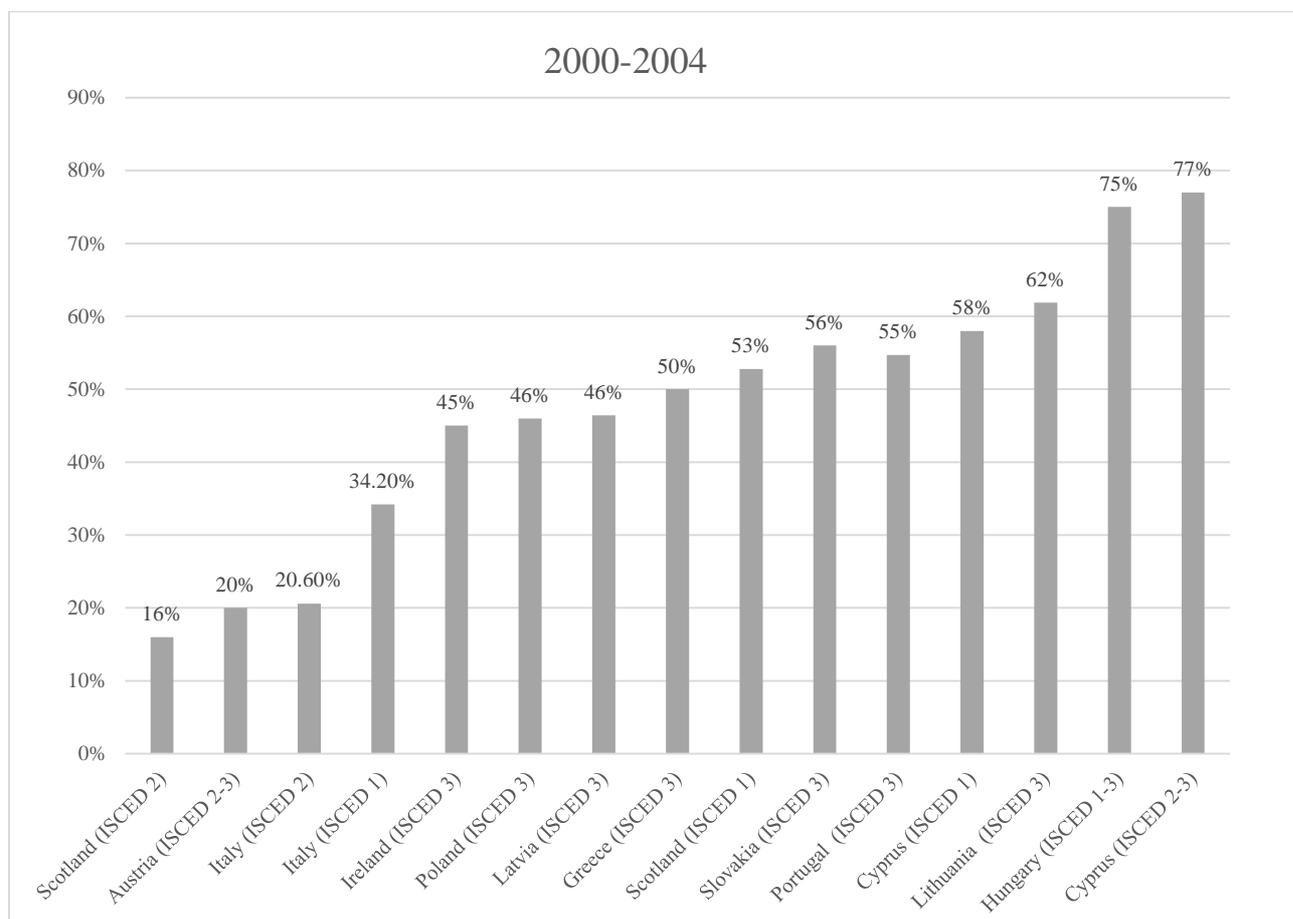


Figure 4: Participation in Shadow Education, 2000-2004

Sources: Aizstrauta et al. (2004), Boguszewski et al. (2014), Būdienė & Zabulionis (2006), Huang (2013), Ildiko (2004), Kubánová (2006), Lamprianou & Lamprianou (2012), Psacharopoulos & Papakonstantinou (2005), Smyth (2009), Ventura et al. (2008) and Wagner et al. (2003).

