

The gross and net effects of primary school denomination on pupil performance

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Notwithstanding dramatically low levels of professed religiosity in Western Europe, the religious school sector continues to thrive. One explanation for this paradox is that nowadays parents choose religious schools primarily for their higher academic reputation. Empirical evidence for this presumed denominational advantage is mixed. We examine and compare several studies purporting to show a denominational school effect, and then turn our attention to the Dutch case. Owing to its longstanding and highly varied denominational school sector, the Netherlands arguably provides a unique context in which to examine whether there are school sector effects. In this study multilevel analyses were performed. Data include 19 cognitive and non-cognitive outcome measures in 2011 administered to 27,457 pupils in grades 2, 5 and 8 of 386 primary schools. Results show that after controlling for input differences at pupil and school level no substantial output differences between religious schools and public schools remain. However, Islamic schools appear to be one important exception which turn out to have a great value-added potential. Implications of these findings are discussed.

Keywords: denomination; religious schools; school choice; effects; primary school; the Netherlands; multilevel analysis

Background, perspective and objective

A paradox: denominational schools in “secular” Western Europe

Across much of Western Europe there is ample evidence to suggest a sharp decline in religiosity. This, of course, is not a completely new development, as a process of secularization has been underway since the 1960s. It also should be said that this process does not apply equally to all religions; nor does it apply to all European countries to the same degree (Norris and Inglehart 2011). Concurrent with the steady decline in traditional religious belief and church membership, in many countries the market share of religious schools remains virtually unchanged (Dijkstra, Driessen, and Veenstra 2001; Merry 2015). That is, the proportion of parents selecting denominational schools for their children is almost the same today as it was half a century ago; in some countries there is even an increase in demand for religious schools. Various explanations for this paradoxical situation have been put forward (Dronkers 2004; Goldring and Philips 2008).

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First, both Catholic and Protestant religious schools are typically supported by Christian political parties (often the ruling parties), but they also enjoy support from laws protecting freedom of religious education, as well as the vested interests of administrative and educational professionals attached to the different denominational organizations. Second, while perhaps only a minority, a committed core of religiously devout parents continue to choose religious schools because they reinforce their beliefs and values; these may be Christian, Muslim or Jewish parents for whom a religious upbringing is paramount. Third, it is also the case that many parents – particularly in smaller towns and rural areas – choose the existing local denominational school for its proximity and convenience. Fourth, religious schools may be more attractive, even for non-religious parents, because they pay more attention to moral values than the “neutral” public schools. Finally, though seldom explicitly stated, parents may choose a religious school on the basis of the pupil composition; particularly middle-class parents are keen to avoid (public) schools composed of high concentrations of ethnic minorities, whose presence is believed to compromise the general quality of education.

Each of these explanations is plausible and supported in the literature. However, mono-causal explanations for the attractiveness of religious schools are simply not possible; instead, a complex interplay of various factors is at work. Furthermore, Dijkstra, Dronkers, and Karsten (2004; also see Allen, Burgess, and McKenna 2014; Denessen, Driessen, and Slegers 2005) conclude that nowadays the most important reason for the survival of the religious school sector is their reputation for producing higher academic attainment. At the same time, it is not clear to what degree the academic *reputation* of religious schools coincides with their *actual impact* on pupils’ cognitive and non-cognitive outcomes. The evidence concerning the impact on academic achievement is mixed, and very few studies have focused on non-cognitive effects. Hence, the aim of the present study is to examine how school sector differences are related to pupil outcomes, both in terms of academic performance as well as non-cognitive outcomes. Our ultimate focus will be on the primary education sector in the Netherlands and we will perform a secondary analysis of recently collected large-scale data.

Funding, quality and output

Since the Coleman, Kilgore, and Hoffer (1981) report, numerous studies have examined the outcome effects of denominational schools, both in the United States and – to a lesser extent – in Europe. Underlying much of this research is the question of whether the state, in addition to financing public schools, also is responsible for funding private religious schools. Indeed, the mere fact that so many children attend religious schools appears to support the idea of equally funding all schools given the state’s *parens patriae* role entailing responsibility for the education of all children irrespective of the type of school they attend (Merry 2007).

