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School Choice: Supporters and Opponents

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We conduct a phone survey to examine the attitudes of Ohioans about school choice, which includes open enrollment programs, school vouchers, tuition tax credits, and charter schools. Previous studies examine more limited forms of choice and investigate fewer possible influences. We find the strongest opposition for school choice by people with graduate degrees and people who believe their assigned public school district is excellent. In fact, people's opinions about their public schools are stronger predictors of school choice support than are objective measures of school quality. We find people with children in private schools and people with associate's degrees to be the strongest supporters. Males tend to oppose choice and blue collar workers support it. We find no role for age, the convenience of alternative schools, or the protection of house values in support for school choice.

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Introduction

In recent decades many nations have introduced forms of school choice. These school choice programs take the form of open enrollment, tuition tax credits, school vouchers, and charter schools. Each program makes it less costly for a person to send a child to a school other than the tax-funded school to which he is assigned. Bangladesh, Belize, Chile, Colombia, Czech Republic, Guatemala, Ivory Coast, Lesotho, Poland, Sweden, and the United Kingdom have systems where vouchers may be used toward the public or private school of the parents' choice. British Columbia, Quebec, Manitoba, Saskatchewan, Alberta, Japan, the Netherlands, Belgium, France, and New Zealand also have state support for private schools.[1] Within the U.S., voucher programs have been proposed or enacted in California, Florida, Michigan, Louisiana, Maine, D.C., Colorado, Indianapolis, Milwaukee, San Antonio, Atlanta, Cleveland, Vermont, New Hampshire, New Jersey, Maryland, Washington, Wyoming, Georgia, Kansas and other states and cities (Merrifield, 2002; Kenny, 2005). In 2005 the Arizona senate passed an unrestricted private school voucher bill. In 2006 Governor Pataki introduced a tax credit for parents in New York who choose private schools, joining six other states that have private school tuition tax credits or deductions. 33 states have open enrollment programs, including 15 states that require inter-district open enrollment; and charter schools are found in 45 U.S. states.

How has school choice become so prevalent? Supporters of choice have won many battles against those who oppose school choice. So who are its supporters and opponents? To answer this question, we conduct a phone survey in Ohio to examine attitudes about school choice. Ohio provides an excellent sample as there are a variety of public and private schools, a voucher experiment, and an open enrollment program in the state The survey results are linked

to an especially rich data set that includes information about respondents' houses, the quality of local schools, and demographic characteristics of the neighborhoods in which they live. Our unique data set allows us to re-examine prior studies' findings and test new hypotheses.

We find no independent role for income in the support for school choice for the general public; however, we find that public school users go from supporting to opposing choice as their incomes rise. Unlike prior studies, we find no role for age, and no evidence that people base their opinions about school choice on protecting property values. We find the first evidence that males oppose school choice more than women, and that blue collar workers support school choice. We explore the complementary roles of objective and subjective school quality measures on support for school choice. Prior literature shows conflicting results for whether blacks, highly-educated people, and people close to alternative schools support school choice. We find blacks and people with associate's degrees support choice, while proximity to alternative schools has no relationship with support for school choice. And we confirm the findings of prior literature that private school users favor choice and people living in high-performing public school districts oppose it.

Analytical Framework

Random utility provides the basis for our empirical model. To motivate our analysis, we focus on the utility derived from local public goods consumption, under the assumption of separability of public goods and other consumption goods. Further, local public goods are considered jointly consumed with house and other neighborhood characteristics. The resulting utility function is $U(\mathbf{Z}, \mathbf{G}; \delta)$, where **Z** represents a vector of property characteristics, **G**

represents a vector of local public goods, and δ represents a vector of individual demographic and attitudinal characteristics.

Consider the school voucher form of school choice program. Through competitive effects or cream-skimming, a voucher program might affect the quality of public schools, an important local public good. We amend the utility function to be U(**Z**, **G**, *v*; **δ**) where *v* represents the voucher, taking the value 1 for voucher supporters and 0 otherwise.

Not everyone approves of the idea of school vouchers. We posit that individuals will support the use of vouchers if their utility with school choice (*v*=1) is higher than without (*v*=0), i.e. U(**Z**, **G,** 1; δ)> U(**Z**, **G,** 0; δ). Inherent in this specification is the assumption that vouchers represent a reallocation of tax dollars, which has no effect on individual tax bills.