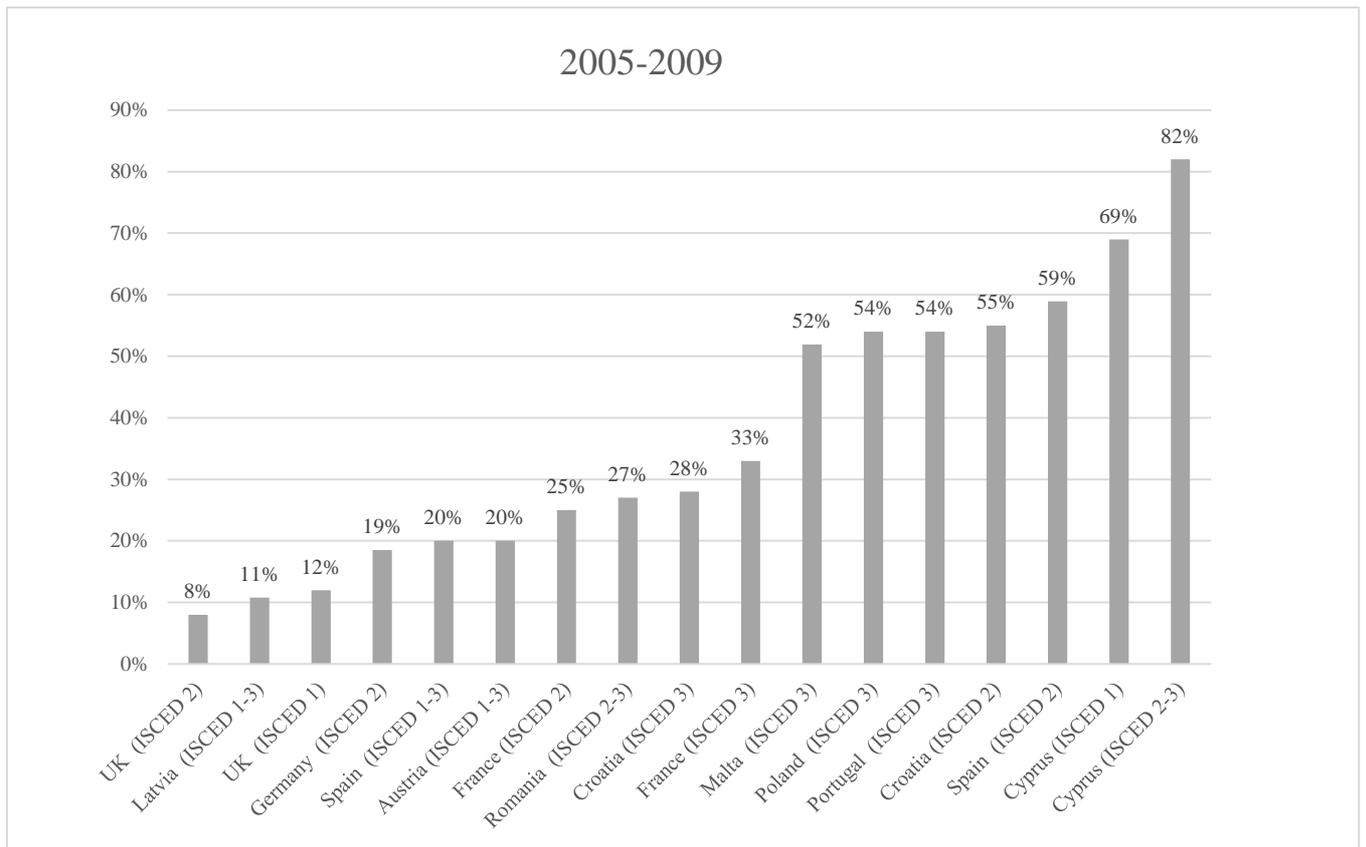


Figure 5: Participation in Shadow Education, 2005-2009

Sources: Álvarez Fernández et al. (2009 and 2009b), Boguszewski et al. (2014), Dedic et al. (2006), Feistritz (2010), Gallardo (2010), Guill (2010), Lamprianou & Lamprianou (2012), Melot (2007), Metro Media et al. (2007), Neto-Mendes et al. (2012), Peters et al. (2009), Strode & Rutkovska (2008) and Vella & Theuma (2008).