Meanwhile, school choice is increasingly promoted by governments as a way to stimulate competition between schools with the dual aim of improving school quality as well as providing parents with more options. In a system of education designed as a quasi-market it is assumed that in order to develop a good reputation and thereby attract more pupils, competition will induce both public and private schools to improve their quality while at the same time reducing their expenses. Hence it is expected that school choice will yield both better learning outcomes and

more efficiency (Chubb and Moe 1990; Lauri and Pöder 2013). Further, if religious schools outperform non-religious schools, then there are reasons to think that religious schools may serve as a useful role model (Burgess et al. 2015; Jeynes and Beuttler 2012). These matters have implications not only for how schools are financed but also as it concerns the increasing amount of attention on the quality of education being offered (Ritzen, van Dommelen, and De Vijlder 1997). Here the notion of educational quality is deduced primarily in terms of pupil achievement. Accordingly, researchers have been keen to determine the possible relationship between school sectors (denominational versus non-denominational) and their educational results. While much research has been carried out, the results remain surprisingly inconclusive, in part because the performance of schools can only be understood in relation to their specific context. These contextual differences pertain not only to nationality; indeed, schools within the same country also may be difficult to compare given the range of relevant variables – financing, pupil composition, teacher retention, testing instruments, etc. – bearing upon any given school's academic performance (Avram and Dronkers 2011).

Yet if religious schools enjoy a superior reputation with respect to their educational performance, it is worthwhile finding out whether there is any corroborating empirical evidence for this. Lately, several comprehensive studies examining denominational outcome effects have been published. Together these large-scale studies help us to analyze and compare both cognitive and non-cognitive output effects of religious versus public schools in a large number of countries.

At the turn of the century, Dijkstra, Driessen, and Veenstra (2001) reviewed all of the research evidence for public versus private denominational school effects in the Netherlands. They cautioned against drawing unequivocal conclusions about systematic sector effects. In the studies they reviewed, denomination-specific differences are sometimes reported, and other times not. When such effects occur, they tend not to reveal much of a pattern. Nevertheless, there are indications of a relationship between school sector and corresponding outcomes. The authors found that the school sector effects are for the most part negative for public schools, and positive for private religious schools. This applies slightly more to primary education than secondary education, and more to younger data than older data.

A few years later, Dronkers (2004) reviewed the evidence concerning the differences in the effectiveness of public and religious state-funded schools in seven European countries. He concluded that differences in cognitive outcomes clearly exist in Belgium, France, Hungary, the Netherlands, and Scotland, but less obviously in Germany. These differences could not be explained by the social characteristics of pupils, parents, schools, and neighborhoods. Non-cognitive outcome differences were not found in Belgium, only partly in Germany, and only negligibly in the Netherlands. According to Dronkers, this comes as a surprise as it is especially the non-cognitive contribution that is the chief *raison d'être* for the establishment of state-funded religious schools.

Avram and Dronkers (2011) analyzed the PISA waves of 2000, 2003 and 2006 of 16 European countries. They argued that the establishment of denominational schools is primarily motivated by the desire to socialize children into the prevailing (religiously and morally inspired) norms and values of a particular community. Therefore they focused on two non-cognitive outcome measures, namely emotional integration within the school community, and the concern and feelings of responsibility towards the environment. Yet with the exception of Austria, Belgium and

Spain as it concerned emotional integration, the analyses revealed no salient differences between denominational and public schools. One explanation for this may be that public schools are just as effective as religious schools in conveying important norms and values.

Meanwhile, Jeynes (2012) conducted a statistical meta-analysis on religious school effects predominantly in the United States, which comprised 90 studies and used sophisticated controls for socio-economic status and race/ethnicity. He found that pupils who attend religious schools perform better than their counterparts in public schools, both in terms of academic and behavioral outcomes, and controlling for socio-economic and racial/ethnic backgrounds. Interestingly, he also found evidence suggesting that religious and public schools have much to learn from each other. Religious schools, he maintained, tend to score more favorably on high expectations and more challenging course offerings, whereas public schools score higher on classroom discussion and the range of elective courses.

In sum, most comparative studies examine secondary rather than primary education; the focus typically is on cognitive effects rather than non-cognitive effects; and finally, many studies concentrate on just one or only a few output measures. From these studies it can be concluded that there is a tendency for religious schools to achieve better than non-religious public schools, and this is clearer with regard to cognitive outcomes than non-cognitive outcomes. However, the findings are not as unambiguous as many assume.