Empirically, the above relationship translates to a discrete choice model, where the researcher can only observe utility with error. Specifically, we assume that utility is represented by a linear function of property characteristics and parameters **Z'α**, public goods **G'β**, and personal characteristics and parameters **D'δ** so that we write the relationship as U(**Z' α** + **G'β + D'δ;** 1) + ε_1 > U(**Z' α** + **G'β+ D'δ**; 0) + ε_0, or U(**Z' α** + **G'β+ D'δ;** 1) - U(**Z' α** + **G'β+ D'δ**; 0) > ε_0 - ε_1. This formulation translates into the familiar probit specification where Pr(*v*=1)=Φ(**Z' α** + **G'β+ D'δ**) and Pr(*v*=0)=1-Φ(**Z' α** + **G'β+ D'δ**), where Φ(˙) represents the standard normal distribution.

Data

The survey sample frame is based on a data set of 44,495 houses sold in Ohio in 2000 that had valid house characteristics, latitude and longitude, Census identifiers, and school

district identifiers. We contracted with the Public Policy Research Lab of Louisiana (PPRL) to conduct a telephone survey based on these 44,495 houses in 2006-2007. The first wave of the survey started with a stratified random sample of 8,629 houses. The house addresses were sent to a web-based marketing service that associates phone numbers with addresses, yielding 5,084 phone numbers for the houses in our sample. PPRL's trained survey interviewers contacted valid phone numbers multiple times, resulting in 710 completed phone surveys. The second wave of the survey started with 10,000 addresses drawn from the 35,866 houses that had not yet been sampled; in order to help mitigate response clustering, these 10,000 were drawn using a stratification scheme that oversampled low-response school districts from the first survey wave. The second wave yielded 5,415 phone numbers and 762 completed surveys. For the two rounds of the survey, the raw response rate is 14%. After eliminating calls to disconnects, businesses, fax machines, no answer and households with no eligible respondent, the adjusted response rate is 22%.[2] Of the 1,472 completed surveys, 232 were eliminated for item non-response.

Most of the variables used in the study come from the phone survey, but data from other sources are required to test additional hypotheses. We use the percentage of students who are proficient or above proficient on the 12th grade Ohio math proficiency test as a measure of public school district performance (Ohio Department of Education, 2002a). The address of each private school in Ohio was geocoded to yield its latitude and longitude. We then use the latitude and longitude of each house surveyed to find the distance from each house to the nearest private school. The percentage of non-white students in each public school district comes from the Vital Statistics of the Ohio Department of Education (2002b).

The number of disciplinary actions in a school district is taken from the Ohio Department of Education (2002c). The year 2000 sale price of the house of each respondent comes from First American Real Estate Services (FARES, 2002). Variable means, definitions, and sources are found in Table 1. In addition, the sample selection regression uses data from the 2000 U.S. Census (see Appendix Table A1).

Ohio has a variety of schooling options. There are 614 public school districts. Many of these participate in a voluntary open enrollment program. A majority of school districts (371) allow students to enroll from anywhere in the state; an additional 118, or about 28%, allow only students living in adjacent school districts to enroll; and the remaining 173 school districts do not allow any form of open enrollment. Since 1995, the Cleveland City School District has operated the Cleveland Scholarship and Tutoring Program, a school voucher experiment open to residents of Cleveland in grades K-8, and the sole voucher program in the state of Ohio. Students chosen by lottery to receive the voucher may attend any non-public school within the city of Cleveland or any public school district adjacent to Cleveland. The voucher covers 75% or 90% of tuition up to the legislated maximum, depending on family income. The voucher also includes transportation. The Ohio Educational Directory lists 852 non-public schools for all grades K-12. There are many types of private schools in Ohio, including schools for girls, Baptist, Orthodox, Lutheran, Catholic, Montessori, Adventist, secular academies, Jewish, Islamic, and a school for autistic students. In addition, there are 292 public charter schools specializing in areas such as college prep, technology, leadership, fitness, culture, entrepreneurship, science, arts, manufacturing, health care, and maritime training.

Literature Review and Hypotheses

A handful of other studies examine support for school choice. Stoddard and Corcoran (2007) consider charter school support, and the rest of the studies we found consider school vouchers. Our study considers government-supported school choice of any form.

Most previous studies examine support for California's Proposition 38 in 2000 (Brunner and Sonstelie, 2003; Brunner, Imazeki and Ross, 2006; Brunner and Imazeki, 2006). One study (Brunner, Sonstelie and Thayer, 2001) examines Los Angeles County's 1993 voucher vote on Proposition 174. Hsieh and Urquiola (2006) examine Chile's voucher program. Kenny (2005) examines a variety of U.S. voucher votes by Congress and state legislatures, and Stoddard and Corcoran (2007) study charter school authorization by state legislatures and charter school adoption by school districts. California is an important state, and Chile's voucher program has a 20-year history to examine, but Ohio is certainly worthy of study as well. It is about as representative of the U.S. as any state gets, having six fairly large central cities, hundreds of suburbs, small industrial cities outside the urban areas, prosperous rural farm communities, and poor rural Appalachian areas.

