JOURNAL OF SCHOOL CHOICE
2016, VOL. 10, NO. 3, 381–398
http://dx.doi.org/10.1080/15582159.2016.1202076

Routledge
Taylor & Francis Group

Homeschool Parents and Satisfaction with Special Education Services

Albert Cheng[a], Sivan Tuchman[b], and Patrick J. Wolf[b]

[a]Program on Education Policy and Governance, Harvard University, Cambridge, Massachusetts, USA; [b]Department of Education Reform, University of Arkansas, Fayetteville, Arkansas, USA

ABSTRACT

Homeschooling is controversial for a variety of reasons. One concern is whether families are sufficiently equipped to serve students with disabilities. We investigate this issue by assessing parental satisfaction with the special education services that their child is receiving in various educational sectors (e.g., homeschool, traditional public, public charter, and private). Using a nationally representative sample of U.S. households from the National Household Education Survey, we find that parents who homeschool are more satisfied than parents of children in traditional public schools and a variety of private schools with the special education services that they are receiving. Despite obvious selection bias in our sample, we view parental satisfaction as one of many important indicators for the quality of special education services. The results from this study suggest that homeschooling is a potentially beneficial option for serving students with disabilities, though additional research examining other student outcomes would be invaluable.

KEYWORDS

homeschooling; parent satisfaction; school choice; special education

Participation in homeschooling and other forms of school choice have recently expanded. The population of children homeschooled, in particular, has approximately doubled from 1 to 2 million in the last decade, according to the U.S. Department of Education (2015). One reason for the expansion of school choice is to provide better educational opportunities for specific types of students, among them students with disabilities (Lake, 2010). School choice also disentangles a student's schooling options from their residential location, which may lead to inequalities in educational opportunities (Goldhaber, Lavery, & Theobald, 2015; Sass, Hannaway, Xu, Figlio, & Feng, 2012). Students with disabilities have historically only been placed in schools that offer specialized programs, limiting the schooling options that are available to them. For example, private schools are often viewed as a means to improve educational outcomes for students from disadvantaged backgrounds, yet just approximately 3% of students with disabilities attend them (U.S. Department of Education, 2015).

CONTACT Patrick J. Wolf pwolf@uark.edu Department of Education Reform, College of Education and Health Professions, University of Arkansas, 201 Graduate Education Building, Fayetteville, AR 72701, USA.

The potentially innovative nature and individualized attention students might receive in schools of choice, homeschool[1] being one such option, make them prime opportunities to improve outcomes for students with disabilities (Van Kuren, 2000). Currently, 18 different private school choice programs (e.g. vouchers, tax-credit scholarships, and education savings accounts) exist specifically for students with disabilities. Four of these programs are educational savings accounts, which allocate public dollars to parents who may then select educational services and materials, and are popular among many homeschooling families (The Friedman Foundation for Educational Choice, 2015). Moreover, students with disabilities are increasingly finding schools of choice through charters and open enrollment to better match students with educational environments and offerings.

Despite the potential promise for students with disabilities, school choice remains controversial. One source of concern is that schools of choice will not be able to accommodate and adequately educate these types of students. Most private school choice programs do not require that schools maintain Individualized Education Programs (IEP), which outline educational goals and services as well as other federal civil rights statutes, for their students (The Friedman Foundation for Educational Choice, 2015). Other critics suggest that parents who choose to homeschool are ill-equipped to provide necessary services for students with a disability (Van Kuren, 2000). Similarly, homeschool settings, private schools, and charter schools may not have the economies of scale that exist in traditional public school districts to accommodate the diverse needs of students with disabilities (Lake & Gross, 2012). There are also concerns over the potential for schools of choice to discriminate against students with disabilities during the enrollment process despite evidence that enrollment disparities may not be solely due to discriminatory practices (Setren, 2015; Winters, 2013, 2014; Zimmer & Guarino, 2013). Lastly, there is little research and knowledge about the effectiveness of various school choice options for students with disabilities, primarily due to data limitations. This limitation may preclude parents from making the most informed decisions about all available schooling options for their students with special needs.

There are additional points of contention regarding the ability for homeschooling to effectively serve students with disabilities. Due to the individualized instruction in a personalized setting that it offers, homeschooling may provide academic benefits for students with disabilities. Being highly familiar with their own children, parents can potentially implement curriculum and instruction that suits unique learning needs and produces greater educational gains. Still, it is not clear that homeschooling always provides benefits to students with disabilities. Parents may be ill prepared to implement pedagogical practices designed to improve outcomes for students with disabilities.

Without an interdisciplinary team made up of various educators, service providers, and parents like an IEP team, parents may struggle to make certain decisions about how to best educate their child. Given the little that is known about whether students with disabilities are amply served by homeschooling arrangements, Cook, Bennet, Lane, and Mataras (2013) issue a call for researchers to more rigorously examine the issue:

> Considering the limited research on the efficacy of homeschool for students with disabilities—physical disabilities, in particular—there is a need for further study on the effects of homeschooling on the academic, social, and quality of life of students with disabilities. Although there may be challenges to conducting true experimental research, more research using systematic and tightly controlled quasi-experimental designs is warranted. (p. 99)

It is in the spirit of this call that we conduct our analysis. We examine satisfaction with publicly provided special education services for parents with children in homeschooling arrangements, comparing those ratings with ratings of parents who receive special education services through traditional public, public charter, and private schools. We use a nationally representative sample of nearly 2,000 U.S. families who have children with special needs. To our knowledge, this is the first study to explore satisfaction with special education services across various school sectors while also doing so at scale and with a systematic sample.