Explanations for output differences

In so far as output differences that appear to be attributable to the schools' denomination are concerned, several explanations have been offered, not all of which have been empirically validated. For example, the selectivity thesis suggests that the differences between religious (and hence "private") and non-religious (more typically "public") schools can be explained by the fact that private schools attract better and more motivated pupils than public schools (Willms 1985). The explanation for sector differences mentioned most, however, builds on the social capital model developed by Coleman (1988). Social capital describes the norms of trust and reciprocity that arise out of our social networks. Coleman (1988) argued that Catholic schools are supported by a functional community sharing two indispensable traits of social capital.

First, there is a shared trustworthiness among members of the community; as a general rule, those participating in the shared norms of community exhibit a higher degree of trust towards others doing the same. This reciprocal trust facilitates the exchange of useful information, but also a variety of other resources germane to a healthy community. Second, there exists what Coleman calls a "density of outstanding obligations," meaning that available resources within a particular structure can be augmented by the mere fact that others within the community can be called upon to contribute to achieving the goals shared by all. Hence the absence of one member (e.g. a parent) from a particular activity or event can be compensated for both by the presence and attentive involvement of another. Taken together, these elements support and sustain stronger intergenerational networks between pupils, parents and teachers and combine to "provide effective rewards for high achievement" in a particular school environment. But social capital is also strengthened and maintained by the families comprising the broader social network, and whose interests and expectations

are shared with others similarly situated and invested in the school's "performance". Even when the internal composition of a school may be highly diverse, these shared features are believed to facilitate the achievement of common interests and goals.

Morgen and Sorensen (1999) empirically tested Coleman's social capital hypothesis and they found that parental networks were in fact *negatively* related to achievement gains. Moreover, while peer-networks were positively related to achievement gains, they could not account for the religious (Catholic) school advantage. Hofman et al. (1996) tested the hypothesis that it is not only the functional community (i.e. the parental networks) that affects academic achievement, but also the interactions between the parental network around a school and the governance structure of the school. Indeed, they found that differences in achievement for religious and non-religious schools are mediated by characteristics at both the family and the institutional level. In other words, characteristics at the institutional level are necessary if parental networks are to have the intended effects. Other studies found that the positive effect of religious schools was mostly related to the types and rigor of classes on offer, rather than, say, more equitable treatment of pupils (Carbonaro and Covay 2010).

Research objective

Having canvassed several comparative multi-national studies, we now turn our attention to the Netherlands. The Dutch case offers many uniquely illuminating insights, particularly when we take the following into consideration. First, contrary to the situation in some other countries, the division of public and private education in the Netherlands is based on the form of administration and objectives of the school and not on financing. Public schools (i.e. non-denominational schools) are administered under the auspices of the community government, whereas private schools (consisting almost entirely of denominational schools) are administered by private legal institutions (an association or foundation) based on a particular religion or philosophy of life. Second, because of the constitutional freedom of education, which includes the freedom to establish schools, to organize the teaching and to determine the religious, ideological or educational principles on which this is based, the Dutch education system accommodates a remarkable variety of religious schools. In 2013, 32% of all primary schools were public schools, 30% were Catholic and another 30% Protestant. In addition there are several smaller denominations, such as Islamic (0.6%) and Hindu (0.1%). Third, close to 70% of Dutch primary pupils continue to attend denominational schools, and this percentage has hardly changed since the 1950s (Ministry ECS 2014). Fourth, the Netherlands has for nearly a century been committed to the equal funding of *all* schools, irrespective of their religious or ideological character (Ritzen, van Dommelen, and De Vijlder 1997). Both public schools and private denominational schools receive exactly the same financial support from the state. The most decisive factor for funding is the school's pupil population in terms of social class background. Under the Educational Disadvantage Policy schools that meet a certain threshold of disadvantaged pupils receive extra funding (Driessen and Merry 2014). As a consequence, a school with predominantly disadvantaged pupils is entitled to nearly twice the budget that a school with a higher concentration of middle-class pupils receives.

As a general rule, public and private denominational schools cater to different populations both in terms of the secular-religious dimension as well as the socio-economic and ethnic dimension. Nationally representative large-scale data recently

became available that make it possible to analyze a comprehensive range of output indicators regarding both cognitive and non-cognitive measures. The main question of this study is: are there any output differences between public and the various denominational schools – taking into account their differing pupil populations? We hypothesize, first, that religious schools will perform better than public schools in the area of non-cognitive measures for the simple reason that religious schools were explicitly established with this aim in mind. Our second hypothesis is that we expect that religious schools, owing to their distinctive mission, will distinguish themselves from their public counterparts and consequently also perform better academically than other schools serving a comparable pupil population.