Thanks to the combination of our survey with other data sources, our study has more control variables than previous studies. This allows us to re-examine previous findings and test new hypotheses. The previous studies have from about 3 to 13 explanatory variables, while our study has 37. Stoddard and Corcoran (2007) look at support at the state and school district levels. Kenny (2005) looks at votes by politicians; Hsieh and Urquiola (2006) and Brunner, Sonstelie and Thayer (2001) look at preferences at the commune or precinct level. But our

study, like Brunner and Sonstelie (2003), Brunner, Imazeki and Ross (2006), and Brunner and Imazeki (2006), examines individual level survey data.

In the Results section, we compare our findings to those of prior studies, where available. In this section, we briefly list the hypotheses to be tested.

- Does higher income lead to greater or less support for school choice, and does the role of income depend on the schools a respondent's children attend?
- Holding income constant, does having a blue collar job make a person more or less likely to support school choice?
- Are men more likely to oppose school choice than women?
- What is the role of race, age, and education in school choice? Are whites in minority public school districts more likely to support choice than other whites?
- Do people in high-performing school districts support school choice less? What if school quality is measured by discipline problems? And are a person's opinions about his own public school, the typical public school, and his nearest private school important as well, or do people only care about objective school quality measures?
- Do people with school-aged children support choice more than other people, and does this support depend on whether the children attend public or private schools?
- Do people form their opinions on school choice to protect their property values?
- Quality aside, does the accessibility of private schools and alternative public schools affect a person's attitudes toward school choice?
- Do people who participate in certain pastimes like bowling and volunteer groups feel differently than other people about school choice?

- Does Cleveland's voucher program have an effect on school choice attitudes in the Cleveland area?

Econometric Issues

There are many potential estimation issues. In the case of survey data, potential selection bias poses a serious problem. We develop a selection correction model similar to Hite (1998), which relies on neighborhood and housing characteristics to explain survey response. In particular, our sample comes from a data set of housing transactions, which includes important property characteristics, merged with a large array of local characteristics, such as school quality, crime rates and environmental characteristics. Because the survey deals with a potentially controversial issue, individuals living in the worst districts might be more inclined to favor vouchers than average, while those in the best districts might be more inclined to oppose vouchers, in fear that opening their schools to outsiders could lower quality. Thus, we expect that people at extremes of the school quality distribution will be more likely to respond.[3]

Race and age are other factors with potential to induce selection bias, for which we use Census block characteristics as proxies. Thus, even though we cannot observe the personal characteristics of non-responders, we can develop a two-stage selection model (Heckman, 1974; Maddala, 1986) to mitigate potential bias. The first stage of the model is a probit that predicts the probability that a person responds; from the first stage probit an inverse Mills ratio (IMR) is created, which is then used as an explanatory variable in our models of interest, models that examine supporters of school choice. Although we include the IMR in our models of school choice, we find it is never statistically significant, suggesting that sample selection bias is

perhaps not of great practical concern; we suspect that this may be in part due to the sampling scheme employed in the second survey wave.[4] The first stage model is reported in Appendix A, along with an in-depth discussion.

Spatial dependence is a second important issue in our data. Its presence would invalidate standard errors and/or cause biased parameter estimates, necessitating the use of a spatial probit model (McMillen, 1992; LeSage, 1999). However, a likelihood ratio test fails to reject the null hypothesis of no spatial dependence, as does a Moran's I test, so spatial dependence is not an issue in the current sample.[5] We suspect that the survey respondents are sufficiently geographically dispersed so as to eliminate spatial dependence.

Another concern is heteroskedasticity. A Breusch-Pagan test rejects the null of homoskedasticity at the 1% level of significance.[6] Despite the presence of heteroskedasticity, the standard errors change little when corrections are made. Jackknifing, robust standard errors, and clustered standard errors all provide nearly identical t-ratios to uncorrected regressions. We adopt robust standard errors.