Relevant literature

Serving students with disabilities

The focus on supporting the unique needs of students with disabilities in schools has continued to grow since the passage of Section 504 of the Rehabilitation Act of 1973, prohibiting discrimination against individuals and ensuring civil rights on the basis of disability. The legal protections for students with disabilities have grown out of the passage of the Education of All Handicapped Children Act (EAHCA) of 1975, the Americans with Disabilities Act (ADA) of 1990, and the Individuals with Disabilities Education Act (IDEA) in 1997, which was renewed in 2004. These federal laws entitled students with disabilities to a free and appropriate public education (FAPE), nondiscrimination, and equal access to public facilities and institutions. IDEA currently stipulates that students with disabilities be educated in the least restrictive environment, so that they may be educated, to the highest extent possible, with their nondisabled peers and still receive FAPE. The specifications for each individual student's educational goals, set of services, and learning environment are detailed in an IEP and are updated yearly by an IEP team composed of the student's family and school staff. As

of the 2012–2013 school year, of the over 6.4 million students with an IEP, comprising 12.9% of the student population ages 3–21, 61% were educated in the general education classroom at least 80% of the time (U.S. Department of Education, 2015).

While IDEA clearly states the requirement that local education agencies (LEAs) "identify, locate, and evaluate" students with disabilities in private schools, as part of their child-find process,[2] there is no specific language in the law for students who are homeschooled by parental choice. Federal guidance regarding students who are homeschooled stipulates that state law determines whether homeschooled students with disabilities are considered to be in a parentally placed private school or not. This legal language does not guarantee an individual's right to services or entitlement to funds but does create a mechanism for parents who homeschool to have their student evaluated for and possibly receive some support for services.[3]

IDEA has increased funding and arguably improved services for students with disabilities in traditional public schools, but increased costs and rates of identification have not been followed with clear evidence that students have been better served over time. As various types of school choice (e.g., vouchers, charters, virtual schooling, and homeschooling) have expanded, the potential of school choice to improve services to students with disabilities has become more prevalent (Butcher & Bedrick, 2013; Cullen & Rivkin, 2003; Greene & Buck, 2010; Greene & Forster, 2003; Lindberg, 2016). By introducing mechanisms such as competition and improved student-school matches, private schools, homeschooling, and public charter schools may be positioned to improve services for students with disabilities (Greene, 2007). School choice offers students and parents various options for schooling based on their specific desires and needs. This premise is similar to that of special education, which aims to individualize student learning experiences in order to enable students to meet their unique academic, social–emotional, and postsecondary IEP goals. These two ideals meet when school choice programs enable students with disabilities and their families to choose the school that they think will best meet their educational needs (Lake, 2010).

School choice may also provide students with disabilities an opportunity to be fully included in the general education population at their schools. Private and charter schools often provide students with disabilities this opportunity because these schools lack the scale to provide self-contained special-education programs; some religious private schools do so due to their convictions about equity and inclusivity (Bryk, Lee, & Holland, 1993; Scanlan, 2008; Setren, 2015). Public schools have been legally required to place students with disabilities in the least restrictive environment since the EAHCA of 1975. Presumably, integrating students with disabilities into general education classrooms is beneficial, though research studying the effects of inclusion on academic achievement is limited (Cosier, Causton-Theoharis, & Theoharis,

2013; Daniel & King, 1997; Klingner, Vaughn, Hughes, Schumm, & Elbaum, 1998; Mills, Cole, Jenkins, & Dale, 1998; Rea, McLaughlin, & Walther-Thomas, 2002; Waldron & McLeskey, 1998). The biggest challenges to studying inclusive practices is the variation in the definition of inclusion as well as the continued issue in special education research of small sample size (Kalambouka, Farrell, Dyson, & Kaplan, 2005). Nevertheless, systematic reviews conclude that inclusive practices are at least as effective as less inclusive settings in improving academic achievement, particularly for younger students with disabilities. Gains in social and emotional skills are less consistently positive, however, in many of these studies (Freeman & Alkin, 2000; Kalambouka et al., 2005; Lindsey, 2007; Salend & Duhaney, 1999).

Homeschooling students with disabilities

In contrast, homeschooling often provides individualization without the inclusiveness that IDEA aims to achieve. The extant literature pertaining to students with disabilities who are homeschooled is extremely small and primarily relies on small samples of convenience and case studies. Even the most basic statistics about the true number of students with disabilities who are homeschooled, aside from those in homebound care, are difficult to ascertain given the challenge in assessing the number of students who are homeschooled on top of the various factors that influence the identification of students with disabilities (Dhuey & Lipscomb, 2011; Duffey, 2002).

Despite this research challenge, many studies document the reasons why parents opt to homeschool their child with disabilities. These parents elected to homeschool primarily because they were unsatisfied with the services and care that their previous school was providing or wished to shield their child from bullying, stigma, and other negative school interactions. These reasons are consistent both throughout the United States (Beck, Egalite, & Maranto, 2014; Duffey, 2002; Gaither, 2009; Hurlbutt, 2011; Shifrer, 2013; Westling, 1996), and in other countries (Arora, 2006; Kidd & Kaczmarek, 2010; Parsons & Lewis, 2010; Reilly, 2004; Reilly, Chapman, & O'Donoghue, 2002).

However, less is known about the effectiveness of special education services provided in homeschooling contexts. Unique features of homeschooling provide reasons that it is an effective means for serving students with disabilities. The low student-to-teacher ratio enables students to learn at their own pace. Meanwhile, the instructor, typically the parent, is able to carefully design an instructional program, to structure the schedule of the school day, and to use pedagogical methods that are most suitable for the student. This is not to mention that parents who select into homeschooling are highly motivated and may also be most familiar with the child's unique needs. In a homeschool context, students may also be educated in an inclusive environment and yet be shielded from labels that induce negative

stigma and lowered expectations—factors that may hinder educational success (Kidd & Kaczmarek, 2010; Shifrer, 2013; Shifrer, Callahan, & Muller, 2013; Van Kuren, 2000).