Method

Sample

The data analyzed here are from the Dutch large-scale COOL5–18 study (Driessen, Mulder, and Roeleveld 2012). In the school year 2010/2011, a total of 553 primary schools participated in this study (or 8% of all Dutch primary schools) with nearly 38,000 pupils in grades 2, 5 and 8 (6-, 9- and 12-year-olds). The COOL5–18 sample consists of a core sample of 406 schools, which is representative for all Dutch primary schools, and an additional sample of 147 schools with large numbers of disadvantaged pupils. A new sample was drawn from all of the public (i.e. non-religious), Protestant, Catholic and Islamic schools in the representative sample, thereby excluding 28 schools from several smaller denominations. This sample was supplemented with the eight Islamic schools from the additional sample. Analysis showed that in terms of socio-economic disadvantage the 17 Islamic schools in the new sample were representative for all of the (at that time) 41 Islamic schools. The resulting sample of 386 schools included a total of 27,457 pupils in grades 2, 5 and 8 of 143 Public, 101 Protestant, 125 Catholic and 17 Islamic schools.

Instruments and variables

In the COOL5–18 study the following measures were used:

- In all three grades 2, 5 and 8 standardized Language and Math tests were administered developed by CITO, the National Institute for Educational Measurement (<http://www.cito.nl>).
- In grades 5 and 8 two standardized scales were used to establish the pupils' motivation, namely Self-efficacy and Task Motivation (Midgley et al. 2000; Seegers, Van Putten, and De Brabander 2002).
- In grade 8 the Citizenship Competences Questionnaire was used, which consists of four subscales, namely Knowledge, Reflection, Skills, and Attitudes (Ten Dam, Geijsel, and Reumerman 2011).
- In grade 8, which is the final grade of Dutch primary education, the standardized Primary School Leavers' Test, also developed by CITO, was administered. In addition to total test scores, scores on the Language, Math, and Study Skills subtests are available.
- In grade 8 the pupils received the secondary school recommendation which was given by their class teacher. In the Dutch hierarchically ordered school system five tracks can be discerned.

The central variable of interest here is the denomination of the school. To correctly appreciate the schools' cognitive and non-cognitive output according to denomination and reduce possible selection bias effects (Hofman et al. 1996), two new measures were calculated, the gross and the net output. To arrive at the net output the gross output (i.e. the "raw" scores) was corrected for by several factors at the level of the pupil and in addition to this also at the level of the school. This output often is seen as an indicator of a school's learning outcomes, for instance by the Dutch Inspectorate of Education. Interpretations then are: what is added by a school to the pupils' initial intellectual and social capital; or the relative achievement of pupils in one school compared to pupils in other schools after controlling for differences between pupils outside of the control of the school that influence achievement. In educational research such factors most found to contribute to achievement differences are socio-economic background and ethnic origin (Jeynes 2012; Strand 2014). In the COOL5–18 study two indicators for these correction variables are available, namely parental educational level and country of origin. The first factor discerns the three categories applied in the Dutch Educational Disadvantage Policy: medium and higher education; low education; and very low education. The second factor, which until recently also was used in the Educational Disadvantage Policy as a second indicator of disadvantage, discerns four categories: Dutch and Western; Turkish; Moroccan; and other non-Western. The information on both factors came from the schools' administrations. At the school level comparable factors were used: the percentages of pupils with low educated parents and with very low educated parents, and the percentages of Turkish, Moroccan, and other non-Western pupils. The information on these factors came from the Ministry of Education's administration.¹

In the COOL5–18 study several sources for missing values can be discerned (see Driessen, Mulder, and Roeleveld 2012). The actual number of missing values differs strongly for each of the grades, instruments and variables. First, not all of the schools provided information on parental educational and ethnic origin. Depending on grade and instrument the share of missing values varies from 2.5 to 5.0%; these cases were removed from the sample. Second, not all schools administered all of the instruments and in addition not all of the pupils were present when the data were collected. In the COOL5–18 study the response on all of the instruments was checked for any correlation with the pupils' social and ethnic backgrounds. The analyses revealed that there was no relation whatsoever. Third, several of the cognitive tests are regular tests used by the schools and not specifically administered as part of the COOL5–18 study. CITO, the institute responsible for the construction of the tests, recently developed new versions of the existing tests, which resulted in some schools still using the old versions, and some schools using the new versions. As the scores on both versions are not comparable we chose the version with the most valid cases for our analyses. Table 1 provides an overview of the resulting statistics for the outcome measures. To facilitate comparability and interpretation of the results of the ultimate multilevel analyses, all of the scores on these instruments were transformed into standardized *z*-scores with a mean of zero and a standard deviation of one.