Results

The first column of results in Table 2 is the baseline regression that tests many of the key hypotheses. Hsieh and Urquiola (2006) find high-income people the most likely to move from public to private schools to take advantage of Chile's voucher program. Bettinger (1999) finds low-income students the most likely to take advantage of charter schools in Michigan, while Willms and Echols (1992) find the opposite for Scotland's voucher program. Sandy (1992) finds Michigan voters less likely to support a voucher initiative the higher their incomes;

similarly, Stoddard and Corcoran (2007) find higher-income school districts less likely to support charter schools. However, given the other controls, we find no independent role for income in Ohioans' attitudes toward school choice. Our lack of income significance may result from the wide variance of Tiebout sorting in our sample.[7] Brunner and Imazeki (2006) find higher socio-economic status can cause people to support or oppose school vouchers, depending on the degree of Tiebout choice in an area. Our sample spans most of Ohio, including rural areas with little Tiebout choice, and Cleveland, with 48 school districts and over 100 municipalities. The positive effect of socio-economic status on school choice in areas with little Tiebout sorting may be canceling out the negative effect in urban areas.[8]

Older Americans have been found to oppose school choice (Brunner and Sonstelie, 2003; Brunner, Sonstelie and Thayer, 2001; Brunner, Imazeki and Ross, 2006). We find a person's age is unrelated to support for school choice. We also find the value of a person's house unrelated to support for school choice.[9] We will have more to say about property values in later experiments. Controlling for race, income and education, we find blue collar workers are more likely to support school choice; we suspect the blue collar result may be related to a cultural disposition by these workers to provide better futures for their offspring. In contrast, males are less likely to support choice; the marginal effect for Male is the third-strongest in the baseline regression, stronger than the presence of children in a household. This perhaps follows from the notion that women are more actively involved in their children's education than men. In contrast, Brunner, Imazeki and Ross (2006) find no relationship between gender and support for school choice.[10]

People with children support school choice, all else constant, and the strength of their support is similar whether the children are school-aged or younger than school-aged.

We find racial minorities more likely to support school choice. Theirs is the second-strongest marginal effect. The race and school choice support finding is consistent with Sandy (1992) and Howell, et al. (2002), but inconsistent with Brunner and Sonstelie (2003), who find race unrelated to support for school vouchers.[11]

The strongest marginal effect in the baseline regression belongs to respondents with graduate degrees. Such people strongly oppose school choice. This is a different result than Hsieh and Urquiola (2006), who find that higher-educated parents were the ones who took greatest advantage of Chile's voucher program. It also contradicts Stoddard and Corcoran (2007), who find higher education levels positively related to charter school support. But it is consistent with Brunner and Sonstelie (2003), who generally find higher education levels negatively associated with support for California's school voucher initiative.

Brunner, Sonstelie and Thayer (2001) find homeowners in high-performing public schools oppose school vouchers. Sandy (1992) finds people living in low-performing public schools strongly support vouchers. Stoddard and Corcoran (2007) find more support for charter schools in public school districts with high dropout rates. The current study finds evidence consistent with these studies. The better a respondent's public school district performs on a state-wide proficiency test, the less likely the respondent is to favor school choice. This is in keeping with our hypothesis that those in good school districts want to bar entrants who may harm school district performance. The relationship is measured with precision, but the marginal effect is only comparable to that of Blue Collar; together, Blue Collar

and Public Proficiency have the weakest marginal effects among the statistically significant variables.

We expand upon the baseline results to further explore the role of race in school choice support. The Minority variable is replaced by a series of racial and ethnic variables: Black, Hispanic, Asian, Indian, and Other Race. The results of the Race 1 column of Table 2 show that all the minority support for school choice comes from respondents of African descent. Brunner, Imazeki and Ross (2006) find that whites in California in schools with a high proportion of minority students support vouchers, but that this result disappears when controlling for the quality of the school. We test this proposition in the Race 2 column of Table 2, creating an interaction term between whether the respondent is white and the percentage of minority students in his school district. With the interaction term and school quality included, we find the respondent's race and the racial makeup of his school district are not related to school choice support.[12]

A person's support for school choice depends on the performance of his school district, where performance is measured by proficiency test passage. But there are other ways to measure school quality besides proficiency tests. Another desirable school characteristic is the degree to which a school is unruly, disruptive, or dangerous. We add School Disciplines as a competing school quality measure to proficiency passage and see how it is related to school choice support. The School Outcomes 1 column of Table 2 shows that the unruliness of a public school is not related to a respondent's opinion on school choice, but that proficiency passage remains a significant influence. When School Disciplines is included instead of proficiency

passage in an unreported regression, School Disciplines still fails to achieve statistical significance.