On the other hand, critics charge that homeschooled students have fewer opportunities for social interaction relative to other students who attend traditional public or other types of schools (Evans, 2003; Gutmann, 1987; but see Medlin, 2000; 2013). Other critics point out that homeschool parents are typically uncertified and untrained teachers and question whether they have the preparation to instruct their children as effectively as professionals (Van Kuren, 2000). Some critics additionally mention that homeschool parents instruct their children in a particular worldview or teach in prescriptive ways, limiting the student's ability to be self-determining and prepared for civic life (Cai, Reeve, & Robinson, 2002; Gutmann, 1987; Reich, 2002, 2005). Although these criticisms broadly apply to homeschooling, they possess particular relevance for students with disabilities. Failing to adequately educate, socialize, and prepare these students for civic life is a more acute problem for this more vulnerable segment of the population.

The effectiveness of homeschooling for students with disabilities can be examined empirically. A handful of studies have explored how homeschool instructors teach students with disabilities and whether their management strategies lead to desirable student outcomes (Duvall, 2005; Duvall, Delquadri, Elliot, & Hall, 1992; Duvall, Delquadri, & Ward, 2004; Duvall, Ward, Delquadri, & Greenwood, 1997). Though these studies utilize small convenience samples, the authors conclude that instructional environments provided in homeschools are at least as conducive as environments provided in traditional public schools for improving achievement and maintaining engagement for students with basic learning disabilities or even more significant needs such as attention-deficit disorder. According to these studies, students in homeschooling environments were engaged in their learning more often than students in traditional public schools and realized greater gains in math and reading achievement.

Although studies by Duvall (2005), Duvall and colleagues (1997), and Duvall and colleagues (2004) are valuable and suggest that homeschooling arrangements sufficiently serve students with disabilities, more research is warranted. The samples in these studies sometimes included as few as four homeschool students from a nonrandom sample, making it difficult to generalize findings. Moreover, causal claims about homeschooling certainly cannot be made based upon this research. These limitations also characterize homeschooling research outside the United States (Arora, 2003). Although we cannot address the ability to make causal claims, we aim to address sampling limitations by using a larger, nationally representative sample of U.S. families.

Parental satisfaction with special education

Beyond the research on students with disabilities who are homeschooled, other studies use measures of parental satisfaction to assess the quality of special-education services provided by private schools. Parents of students with disabilities are involved in their students' educational environment due to IEP meetings and advocacy, which may make them particularly helpful in rating service quality. Parents participating in Florida's McKay program, which provides vouchers for students with disabilities to attend private schools, are generally more satisfied with special-education services, reported smaller class sizes, and indicated fewer behavioral issues than parents of students with disabilities in traditional public schools (Greene & Forster, 2003; Weidner & Herrington, 2006).

Other research of cyber charter schools, which provide most or all of their educational services online, suggests parents and their children with disabilities are more satisfied with the cyber charter school than their prior traditional public school (Beck et al., 2014; Beck, Maranto, & Lo, 2013). Despite these results on parental satisfaction, one large-scale study of online charter schools showed much lower learning gains for students, particularly those with disabilities, relative to their counterparts in traditional public schools (Woodworth et al., 2015). It is possible that a parent reports higher satisfaction with cyber charter schools for reasons other than their ability to improve student achievement—a proposition that requires more investigation. In general, these results for cyber charters may be insightful for homeschooling research as many homeschooling families are now using the services of cyber charters. Whether students with disabilities are well-served by homeschooling in conjunction with cyber-charters is unclear.

Finally, some scholars have explored satisfaction with publicly provided special education services provided specifically in a homeschool context. This work suggests that homeschooling parents are generally satisfied with these services. However, much of the work lacks a counterfactual. Such research relies on either (a) qualitative interviews where homeschool parents report being satisfied with their current arrangements or (b) surveys of homeschool parents from which a percentage of satisfied families can be calculated (Arora, 2006; Westling, 1996). From these studies, one cannot ascertain if homeschool families are more or less satisfied than families who select other schooling arrangements for their child with disabilities. One study compared satisfaction levels for homeschool or traditional public school parents who have children with disabilities and finds higher satisfaction levels among homeschool parents. Again, however, the comparison is limited to a small sample of convenience (Delaney, 2014).

In this study, we shed additional light regarding whether homeschooling can be a viable means for providing adequate special education services.

Specifically, we compare levels of parental satisfaction with special education services for families who homeschool their children to families who send their children to traditional public schools, public charter schools, Catholic private schools, other religious private schools, or nonreligious private schools.

Methods

Data

Data for our analysis come from the National Household Education Survey. This data set is regularly collected by the U.S. Department of Education and comprises a nationally representative sample of over 17,000 U.S. households. In our analysis, we examine approximately 2,000 households that have children with disabilities. The proportion of households associated with each school sector is shown in Table 1. For instance, about 1% of U.S. households that have children with disabilities opt to homeschool those children. Almost 90% of these households send their children with disabilities to traditional public schools. To further describe our sample, Table 2 displays the percentage of students with disabilities in each school sector. For example, 11.3 percent of all homeschooled children are classified as having a learning disability.

Parents responded to a series of survey questions in 2012, including whether they have a student with disabilities and in which school sector the child receives his or her education. Parents also responded to Likert-type items to indicate, on a scale of 1 through 4, their satisfaction level with various dimensions of the special education services their child is receiving. Higher values signify greater satisfaction levels.