To give a description of how pupils with different backgrounds are distributed across the various school denominations, in Table 2 we present the relationships between denomination and parental education and ethnicity.

Table 2 shows that in the public school sector 81.4% of the pupils' parents have a medium or higher education and 82.2% is of native Dutch or Western origin. The

Table 1. Descriptive statistics for the outcome measures.

Grade	Domain	Mean	Standard deviation	<i>n</i>
2	Language	64.04	10.85	6891
	Math	59.32	13.74	6505
5	Reading	25.36	14.15	8084
	Math	70.89	15.45	8424
8	Reading	53.58	19.41	4451
	Math	109.92	13.16	6048
8	Language	74.11	12.61	4862
	Math	42.35	11.03	4826
	Study Skills	29.26	6.25	4809
	Total	534.96	9.36	5004
8	Recommendation	3.46	1.23	6138
5	Self-Efficacy	3.82	0.66	8067
	Task Motivation	4.17	0.63	8091
8	Self-Efficacy	3.70	0.60	7839
	Task Motivation	3.94	0.61	7844
8	Knowledge	0.78	0.16	7887
	Reflection	2.25	0.56	7884
	Skills	3.01	0.40	7884
	Attitudes	2.95	0.43	7896

Table 2. Parental education and ethnicity by school denomination (percentages; *n* = 26,039).

	Parental education			Ethnicity			
	Medium and higher	Low	Very low	Dutch	Turkish	Moroccan	Other non-Western
Public	81.4	10.1	8.5	82.2	5.7	4.9	7.2
Protestant	88.0	9.3	2.7	92.7	1.3	1.5	4.4
Catholic	87.1	9.4	3.5	90.4	2.0	2.3	5.3
Islamic	48.1	8.2	43.6	15.9	24.7	42.0	17.4
Total	83.5	9.6	6.9	84.6	4.2	4.9	6.3
Eta	0.31			0.36			

Protestant and Catholic sector cater to significantly fewer pupils with very low educated parents (2.7 and 3.5% versus 8.5%) and non-native Dutch parents (7.2 and 9.6% versus 17.8%) than the public schools. The Islamic school sector deviates the most from the other denominations. More than half (51.8%) of its pupils have low or very low educated parents, while for the other denominations the percentages vary between 12.0 to 18.6%. In addition, 84.1% of the pupils at Islamic schools have an immigrant background, while the mean percentage of the other denominations is 11.5%. We also computed the mean percentages of the parental education and ethnicity categories per school denomination but now at the school level; this analysis yielded similar results as those at the pupil level. What these findings show is that the Dutch denominational primary school sector is to a certain extent (self-) segregated according to the pupils' social milieu and ethnic background. Again, Islamic schools differ very strongly from the other denominations, but public schools also cater to significantly more pupils from lower social milieus and immigrant backgrounds, i.e. disadvantaged pupils, than the Protestant and Catholic schools. The question then is what the impact of these individual and compositional

differences is on the schools' output, and whether there are any remaining output differences which can be ascribed to sector differences.

Analytical strategy

Because of the nested structure of the data, pupils within schools, multilevel analysis was performed using the SPSS mixed models module (Field 2009; Heck, Thomas, and Tabata 2010). Several random intercept fixed slopes models were tested. In model 1, the central variable of school denomination was introduced with three dummy categories: Protestant, Catholic, and Islamic. The reference category consists of the public schools. The results of this model can be interpreted as the gross effect of school denomination. Because the output measures all have been standardized, these coefficients can be evaluated according to the rule of thumb supplied by Cohen (1988), who denoted 0.20 as a small effect, 0.50 as a medium effect and 0.80 as a strong effect. In model 2, a first series of correction variables at the level of the pupil were added, namely parental educational level and immigrant origin. In the final model 3, a second series of correction variables at the level of the school were introduced: the percentage equivalents of the correction variables at the pupil level.² The results of this model can be interpreted as the net effect of school denomination. Thus, the focus in our analyses is not on model testing *per se*, but on what remains of the individual denominational effects after having corrected for differences between denominations regarding socio-ethnic pupil and school backgrounds.

Results

To give a concrete example of the analytic strategy applied, in Table 3 the results of the effects of one of the outcome measures are presented, namely for

Table 3. Effects of denomination on reading skills in grade 5.