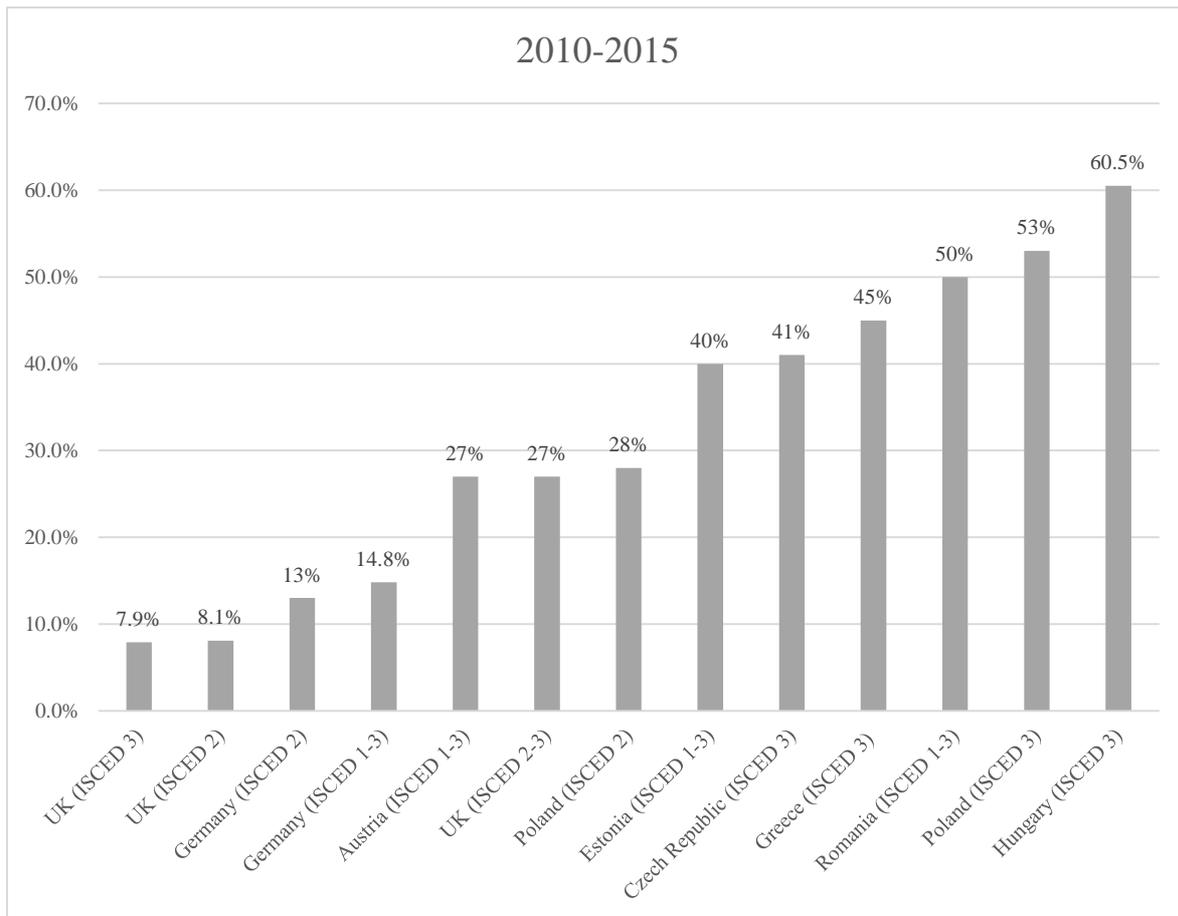


Figure 6: Participation in Shadow Education, 2010-2015

Sources: Boguszewski et al. (2014), Bordás et al. (2011), Dolata et al. (2013), Feistritz (2010-2015), Guill & Bos (2014), IRES (2010), Ireson & Rushforth (2011), Kassotakis & Verdis (2012), Kirss (2011), Klemm & Klemm (2010) and Statsny (2016).