It is possible that many homeschooling parents deliver special education services on their own to their children. If so, then satisfaction ratings provided by homeschool families would lack face validity as such ratings would be self-evaluations. It is for this reason that we only include families that report receiving services through a formal IEP from a local school district, another local government health or social agency, or other health care provider. Table 2 also allows us to feel confident that our sample is not

Table 1. Proportion of households in each school sector.

Sector	Percentage (%)
Homeschool	1.0
Traditional public school	90.5
Public charter school	5.5
Catholic private school	1.0
Religious, non-Catholic private school	1.1
Nonreligious private school	0.9

Note. Sample is limited to households with students with disabilities.

Table 2. Sample statistics of the distribution of disabilities across sectors.

	Percentage (%)					
Type of disability	Homeschool	Traditional public school	Public charter school	Catholic private school	Religious, non-Catholic private school	Non-religious private school
Learning disability	11.3	9.4	8.4	0.6	6.4	10.4
intellectual disability/ cognitive impairment	1.3	1.7	1.3	0.9	1.0	2.2
Speech or language impairment	5.8	6.1	6.0	4.7	3.7	5.3
Serious emotional disturbance	4.0	2.7	4.1	0.9	1.0	3.9
Deafness or other hearing impairment	0.8	1.3	1.6	1.0	1.5	1.4
Blindness of other visual impairment	1.5	1.3	1.5	1.6	1.4	1.4
Orthopedic impairment	2.3	2.3	2.5	1.6	2.1	2.2
Autism	2.3	1.9	2.1	1.1	1.5	1.7
Pervasive developmental disorder	1.5	1.0	0.7	0.9	1.4	2.7
Attention deficit disorder	9.8	10.7	10.9	8.0	9.3	12.3
Developmental delay	5.5	3.8	2.8	2.4	2.7	4.3
Traumatic brain injury	0.8	0.5	0.8	0.7	0.6	0.5
Other health impairment	0.7	4.1	3.2	3.2	3.7	5.1

Note. Source: Author's calculations. Some individuals report multiple disabilities, hence percentages do not add up to the total percentage of individuals with a disability within each school sector.

Table 3. Summary statistics for satisfaction variables.

	Mean	Standard deviation	Range
Satisfaction with provider's communication with family	3.32	0.87	1–4
Satisfaction with special needs teacher or therapist	3.47	0.77	1–4
Satisfaction with provider's ability to accommodate child's needs	3.33	0.86	1–4
Satisfaction with provider's commitment to help the child	3.39	0.85	1–4
Overall satisfaction	3.35	0.77	1–4

Note. Higher numbers indicate greater levels of satisfaction.

comprised of homebound students with disabilities as the distribution of types of disabilities is relatively stable across sectors. As it turns out, over 90% of homeschooling families in our data receive services from one of these entities. We thus assume that homeschool parents are not self-evaluating, lending more credence to our measures of satisfaction.

We specifically assess parental satisfaction with the publicly provided service provider's (a) communication with the family, (b) teacher or therapist assigned to the student, (c) ability to accommodate the child's needs, and (d) commitment. We also average ratings on these four individual items to construct an overall satisfaction measure. Table 3 shows summary statistics for responses to these four items as well as our measure of overall satisfaction.

Empirical strategy

We use ordinary least squares regression analysis to estimate a series of models where the dependent variable is one of the five measures of satisfaction with special-education services.[4] Our key independent variables of interest are indicators for the school sector in which the special-needs child is receiving his or her education. Our coefficient estimates describe differences in satisfaction ratings for parents across the different school sectors. Our data allow us to additionally control for a host of background demographic variables. In particular, we control for parent's educational attainment and household income as well as the child's race, gender, age, type of disability, and family structure. All estimations include sampling weights and standard error corrections so that our results are nationally representative.

Results

Our results indicate that parents who homeschool their children with disabilities are more satisfied with special education services than parents who send their students to public or Catholic private schools. Complete results are shown in Table 4.

In columns 1 through 4, we compare parental satisfaction levels for various aspects of the special education services that students receive. Estimates in Table 4 depict differences in satisfaction levels between parents in a given school sector relative to homeschooling parents. Negative coefficients indicate that parents in the given school sector are less satisfied with that particular service than homeschooling families are. For instance, column 1 shows comparisons of satisfaction with the communication parents receive from their providers. Parents who homeschool their children with disabilities are 0.16 scale points more satisfied than similar parents in public charter schools with the communication they receive from their respective service providers. These homeschooling parents are also 0.25 and 0.40 scale points more satisfied with the communication that they receive relative to parents in traditional public and Catholic schools, respectively. However, parents who have students with disabilities in religious, non-Catholic private schools are 0.08 scale points more satisfied with the communication that they receive than their homeschooling counterparts. All differences are statistically significant at the 0.01 level. There also does not appear to be differences in satisfaction with the service provider's communication between homeschooling parents and parents who send their children with disabilities to non-religious private schools.

In column 2, we observe similar patterns regarding parental satisfaction with the teacher or therapist providing special education services.

Table 4. Results.