Objective measures of school quality can be important, but a person's subjective opinions about school quality may also matter. Opinions may capture something different than objective measures of quality. Converting respondents' unobserved utility rankings to linear categorical rankings is not ideal, but is useful for exploring the impact of people's opinions. We assign values from 1 to 5 depending on whether the respondent believes his assigned public school district is poor, not good, fair, good, or excellent. The resulting variable is Opinion Own Public. When Opinion Own Public substitutes for proficiency test scores, the opinion variable is negative and statistically significant, indicating that those who think highly of their assigned public schools tend to oppose school choice. In the School Outcomes 3 column of Table 3, when both the opinion variable and the proficiency test variable are included simultaneously, both are statistically significant, suggesting that opinion and objective quality measures each capture something different. In fact, the opinion variable has a larger t-ratio than the objective measure of quality. The importance of subjective measures is also validated in the medical literature: subjective measures of health strongly predict mortality even controlling for physical health (Ofstedal et al., 2003).

Recognizing the limitations of our Opinion Own Public variable, we substitute a series of dummy variables for whether the respondent believes his assigned public school is excellent, good, or fair, with not good and poor as omitted categories. The School Outcomes 4 column of Table 3 shows that the opinion variables dominate the proficiency variables. Respondents who think their public school is excellent oppose school choice, as do those who believe their public

school is good. Public Excellent (-0.17) and Public Good (-0.14) have the largest marginal effects in the regression, at least as large as that of Graduate Degree (-0.13). There is no difference in support for school choice between people who believe their public school is fair, and those who think it is not good or poor.

Opinions about their own public schools obviously affect a person's support for school choice, but perceptions of the quality of the typical public school in the state and the nearest private school may also matter. The typical public school represents a baseline measure of quality against which to measure one's own school, while those who believe the closest public school to be good or excellent may support choice as a means to increase government financial support. We thus first add Opinion Typical Public to the proficiency test variable in the School Outcomes 5 column of Table 3. The results show that a respondent is less likely to support school choice if he resides in a school district with good proficiency test passage, and he is less likely to support choice the higher his opinion of the quality of the typical public school in the state. In the School Outcomes 6 column we replace Opinion Typical Public with Opinion Own Private. The two opinion variables eliminate the influence of proficiency test scores. The higher one's esteem for his assigned public school, the less he supports school choice; the higher one's esteem for the nearest private school, the more he supports school choice.

Having a high level of education clearly reduces support for school choice, all else constant. What is the effect of other levels of education? We include the five lowest educational categories in the regression, with bachelor's and graduate degrees as the omitted categories. The results appear in the Education column of Table 3. The results indicate that it is not the lowest education people who most strongly support school choice. With Some College

failing to achieve statistical significance, we find all the action in the lower education categories belongs to people with associate's degrees who did not get bachelor's degrees. People with associate's degrees are more likely to support school choice than people with higher education. In fact the 0.15 marginal effect for Associate rivals that of Graduate Degree (-0.13), and both are nearly as strong as Public Excellent (-0.17).

So far we have discovered that having children—especially school-aged children—increases a person's support for school choice. But the motivation is unclear. Parents may be using public schools and want choice to attend a different public school or a private school. Or parents may be using private schools and want tuition relief from the government. Some parents even use a combination of public and private schools for their children. We investigate the influence of the type of school a respondent uses for his children on his support for school choice. The Kids 1 column of results in Table 4 suggests that support for school choice does not come from parents with children in public schools. Such parents are no more or less likely to favor choice than respondents without children. However, parents sending their children exclusively to private school, or to a combination of public and private schools, are more likely to support school choice. The marginal effect of Attend Both is 0.16, nearly the strongest in the study. But the strongest marginal effect in the study, 0.22, goes to Attend Private. We speculate that parents sending their children to private schools strongly favor school choice in hopes of reducing their tuition expenditures. By comparison, Kenny (2005) studies school voucher successes in state legislatures. In three of four specifications, he finds no relationship between private school market share and voucher passage in state legislatures. Perhaps state representatives are ignoring constituents who use private schools in favor of the more

numerous non-users. Similar to our study, Brunner, Sonstelie and Thayer (2001) find more support for school choice in precincts with a higher private school market share.

Brunner and Sonstelie (2003) find the role of income depends on whether the person has children in public or private school. To test this proposition, we include interaction terms between income and the school attendance variables in the Kids 2 column of Table 4. The interaction term eliminates the significance of Attend Both, and Income remains insignificant. However, both Attend Public and Attend Public*Income become statistically significant. Together, the results support part of Brunner and Sonstelie. Our results suggest that lower-income people who use public schools support school choice, but as income rises, public school users oppose school choice, once again bolstering our supposition that there is a certain level of protectionism towards good local schools. Brunner and Sonstelie find that for people with children in public schools, higher income reduces support for California's school voucher program. They also find for people with children in private schools, higher income increases support for school choice, a finding not supported by our data.