			Model 1 (Gross)	Model 2	Model 3 (Net)
Level	Intercept		-0.0878*	0.0476	0.1869***
School	Denomination	Public	Reference	Reference	Reference
		Protestant	0.1389*	0.0745	0.0168
		Catholic	0.1676**	0.1143*	0.0613
		Islamic	-0.3717***	-0.0348	0.1012
Pupil	Parental education	Medium and higher		Reference	Reference
		Low		-0.3955***	-0.3806***
		Very low		-0.3759***	-0.3483***
	Parental ethnicity	Dutch and Western		Reference	Reference
		Turkish		-0.4426***	-0.3754***
		Moroccan		-0.3316***	-0.2836***
School	Parental education	Other non-Western		-0.1590***	-0.1272**
		% Low			-0.0063*
	Parental ethnicity	% Very low			-0.0039
		% Turkish			-0.0044
		% Moroccan			0.0015
	% Other non-Western			-0.0045	

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

the reading skills of the grade 5 pupils (for the relevant descriptive statistics, see Table 1, row 5).

In model 1, the central variable of school denomination is introduced with three dummy categories: Protestant, Catholic, and Islamic. The reference category consists of the public schools, which have a mean score of -0.0878 (i.e. the intercept). The results of this model denote the gross effect of denomination. Protestant and Catholic schools perform significantly higher (0.1389 and 0.1676 , respectively; $p = 0.021$ and $p = 0.002$) on reading skills than public schools. Islamic schools achieve significantly lower (0.3717 ; $p = 0.001$) than public schools.

In model 2, a first series of correction variables at the level of the pupil are added. These are parental educational level with dummy categories low education and very low education, with the reference category medium or higher education, and ethnic origin with dummy categories Turkish, Moroccan and other non-Western, with the reference category Dutch and Western. This model shows that the initial lead of the Protestant schools is reduced with around 0.06 standard deviation and becomes statistically insignificant ($p = 0.169$). This indicates that the higher reading scores of the Protestant schools are in part a result of the more favorable backgrounds of their pupils. The same applies to the Catholic schools: their lead is reduced with around 0.05 standard deviation, but here the resulting estimate of 0.1143 remains significantly ($p = 0.020$) different from the estimate of the public schools. At the same time this model also shows that the considerable initial reading achievement gap of Islamic schools as compared to public schools is almost completely reduced to zero (-0.0348) by correcting for parental education and ethnicity and becomes insignificant ($p = 0.750$). Thus, the gap reported in model 1 was obviously a result of the lower parental education level of the pupils at Islamic schools and the fact that many of them have an immigrant background.

In the final model 3, a second series of correction variables at the level of the school are introduced. These are the percentage equivalents of the correction variables at the pupil level (minus the reference categories). The results of this model denote the net effect of denomination on reading achievement. This model shows that none of the denomination categories scores significantly different from the reference category of public schools any longer. This means that after the corrections at the pupil and school level, the Catholic schools no longer perform better than the public schools, but also that the Islamic schools no longer perform lower than the public schools; they even achieve somewhat higher – albeit not significantly ($p = 0.460$). This model also shows that with the exception of the percentage of low-educated parents at a school ($p = 0.028$) none of the correction variables at the school level has a significant effect, above the effect of the correction variables at the pupil level.

To summarize these findings, it can be concluded that although Islamic schools initially score far below the other denominational schools with regard to reading performance in grade 5, after correcting for parental education and ethnicity nothing of this negative effect remains. This implies that Islamic schools have great value added power.

In the COOL5–18 study a total of 19 cognitive and non-cognitive effect measures are available. In Table 4 the final results of the complete set of analyses are summarized. (The descriptive statistics for these analyses are presented in Table 1.) As the focus is on denominational effects, Table 4 only contains the gross and net effects of denomination. Critically, the question is whether pupils are better off in

Table 4. Gross and net effects of denomination (reference category: public schools).