	(1) Satisfaction with provider's communication with family	(2) Satisfaction with special-needs teacher or therapist	(3) Satisfaction with provider's ability to accommodate child's needs	(4) Satisfaction with provider's commitment to help the child	(5) Overall satisfaction
School Sector					
Public charter	−0.160***	−0.292***	−0.088***	−0.098***	−0.112***
	(0.018)	(0.024)	(0.025)	(0.026)	(0.017)
Traditional public	−0.252***	−0.324***	−0.198***	−0.315***	−0.256***
	(0.016)	(0.023)	(0.022)	(0.024)	(0.016)
Catholic private	−0.403***	−0.487***	−0.410***	−0.442***	−0.411***
	−0.037	−0.032	−0.03	−0.046	(0.030)
Religious, non-Catholic private	0.084***	−0.036	0.072**	0.164***	0.135***
	(0.021)	(0.026)	(0.028)	(0.023)	(0.017)
Non-religious private	0.012	0.021	0.212***	−0.016	−0.003
	(0.022)	(0.028)	(0.033)	(0.030)	(0.026)
Observations	1,843	1,656	1,769	1,838	1,910
R^2	0.055	0.059	0.074	0.068	0.062

Note. Omitted category is homeschooling families. All models control for parent's educational attainment, household income, child's race, child's gender, child's disability, whether child come from a two-parent home. Standard errors in parenthesis.

***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

Homeschool parents are more satisfied with this aspect of their special education services than parents whose children attend public charter, traditional public, or Catholic private schools. Differences in satisfaction on this dimension of special education services between homeschool parents and these other parents range from 0.3 to 0.5 scale points ($p < 0.01$). However, homeschooling parents appear as satisfied with their teacher or therapist providing special education services as parents whose children with disabilities attend nonreligious and non-Catholic, religious private schools.

Relative to parents who send their child to public charter schools, traditional public schools, and Catholic schools, homeschooling parents are also more satisfied with their provider's ability to accommodate the needs of their child with disabilities by about 0.1, 0.2, and 0.4 scale points respectively ($p < 0.01$). These estimates are shown in column 3. Conversely, parents who send their child to religious, non-Catholic private schools or nonreligious private schools are more satisfied than homeschooling parents with the ability of their special education provider to accommodate their child's needs by approximately 0.1 ($p < 0.05$) and 0.2 ($p < 0.01$) scale points.

Turning to column 4 of Table 4, we see the aforementioned patterns persist when considering satisfaction with the service provider's commitment to help their students with disabilities. Homeschool families are more satisfied than families who have selected public charter schools, traditional public schools, and Catholic schools for their child. However, homeschool parents are less satisfied with their provider's commitment to help their students with

disabilities than families who have selected religious, non-Catholic private schools. Note, too, that the range of differences in this dimension of parental satisfaction are similar in magnitude to the estimates for other dimensions of parental satisfaction. Lastly, there is no statistically significant difference in satisfaction with the provider's commitment between homeschool families and families who have selected nonreligious private schools.

Overall, as shown in column 5, parents who homeschool their children with disabilities are more satisfied with their special-needs services than their counterparts who send their children to public charter, traditional public, and Catholic schools. These differences range from 0.10 to 0.40 scale points. In terms of effect sizes, these differences are about 14%–53% of a standard deviation in satisfaction ratings. In contrast, these homeschooling parents are generally less satisfied than parents who send their children with disabilities to religious, non-Catholic private schools.

Discussion and conclusions

The aim of our analysis was to describe parents' satisfaction with the special education services that they receive for their students with disabilities. We pay particular attention to comparing these satisfaction levels between parents who homeschool and those who opt for other schooling arrangements. In a nationally representative sample of nearly 2,000 U.S. families, we find that homeschool parents are more satisfied than parents who send their student with a disability to public and Catholic schools with the special education services that they receive.[5] On the other hand, homeschool parents are less satisfied than parents who send their child to religious, non-Catholic private schools with those services.

Assuming that parental satisfaction is some indication of quality, the results suggest publicly provided special education services offered to parents who homeschool are not worse than services offered to parents in a variety of school settings. Nonetheless, we caution that satisfaction ratings must be interpreted with care. Considering an example mentioned earlier, research on cyber charters finds high levels of parental satisfaction despite other work suggesting that cyber charters are not effective at improving student achievement. Such a finding may cast doubt on the legitimacy of a satisfaction rating. That being said, research of other school choice programs often finds greater parental satisfaction tied to improved student outcomes (Kisida & Wolf, 2015; Peterson et al., 1999; Wolf et al., 2013). In general, however, we maintain that parental satisfaction ratings should not be discounted even if results are not commensurate with outcomes such as student achievement because parents may choose particular schooling arrangements for a variety of other legitimate reasons (Kelly & Scafidi, 2013). Indeed, homeschooling families often remove their children with special needs

from institutional schooling environments to shield them from bullying or negative stigma (Beck et al., 2014; Parsons & Lewis, 2010; Shifrer, 2013). Satisfaction ratings could capture the efficacy of alternative schooling arrangements to address a variety of relevant needs. While researchers often evaluate educational interventions and policy based upon student achievement outcomes, the role of parent perceptions of school quality can be valuable in assessing other relevant dimensions of schooling that are not captured by test scores (e.g., school safety, social–emotional development). In fact, the use of academic outcomes for students with disabilities may not be the most relevant metric if the goals of special education are outside the scope of what a standardized test can measure.

Additional limitations to our analysis are worth mentioning. For example, our work cannot ascertain why homeschool parents exhibit higher satisfaction levels. Teske and Schneider (2001) point out that based upon virtually all research of parental satisfaction with schools, parents who exercise school choice report higher levels of satisfaction than parents who do not choose. Variation in parental satisfaction ratings could simply reflect ex-post rationalizations of their choice instead of marked differences in quality. On the other hand, our results demonstrated lower satisfaction ratings among a key group of parents who exercised school choice, namely, parents selecting Catholic schools. This result may be evidence that satisfaction ratings are not simply post hoc rationalizations of making a selection or simply a reflection of the ability to choose. Catholic schools typically espouse egalitarian values, which may mean that all students—those with disabilities included—receive the same curriculum and are held to the same standards. Indeed, Catholic schools are known not to provide separate academic tracks for students with varying abilities (Bryk et al., 1993; Cheng, Trivitt, & Wolf, 2016; Coleman & Hoffer, 1987; Trivitt & Wolf, 2011). This educational approach may not be what parents expect or desire for their student with disabilities.