In the hedonic literature, one of the strongest non-structural contributors to house price is the quality of the public school district to which the house is assigned (Haurin and Brasington, 1996). People pay a premium to live in a house with a high-performing public school, and receive a house price discount for having a low-performing public school. Some research (Hoyt, 1996; Reback, 2005) finds a relationship between house prices and school choice through the capitalization of public school quality. Minnesota's open enrollment program lets some students attend a different school than the one to which their house is assigned. Hoyt and Reback find that house prices fall in school districts that accept students from lower-performing

school districts, and house prices rise in areas where students transfer to better-performing school districts. Given these findings, we suspect that people with expensive houses and those in high-performing school districts have the most to lose with school choice, so we include both proficiency test passage and the sale price of a respondent's house as regressors. We find that, all else constant, the sale price of a person's house is not related to their support for school choice. In contrast, Brunner, Sonstelie and Thayer (2001) find less support for school vouchers in California precincts with a high house price premium for school quality.

But a test of the capitalization motive for supporting and opposing school choice must focus on the Public Proficiency variable. Its negative sign in the Baseline regression could reflect a motive of protecting house prices: people with high-performing schools vote against choice to preserve the house price premium they paid to live in a good school district. But the negative sign could also reflect people's satisfaction with school quality in high-performing school districts. To separate these hypotheses, we restrict the sample to the 493 homeowners who have no children. If Public Proficiency is negative in this sample, it suggests people in high-performing school districts oppose choice to protect property values.[13] The results in the Capitalization column of Table 4 do not support this scenario, as the Public Proficiency variable fails to achieve statistical significance. Further study is required, but the results call into question the role of capitalization of school quality into house price as a factor determining people's support for school choice. People in high-performing school districts seem to oppose choice simply because they are satisfied with the quality of their public school districts, and conversely, they support choice because they are dissatisfied with their public school districts.

Another failed experiment was to include respondents' pastimes as proxies for underlying attitudes that could be determinants of school choice support. In certain previous experiments with a similar data set, we found that bowlers were more likely to support school choice, but in an in unreported regression, we find that participating in fishing, yachting, arts, skiing, bowling, golf, dining, Nascar, crafts, and music are unrelated to support for school choice. We also wondered if living in the Cleveland MSA would affect a person's support for choice, given that Cleveland has an active voucher experiment. However, an unreported regression shows a Cleveland MSA dummy is insignificant.

Controlling for quality, proximity to public schools generally commands a house price premium (Owusu-Edusei, et al. 2007). By extension, proximity to private schools may make people stronger supporters of school choice, just as proximity makes people more likely to use private schools (Fairlie and Resch, 2002). They may have moved close to private schools because their children use them, or at any rate they face a lower transportation cost of using private schools than people living farther away, making them more likely to take advantage of a tuition tax credit. To test whether people who live near private schools are more likely to support school choice, we add Distance to Private to the regression. The results appear in the Distance 1 column of Table 4. Despite its theoretical appeal, we find no evidence that proximity to a private school affects a person's support for school choice, all else constant. In an unreported regression, we find the interaction terms between having children and the distance to private schools are also insignificant, so that neither parents nor the general public seems to care about the distance to private schools when assessing their support for school choice. Because Cleveland has an experimental voucher program, residents of Cleveland may be more

sensitive to distance to private schools. But in another unreported regression, we find that Cleveland residents are no different than everyone else concerning distance to private schools.

Another way to measure the convenience of private schools recognizes that private schools are less common in rural areas. In addition, because rural housing is more dispersed than urban housing, the distance from a house to a private school is likely to be higher in rural areas. Furthermore, in rural areas there is less choice in public school alternatives, and the nearest public school may be farther away than in urban areas. We use the percentage of houses in a Census block group that are in rural areas to proxy for alternative school convenience, and report regression results in the Distance 2 column. Hsieh and Urquiola (2006) find the largest growth in market share for private schools in Chile's voucher program was in urban areas. Brunner, Imazeki and Ross (2006) find people in rural areas more supportive of California's voucher initiative in about half their regressions. But using Rural, our results again fail to show a relationship between convenience of private school alternatives and support for school choice.