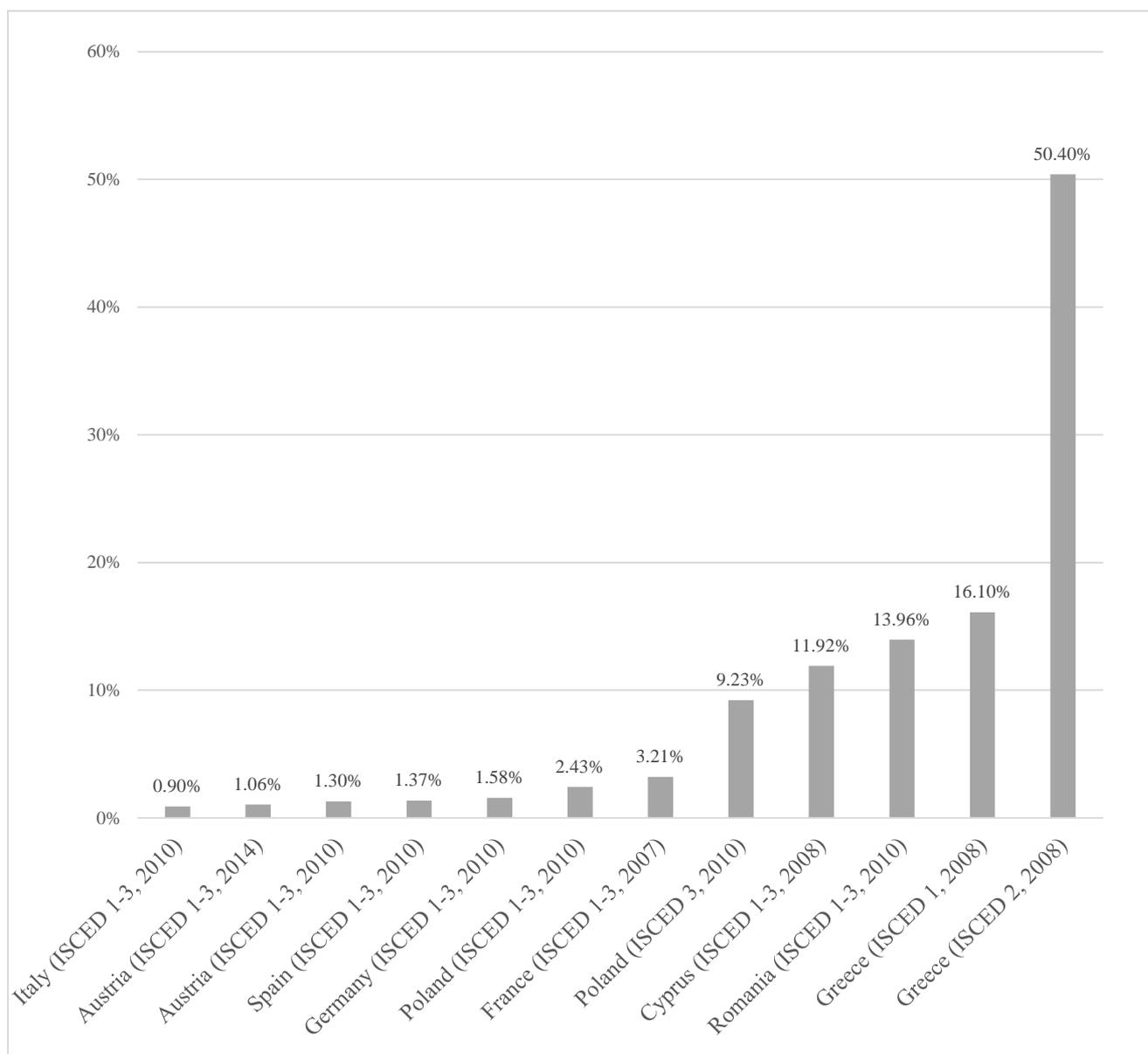


Figure 7: Spending on Shadow Education as % of the Total Governmental Spending on Education

Sources: Adoc (2010), Cyprus (2010), Daedalus Millward Brown (2010) Feistritz (2010-2015), Gallardo (2010), Góźdz (2012), KANEP/GSEE (2011), Kassotakis & Verdis (2012), Klemm & Klemm (2010), Melot (2007), Sztanderska et al. (2013), Eurostat and World Bank.