There are other sources of bias that may stem from asking individuals to self-report satisfaction levels. Reference-group bias, in particular, is most salient. This source of bias arises when individuals have unequal internal standards for assessing what it means to be satisfied (King, Murray, Salomon, & Tandon, 2004). In our work, if internal standards differ between parents who receive special education services in different school sectors, then satisfaction ratings are no longer comparable. For instance, suppose homeschool parents systematically have lower standards and thresholds for satisfaction than other parents. If so, our research would overstate the homeschool parents' levels of satisfaction because they would self-report greater satisfaction with their special education services than other types of parents who receive the same services. It is unclear whether reference group bias is present in self-reported satisfaction ratings, and researchers currently

lack the methods to correct for it in this context. Ultimately, obtaining a fuller picture of the quality of special education services requires evaluating student outcomes along with other indicators such as parental satisfaction. Undertaking this task is a topic for future research, which has rarely been done, even among traditional public schools, because data on students with disabilities is difficult to obtain.

Finally, our research cannot speak to homeschool families who are the sole provider of special education services to their children with disabilities. Our analysis only includes families who receive services from a local school district, another government agency, or a formal health care provider. Thus, the results, at best, indicate that homeschool families who receive special education services from these types of providers are more satisfied with these services than families who receive similar services in most other types of school settings. Nonetheless, our findings are consistent with prior research demonstrating that homeschooling can be more effective when homeschool families partner with or receive training from tutors, public school teachers, and other professionals (Duvall et al., 1992; Hook & DuPaul, 1999). Our findings also lend credence toward the calls for collaboration and partnerships between different types of schooling arrangements and institutions to improve services for children with disabilities (Arora, 2006; Delaney, 2014; Van Kuren, 2000).

Although much more research must be done to better understand homeschooling and special education, our findings give reason for pause regarding the concerns that homeschooling is not a viable means to serve students with disabilities. The results are also consistent with prior research which finds that students with disabilities are at least as effectively served in a homeschool setting as in a traditional public school setting (Duvall, 2005; Duvall et al., 2004, 1997). This study additionally bolsters these prior research findings, which have limited external validity due to small samples of convenience, by making comparisons across a nationally representative sample of families. Taken together, this work and prior research seem to suggest that homeschooling can be a valuable option for students with disabilities, especially if services are provided in partnership and collaboration with other institutions and professionals.

In closing, this study likely raises more questions than it answers. With what, exactly, are parents satisfied and why? To what extent is satisfaction an accurate and reasonable proxy for special education quality? That is, how is satisfaction tied with student outcomes if at all? What is the nature of services being offered across different school sectors? How are these services similar or different? We hope our work will spur additional inquiry into these and other related questions so that scholars, policymakers, and practitioners can better serve students with disabilities.

Notes

1. Our use of the term homeschooling does not apply to students who are homebound due to their disability.
2. 34 CFR § 300.131 (2004).
3. 34 CFR § 300.137 (2004).
4. We estimate linear regression models for all of our dependent variables. Although the only continuous dependent variable in our models is a measure of overall satisfaction, ordered logit estimation of the other discrete variables yielded similar results as the linear regression models. Hence for ease of interpretation, we report linear regression coefficients.
5. One might worry that the sample sizes for homeschool and private-school families is low, given that they collectively make up only about 5% of the sample. These small sample sizes should not bias our estimates but only make it more difficult to detect statistically significant results. Thus, we can be even more confident that the differences that we have detected across these sectors is material and not due to random chance.

References

Arora, T. C. (2003). School-aged children who are educated at home by their parents: Is there a role for educational psychologists? *Educational Psychology in Practice*, *19*(2), 103–112. doi:10.1080/02667360303237

Arora, T. C. (2006). Elective home education and special educational needs. *Journal of Research in Special Educational Needs*, *6*(1), 55–66. doi:10.1111/j.1471-3802.2006.00059.x

Beck, D., Egalite, A. J., & Maranto, R. A. (2014). Why they choose and how it goes: Comparing special education and general education cyber student perceptions. *Computers & Education*, *76*, 70–79. doi:10.1016/j.compedu.2014.03.011

Beck, D., Maranto, R. A., & Lo, W. (2013). Determinants of student and parent satisfaction at a cyber charter school. *The Journal of Educational Research*, *107*(3), 209–216. doi:10.1080/00220671.2013.807494

Bryk, A. S., Lee, V. E., & Holland, P. B. (1993). *Catholic schools and the common good*. Cambridge, MA: Harvard University Press.

Butcher, J., & Bedrick, J. (2013, October). *Schooling satisfaction: Arizona parents' opinions on using education savings accounts*. Indianapolis, IN: The Friedman Foundation for Education Choice.

Cai, Y., Reeve, J., & Robinson, D. T. (2002). Home schooling and teaching style: Comparing the motivating styles of home school and public school teachers. *Journal of Educational Psychology*, *94*(2), 372–380. doi:10.1037/0022-0663.94.2.372

Cheng, A., Trivitt, J. R., & Wolf, P. J. (2016). School choice and the branding of Milwaukee private schools. *Social Science Quarterly*, *97*(2), 362–375.

Coleman, J. S., & Hoffer, T. (1987). *Public and private high schools: The impact of communities*. New York, NY: Basic Books.

Cook, K. B., Bennet, K., Lane, J. D., & Mataras, T. K. (2013). Beyond the brick walls: Homeschooling students with special needs. *Physical Disabilities: Education and Related Services*, *32*(2), 90–103.