Conclusion

Our study examines individual support for school choice in Ohio, a typical American state with charter schools, a voluntary open enrollment policy, a limited school voucher program, and ample private school alternatives. The strongest supporters of school choice are people with children who attend private schools, who have a marginal effect of 0.22. The next-strongest marginal effect belongs to people who believe their assigned public school is excellent (-0.17). Interestingly, people's opinions about school quality have a much stronger

effect on school choice support than do more objective measures of school quality, like proficiency test passage and school discipline problems. Strong effects are found for people whose children attend both public and private schools (0.16) and people who believe their assigned public school is good (-0.14). Similarly strong effects are found for a respondent's education level, pitting those with graduate degrees (-0.13) and associate's degrees (0.15) against each other, with no significant effects found for any other education level.

Ours is the first study to find gender systematically related to school choice support: men support school choice less than women. Our study also discovers that having a blue collar occupation independently raises the probability of support for school choice. Unlike prior studies, we find no role for age or the availability of convenient public and private school alternatives in the support for school choice. The presence of an active voucher experiment in Cleveland does not affect support for school choice in the Cleveland area. We also do not find that people's support for school choice is designed to protect their property values.

The role of race and income continues to be debated in the literature. We find minorities—specifically blacks—favor school choice more than whites. We find no independent role for income in support for school choice among Ohioans as a whole. But we find that among users of public schools, those with lower incomes are more likely to support choice, while those with higher incomes are more likely to oppose school choice.

There are many remaining issues that could still be investigated. Our study examines the support for school choice in general, but it would be nice to see which groups of people support public school choice but not private school choice, and vice versa. Our study goes hand in hand with many of the Brunner papers in trying to figure out people's motives for supporting

and opposing choice, but a more thorough investigation of these motives is needed. The growth of school choice suggests that its proponents are politically more powerful than those who oppose school choice. Still, it would be informative to examine if supporters of choice are more politically active. It would also be interesting to find out which groups of people are undecided about school choice, and thus still open to influence by pro- and anti-choice groups' propaganda.

Appendix A: Sample Selection

Sample selection bias is a serious concern for survey data. We correct for sample selection bias using the two-stage technique of Heckman (1974) and Maddala (1986). The first stage is a regression of whether a person responded to the survey or not. Although a number of school characteristics were tested in the model, the school attendance rate is the only significant school measure affecting response rates. From the model estimates in Table A1, neighborhood income characteristics were more likely to affect response. For example, we find those living in more income-heterogeneous Census block groups (CBGs) are more likely to respond to the survey; in addition, those in racially heterogeneous areas are also more likely to respond.

We also find negative environmental factors in a neighborhood, measured by air pollution in a Census tract, and proximity to an environmental hazard, contribute significantly to willingness to respond to the survey. We posit that such areas may be more urban, thus experiencing lower school quality.

In contrast, we find that individuals in blue collar neighborhoods were less likely to respond, as were individuals in neighborhoods with high poverty rates. This may be an artifact of the survey methodology, as those in high-poverty areas may be more likely to have their phone disconnected, and those in blue-collar neighborhoods may be more likely to work long hours and thus be unreachable during the early evening hours in which the survey was conducted.

Not surprisingly, those with a more vested interest in the survey were more likely to respond, as indicated by the significant and positive sign for Babies, the variable indicating percentages of households in a CBG with children between 0-4 years old. Parents of young children may think that their participation in the survey could influence the future course of local school choice. Surprisingly, we find that the percentage of individuals in a CBG who have never married is a positive factor for survey response. We would expect a priori that single people would take little interest in school issues, although there are two possible explanations: first, this may reflect individuals living in CBGs where there are many single parents, and second, it is possible this reflects the notion that school quality can be seen as a public good that increases property value, which may be a concern of single young professionals. Participation is also associated with education levels, with CBG percentages of individuals with high school and graduate degrees having a significantly positive effect on response probability.

Finally, certain individual housing characteristics contribute to response probability. For example, individuals living in larger houses with patios are more likely to participate, while having many bathrooms tends to decrease response probability. Considering the

characteristics of housing stock in a metropolitan area, we suspect that these combined characteristics may reflect more urban, as opposed to suburban, neighborhoods.

Taken as a whole, the parameter estimates of the response probability model appear to suggest that the school choice issue may be of more interest to those in urban rather than suburban areas; cross frequencies of population density and response (not reported) support this result. This indicates that there may indeed by selectivity by respondents. Thus, we construct an inverse Mills ratio from this model to incorporate selectivity into our school choice support regressions.

Appendix B: Survey Instrument

2006 Housing and Schooling Phone Survey

"Hi, my name is _____ and I am calling on behalf of the Public Policy Research Lab. We are conducting a survey on housing and school vouchers. All responses will remain strictly confidential, and you may refuse to answer any question or end the survey at any time.

Would you be interested in taking the survey?