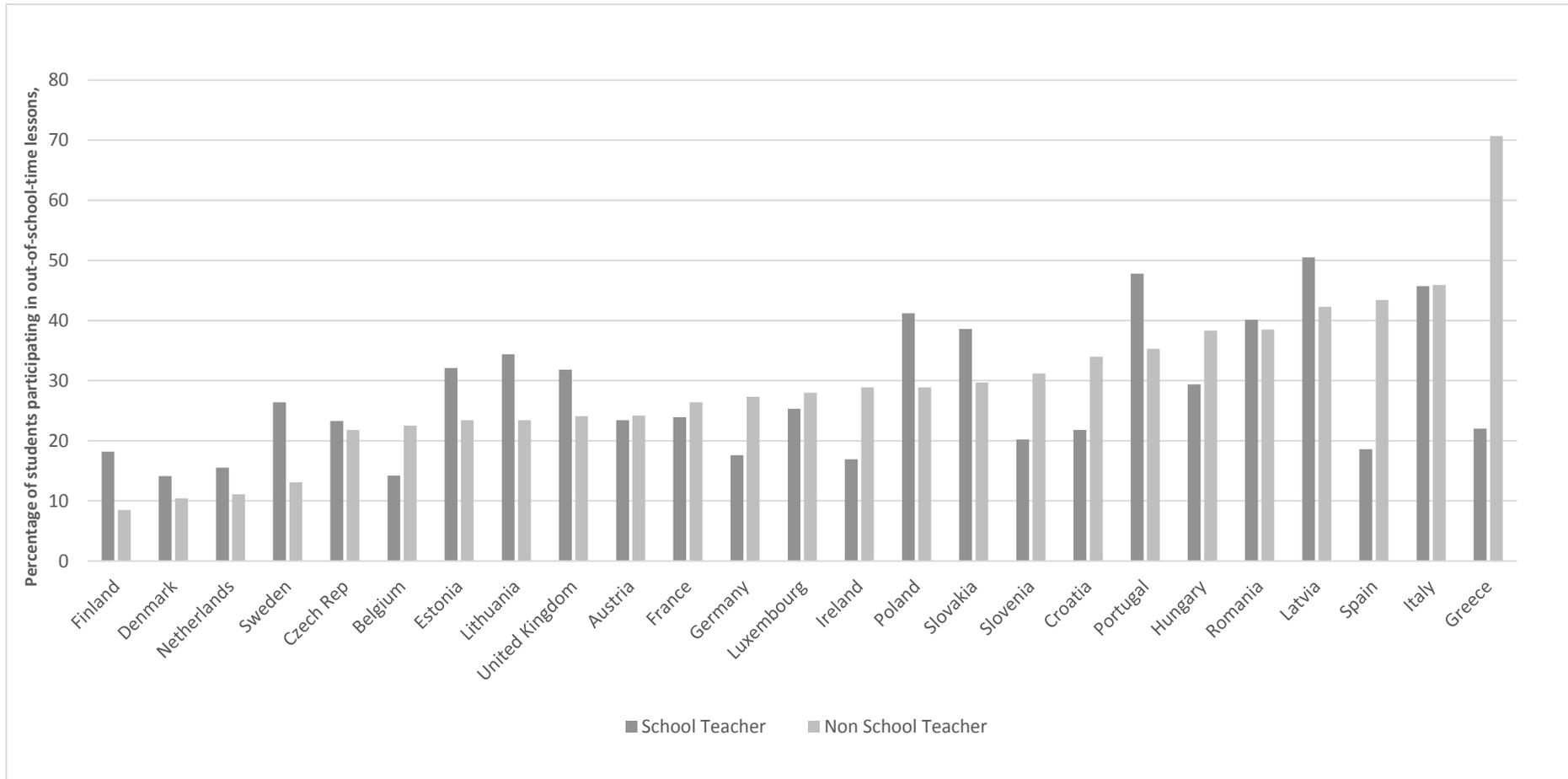


Figure 8: Percentage of Students Participating in Out-of-School-Time Lessons by Type of Teacher, 2006

Sources: OECD (2011), based on PISA 2006.