Cosier, M., Causton-Theoharis, J., & Theoharis, G. (2013). Does access matter? Time in general education and achievement for students with disabilities. *Remedial and Special Education*, *34*(6), 323–332. doi:10.1177/0741932513485448

Cullen, J. B., & Rivkin, S. G. (2003). The role of special education in school choice. In *The economics of school choice* (pp. 67–106). Chicago, IL: University of Chicago Press.

Daniel, L. G., & King, D. A. (1997). Impact of inclusion education on academic achievement, student behavior and self-esteem, and parental attitudes. *The Journal of Educational Research*, *91*(2), 67–80. doi:10.1080/00220679709597524

Delaney, A. M. (2014). Perspectives of parents of students with disabilities toward public and homeschool learning environments (Doctoral dissertation). Walden University, Minneapolis, MN.

Dhuey, E., & Lipscomb, S. (2011). Funding special education by capitation: Evidence from state finance reforms. *Education Finance and Policy*, *6*(2), 168–201. doi:10.1162/EDFP_a_00031

Duffey, J. (2002). Home schooling children with special needs. *Journal of Special Education Leadership*, *15*(1), 25–32.

Duvall, S. (2005). The effectiveness of homeschooling students with special needs. In B. S. Cooper (Ed.), *Homeschooling in full view: A reader* (pp. 151–166). Greenwich, CT: Information Age Publishing.

Duvall, S., Delquadri, J. C., & Ward, L. D. (2004). A preliminary investigation of the effectiveness of homeschool instructional environments for students with attention-deficit/hyperactivity disorder. *Social Psychology*, *33*(1), 140–158.

Duvall, S., Ward, L. D., Delquadri, J. C., & Greenwood, C. R. (1997). An exploratory study of home school instructional environments and their effects on the basic skills of students with learning disabilities. *Education and Treatment of Children*, *20*(2), 150–173.

Duvall, S. F., Delquadri, J. C., Elliot, M., & Hall, R. V. (1992). Parent-tutoring procedures: Experimental analysis and validation of generalization in oral reading across passages, settings, and time. *Journal of Behavioral Education*, *2*(3), 281–303. doi:10.1007/BF00948819

Evans, D. L. (2003, September 2). Home is no place for school. *USA Today*. Retrieved from http://usatoday30.usatoday.com/news/opinion/editorials/2003-09-02-oppose_x.htm

Freeman, S. F. N., & Alkin, M. C. (2000). Academic and social attainments of children with mental retardation in general education and special education settings. *Remedial and Special Education*, *21*(1), 3–26. doi:10.1177/074193250002100102

The Friedman Foundation for Educational Choice. (2015). *The ABCs of school choice: The comprehensive guide to every private school choice program in America*. Indianapolis, IN: The Friedman Foundation for Educational Choice.

Gaither, M. (2009). Homeschooling goes mainstream. *Education Next*, *9*(1), 10–19.

Goldhaber, D., Lavery, L., & Theobald, R. (2015). Uneven playing field? Assessing the teacher quality gap between advantaged and disadvantaged students. *Educational Researcher*, *44*, 293–307. doi:10.3102/0013189X15592622

Greene, J. P. (2007). Fixing special education. *Peabody Journal of Education*, *82*(4), 703–723. doi:10.1080/01619560701603213

Greene, J. P., & Buck, S. (2010). The case for special education vouchers. *Education Next*, *10*, 1.

Greene, J. P., & Forster, G. (2003). *Vouchers for special education students: An evaluation of Florida's McKay Scholarship Program*. New York, NY: Manhattan Institute for Policy Research.

Gutmann, A. (1987). *Democratic Education*. Princeton, NJ: Princeton University Press.

Hook, C. L., & DuPaul, G. (1999). Parent tutoring for students with attention/hyperactivity disorder. Effects on reading performance at home and school. *School Psychology Review*, *28*(1), 60–75.

Hurlbutt, K. S. (2011). Experiences of parents who homeschool their children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, *26*(4), 239–249. doi:10.1177/1088357611421170

Kalambouka, A., Farrell, P., Dyson, A., & Kaplan, I. (2005). *The impact of population inclusivity in schools on student outcomes*. London, UK: University of London, Centre for Evidence-Informed Policy and Practice in Education.

Kelly, J., & Scafidi, B. (2013). *More than scores: An analysis of why parents choose private schools*. Indianapolis, IN: The Friedman Foundation for Educational Choice.

Kidd, T., & Kaczmarek, E. (2010). The experiences of mothers home educating their children with autism spectrum disorder. *Issues in Education Research*, *20*(3), 257–275.

King, G., Murray, C., Salomon, J. A., & Tandon, A. (2004). Enhancing the validity and cross-cultural comparability of measurement in survey research. *American Political Science Review*, *98*, 191–205. doi:10.1017/S000305540400108X

Kisida, B., & Wolf, P. J. (2015). Customer satisfaction and educational outcomes: Experimental impacts of the market-based delivery of public education. *International Public Management Journal, 18*(2), 265–285.

Klingner, J. K., Vaughn, S., Hughes, M. T., Schumm, J. S., & Elbaum, B. (1998). Outcomes for students with and without learning disabilities in inclusive classrooms. *Learning Disabilities Research & Practice*, *13*(3), 153–161.

Lake, R. J. (2010). *Unique schools serving unique students: Charter schools and children with special needs*. Seattle, WA: Center for Reinventing Public Education.

Lake, R. J., & Gross, B. (2012). Making choice work for students with special needs. In R. Lake & B. Gross (Eds.), *Hopes, fears, & reality* (pp. 43–53). Seattle, WA: Center for Reinventing Public Education.