Grade	Domain	Gross effect			Net effect		
		Protestant	Catholic	Islamic	Protestant	Catholic	Islamic
2	Language	0.14*	0.07	-0.70***	-0.00	-0.06	-0.10
	Math	0.07	0.09	-0.23	-0.02	-0.01	0.06
5	Reading	0.14*	0.17**	-0.37***	0.02	0.06	0.10
	Math	0.18***	0.12**	-0.24*	0.07	0.03	0.27*
8	Reading	0.09	0.16*	-0.25	-0.08	-0.00	0.29
	Math	0.19*	0.15*	0.13	0.06	0.03	0.25
8	Language	0.22*	0.09	-0.34*	0.08	-0.03	0.05
	Math	0.16*	0.09	-0.00	0.05	0.00	0.20
	Study Skills	0.20*	0.12	-0.23	0.06	0.02	0.06
	Total	0.20**	0.14*	-0.20	0.06	0.03	0.13
8	Recommendation	0.13*	0.07	-0.15	0.02	-0.01	0.03
5	Self-Efficacy	-0.08*	-0.06	0.29***	-0.04	-0.02	-0.01
	Task Motivation	-0.10*	-0.02	0.27***	-0.05	0.02	0.04
8	Self-Efficacy	-0.07	-0.05	0.37***	-0.04	-0.03	0.10
	Task Motivation	-0.08	0.04	0.60***	0.00	0.11**	-0.08
8	Knowledge	0.03	0.09	-0.44***	-0.08	-0.01	-0.12
	Reflection	-0.11*	-0.06	0.55***	-0.06	-0.02	0.10
	Skills	-0.14**	-0.03	0.57***	-0.10	0.00	0.00
	Attitudes	-0.10	-0.02	0.59***	-0.06	0.02	0.05

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

denominational schools than in public schools. The coefficients presented therefore are always relative to the output of the public schools.

When we first look at the gross effects, Table 4 shows that Protestant schools perform somewhat better than public schools, certainly with regard to the cognitive measures (e.g. Language and Math). Regarding the non-cognitive measures (Self-efficacy and Task Motivation in grade 5 and Citizenship Reflection and Skills) they perform somewhat worse. In terms of academic performance, Catholic schools do not differ much from public schools. Islamic schools perform the worst on nearly all cognitive measures. It is striking, however, that on almost all non-cognitive measures (with the exception of Citizenship Knowledge) they perform better or even much better than the other denominational schools.⁵

When we next look at the net effects, the analysis results show that of the 30 significant gross effects only two net effects remain significant. Surprising is the fact that after having corrected for social and ethnic differences in pupil backgrounds, Islamic schools even achieve better (though only in one case significantly) than the other denominational schools on nearly all output measures, especially with regard to math achievement ($p = 0.03$). Summing up, although Islamic schools in an absolute sense achieve lowest on all cognitive measurements, they succeed in raising their pupils' achievement more than the other denominational schools. With regard to the non-cognitive measurements (except Knowledge) they already score highest in an absolute sense.

Conclusions

The purpose of this study has been to examine how school sector differences are related to pupil outcomes. The question arises given the prominent role that religious

schools continue to play in Western Europe. Indeed, notwithstanding a “secularizing” trend in Western Europe, the market share of religious schools remains impressively high. While half a century ago the most important motive for choosing a religious school was its denomination, nowadays the primary motive – at least as reported by parents – is the quality of education on offer. Parents continue to select religious schools because of their academic reputation (Dijkstra, Dronkers, and Karsten 2004) and parents similarly placed within their social networks reinforce these perceptions (cf. Allen, Burgess, and McKenna 2014).

This study aimed to investigate whether these perceptions are consistent with the reality. To that end we examined the Dutch case by using recent large-scale data and tested whether any output differences remained after controlling for input differences in terms of social and ethnic background at the pupil and the school level. We put forward two hypotheses: first, we predicted that religious schools would perform better than non-religious public schools in the area of non-cognitive measures; second, we predicted that religious schools would distinguish themselves in ways that would enable them to also outperform their non-religious counterparts academically, even when serving a comparable pupil population.

To start with the latter, before controlling for individual and compositional differences, the results suggest that Protestant and Catholic schools perform better (though not always significantly) on all academic outcomes than non-religious public schools. However, after taking the input differences into account, no significant output differences between these two types of religious schools and non-religious schools remained. Hence our hypothesis that religious schools perform better academically needs to be rejected for the Protestant and Catholic sector. The difference between the gross and net effects can partly explain the continued popularity of Christian denominational schools. That is, parental perceptions about religious school quality cannot “control” for input measures. At best, these perceptions reflect gross differences between schools. The simple fact that the raw academic scores are higher in religious schools often is interpreted by many parents as an indication of their superior performance. In other words, there is a discrepancy between perceptions (which obviously do not control for input at the pupil or school-level) and the reality of value-added scores that come closer to the actual performance of a school (cf. Burgess et al. 2015).