Lindberg, M. (2016). *Special education school vouchers: A look at southern states*. Atlanta, GA: The Southern Office of the Council of State Governments.

Lindsey, G. (2007). Educational psychology and the effectiveness of inclusive education/mainstreaming. *British Journal of Educational Psychology*, *77*(1), 1–24. doi:10.1348/000709906X156881

Medlin, R. (2000). Homeschooling and the question of socialization. *Peabody Journal of Education*, *75*(1/2), 107–123. doi:10.1080/0161956X.2000.9681937

Medlin, R. (2013). Homeschooling and the question of socialization revisited. *Peabody Journal of Education*, *88*(3), 284–297. doi:10.1080/0161956X.2013.796825

Mills, P. E., Cole, K. N., Jenkins, J. R., & Dale, P. S. (1998). Effects of differing levels of inclusion on preschoolers with disabilities. *Exceptional Children*, *65*(1), 79.

Parsons, S., & Lewis, A. (2010). The home-education of children with special needs or disabilities in the UK: Views of parents from an online survey. *International Journal of Inclusive Education*, *14*(1), 67–86. doi:10.1080/13603110802504135

Peterson, P. E., Howell, W. G., & Greene, J. P. (1999). *An Evaluation of the Cleveland Voucher Program after Two Years*. Cambridge, MA: Harvard University, Program on Education Policy and Governance.

Rea, P. J., McLaughlin, V. L., & Walther-Thomas, C. (2002). Outcomes for students with learning disabilities in inclusive and pullout programs. *Exceptional Children*, *68*(2), 203–222.

Reich, R. (2002). The civic perils of homeschooling. *Educational Leadership*, *59*(7), 56–59.

Reich, R. (2005). Why home schooling should be regulated. In B. S. Cooper (Ed.), *Homeschooling in full view: A reader* (pp. 109–120). Greenwich, CT: Information Age Publishing.

Reilly, L. (2004). *How Western Australian parents manage the home schooling of their children with disabilities*. Paper presented at the AARE Annual Conference, Melbourne, Australia.

Reilly, L., Chapman, A., & O'Donoghue, T. (2002). Home schooling of children with disabilities. *Queensland Journal of Educational Research*, *18*(1), 38–61.

Salend, S. J., & Duhaney, L. M. G. (1999). The impact of inclusion on students with and without disabilities and their educators. *Remedial and Special Education*, *20*(2), 114–126. doi:10.1177/074193259902000209

Sass, T. R., Hannaway, J., Xu, Z., Figlio, D. N., & Feng, L. (2012). Value added of teachers in high-poverty schools and lower poverty schools. *Journal of Urban Economics*, *72*(2), 104–122. doi:10.1016/j.jue.2012.04.004

Scanlan, M. (2008). The grammar of Catholic schooling and radically "Catholic" schools. *Catholic Education: A Journal of Inquiry and Practice*, *12*(1), 25–54.

Setren, E. (2015). *Special education and English language learner student in Boston Charter schools: Impact and classification*. Cambridge, MA: MIT Department of Economics.

Shifrer, D. (2013). Stigma of a label educational expectations for high school students labeled with learning disabilities. *Journal of Health and Social Behavior*, *54*(4), 462–480. doi:10.1177/0022146513503346

Shifrer, D., Callahan, R. M., & Muller, C. (2013). Equity or marginalization? The high school course-taking of students labeled with a learning disability. *American Educational Research Journal, 40*(4), 656–682. doi:10.3102/0002831213479439

Teske, P., & Schneider, M. (2001). What research can tell policymakers about school choice. *Journal of Policy Analysis and Management*, *20*(4), 609–631. doi:10.1002/(ISSN)1520-6688

Trivitt, J. R., & Wolf, P. J. (2011). School choice and the branding of Catholic schools. *Education Finance and Policy*, *6*(2), 202–245. doi:10.1162/EDFP_a_00032

U.S. Department of Education. (2015). *Digest of education statistics 2013*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences.

Van Kuren, L. (2000). Home schooling: A viable alternative for students with special needs. *CEC Today, 7*(1), 1–9.

Waldron, N. L., & McLeskey, J. (1998). The effects of an inclusive school program on students with mild and severe learning disabilities. *Exceptional Children*, *64*(3), 395–405.

Weidner, V. R., & Herrington, C. D. (2006). Are parents informed consumers: Evidence from the Florida McKay scholarship program. *Peabody Journal of Education*, *81*(1), 27–56. doi:10.1207/S15327930pje8101_3

Westling, D. L. (1996). What do parents of children with moderate and severe mental disabilities want? *Education and Training in Mental Retardation*, *31*, 85–114.

Winters, M. (2013). *Why the gap? Special education and New York City charter schools*. Seattle, WA: Center for Reinventing Public Education.

Winters, M. (2014). *Understanding the charter school special education gap: Evidence from Denver, CO*. Seattle, WA: Center for Reinventing Public Education.

Wolf, P. J., Kisida, B., Gutmann, B., Puma, M., Eissa, N., & Rizzo, L. (2013). School vouchers and student outcomes: Experimental evidence from Washington, DC. *Journal of Policy Analysis and Management, 32*(2), 246–270.

Woodworth, J. L., Raymond, M. E., Chirbas, K., Gonzalez, M., Negassi, Y., Snow, W., & Van Donge, C. (2015). *Online charter school study*. Stanford, CA: Center for Research on Education Outcomes.

Zimmer, R., & Guarino, C. (2013). Is there empirical evidence that charter schools "push out" low-performing students? *Educational Evaluation and Policy Analysis*, *35*(4), 461–480. doi:10.3102/0162373713498465