Importantly, this finding does not hold for Islamic schools. Most tend to have low raw scores, which may be regarded as an indication of low quality by many parents. Added to these one-sided perceptions, many policy-makers continue to express concerns about the effectiveness of Islamic schools. However, when net differences in achievement scores are more closely examined, it becomes clear that Islamic schools are by far adding the greatest educational value. In fact, with regard to a number of achievement measures, Islamic schools succeed in improving their position from the most disadvantaged (gross) sector to a sector which does not differ from the other sectors (net), although the difference is only statistically significant in one specific case, i.e. with respect to grade 5 math scores. One explanation provided for this result may be a more positive school climate, better teacher–pupil relationships (see Agirdag, Van Houtte, and Van Avermaet 2012), and extra attention given both to language and math skills but also the cultural background of the pupils, each of which are of crucial importance to pupils with disadvantaged backgrounds (cf. Merry and Driessen 2014). Taken together, these findings suggest that the academic performance of Islamic schools may owe to being part of a functional community,

and thus support Coleman's social capital theory; other outcomes suggest a better match between the specific circumstances and needs of these pupils and the chosen educational approach that Islamic schools aim to provide.

With respect to our second hypothesis concerning non-cognitive outcomes the results initially appear to be the opposite to those concerning the cognitive measures: Christian denominational schools score somewhat lower than public non-religious schools while Islamic schools perform much better, especially in matters concerning citizenship. The latter finding suggests that the distrust of many opponents to a separate Islamic school sector are unwarranted. But again, as was the case with the cognitive outcomes, after controlling for pupil and school demographics no relevant denominational differences remained. This implies that our first hypothesis must be rejected as well.

In fact, our findings show there to be hardly any net denominational differences, whether in cognitive or in non-cognitive output measures. In so far as gross differences exist, these might simply be explained by the social and ethnic backgrounds of the pupils. But Dronkers (2004) also suggests that the higher academic effectiveness of religious schools is mainly restricted to a specific historical period, namely the 1960s to the 1990s. During the 1990s the small-scale advantages of religious schools began to disappear for the simple reason that many individual Protestant and Catholic schools had become too large; additionally, many mainstream denominational schools were increasingly governed by large-scale professional organizations supervising more and more schools, thus drastically reducing the positive effects of communal bonds. And indeed, in this study we also found no significant non-cognitive differences between the Christian school sectors and the public school sector. This lack of substantive difference between the public-private sector in the Netherlands is not a little surprising given that such purported differences are the *raison d'être* of religious schools.

However, there remain a number of unanswered questions. For example, in this study we did not capture specific aspects traditionally associated with religion, such as socialization according to specific religious value systems. Furthermore, it remains unclear whether religion still plays a prominent role in the average mainstream Protestant or Catholic school. There is also the fact that primary schools in the Netherlands are obliged to offer both citizenship education as well as lessons regarding religious and ideological movements. Public ("neutral") schools may therefore be just as successful in transmitting values as religious schools are (Dronkers and Avram 2010). And finally, it may be the case that religious schools are less about dogma or belief than about being with others sharing a similar background and/or set of concerns (Merry 2015). In other words, religious schools may simply be proxies for social communities where parents select a religious school not in order to socialize their children into a specific religion, but rather to congregate with others with whom they share a social class background, or other educational priorities.

In other words, what we still lack (and what likely only in-depth qualitative studies can provide) is greater insight into the motivations of parents but also the actual differences in everyday school-life between the various categories of schools. Gathering more information about parental motivations, but also the extent to which differences between denominational and non-denominational schools are (in)significant may even come to influence policy decisions concerning the operation and funding of religious schools. Whatever the case, we believe that our conclusions about the absence of clear denominational effects will be instructive for, and help to

stimulate, research of a similar type in other countries with a mixed educational economy in terms of religious and non-religious school provision.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1. By controlling for parental educational level any effects associated with extra budgets received by schools as part of the Educational Disadvantage Policy are also ruled out.
2. We checked for possible multicollinearity of the indicators of education and ethnicity, but with a maximum correlation of 0.35 this proved to be no problem.
3. One could argue that the high scores of the pupils at Islamic schools on the Citizenship competences questionnaire are, to a certain extent, the result of social desirability bias. However, the fact that their scores on the Knowledge subscale are significantly lower than those of the other denominations, which is understandable in the light of different pupil populations, and the fact that for the other three subscales the results are in the opposite direction does not support this suspicion and offers further proof of the instrument's validity.

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