[If they ask, research is for Dr. David Brasington of the economics department, Ohio State PhD, for a study on school vouchers. The information will be used for research only and will not be sold to telemarketers. IRB contact information given at end of survey.]

First, I would like to start by asking your opinion on public and private schools in your area.
Would you say that your public school is __ Excellent __ Good ___ Fair ___ Not Very Good __ Poor
Would you say that your nearest private school is
Excellent __ Good ___ Fair ___ Not Very Good __ Poor

Would you say that the typical public school in your state is __ Excellent __ Good ___ Fair ___ Not Very Good __ Poor

Should the government spend money to assist families who want to send their children to private or religious schools, or should government money only be spent on children who attend public schools?
__ Spend only on public schools __ Assist private and religious __ Don't Know

Should the government spend money to assist families who want to send their children to a different public school than the one they are assigned to?
__ Yes __ No __ Don't know

Which of the following are the TWO most important reasons you chose your current house?
__ Local taxes are low
__ Neighborhood is safe
__ House is conveniently located
__ Local public school is good
__ Pollution levels are low

Did you buy your house in 2000?
_ Yes _ After 2000 _I'm a renter

Many states, including Ohio, are considering funding different types of choice programs for schools. These programs would allow parents to choose any school -- public or private -- for their children to attend from kindergarten through high school. Would you favor or oppose these types of choice programs, or haven't you thought much about it?
__ favor __ oppose __haven't thought much about it

[If support vouchers]
Do you support vouchers because you think vouchers
1. will increase the value of my house __ yes __ no
2. will provide better education for kids in my neighborhood __ yes __ no
3. will make public schools try harder to improve __ yes __ no
4. will help support religious schools __ yes __ no
5. will help support schools that specialize in certain subjects, like math or the arts __ yes __ no

[If oppose vouchers]
Do you oppose vouchers because you think vouchers
1. will decrease the value of my house __ yes __ no
2. will attract worse students to my public school district __ yes __ no
3. will take tax money away from public schools __ yes __ no
4. will help support religious schools __ yes __ no

Would you say your yard is: __ too large __ too small __ about right

Did you purchase this house with a realtor? __ Yes __ No
Did you parents own a house sometime during their lives?. __ Yes __ No
Is this the first house you have owned?. __ Yes __ No
Was the initial mortgage on this house a fixed rate mortgage? (not adjustable rate mortgage)
__ Yes __ No
Have you refinanced your mortgage at least once while living in this house? __ Yes __ No
Did you participate in a homeownership counseling program before you bought this house? __ Yes __ No

Did you vote in the last election?
__ Yes __ No __ don't know

Politically, do you tend to be
__ very conservative
__ somewhat conservative
__ moderate
__ somewhat liberal
__ very liberal

How many adults 18 or older, including yourself, usually live in your household?
__ 1 __ 2 __ 3 __ 4 or more

How many children aged 6 to 17 live in your household at least one-half of the time?
__ 0 __ 1 __ 2 __ 3 __ 4 or more

How many children aged 0 to 5 live in your household at least half the time?
__ 0 __ 1 __ 2 __ 3 __ 4 or more

Do the children aged 0 to 17 attend
__ public schools __ private schools __ both __ not applicable

In which of the following community groups are you currently active?

__ condo/homeowner's association
__ benevolent society (Elks, etc.)
__ youth club volunteering
__ volunteering in public or private schools
__ youth league coaching
__ other community groups

How many members of your household, including yourself, are working at paid full-time or part-time jobs?
__ 0 __ 1 __ 2 __ 3 __ 4 or more

Put together, how many hours do the people in your household work for pay
__ 0 __ 1-14 __ 15-34 __ 35-54 __ 55-80 __ 81-119 __ 120-159 __ 160+

In which category does your age fall in to?
__ 18-21 __ 22-29 __ 30-39 __ 40-49 __ 50-59 __ 60-69 __ 70-79 __ 80+

How many minutes does it usually take you to commute to work?
__ less than 10 __ 10-20 __ 20-30 __ 30-45 __ 45-60 __ over 60

Of the following activities, which do you do most often during your leisure time?
__ fishing
__ yachting
__ attend performing arts
__ skiing
__ bowling
__ golfing
__ fine dining
__ attend/watch NASCAR
__ crafts
__ music

What is your race?
__ white
__ African American
__ Hispanic
__ Asian or Pacific Islander
__ American Indian, Intuit, or Aleut
__ other

What is the highest schooling have you completed?
__ less than 9^{th} grade
__ 9^{th} to 12^{th} grade, no diploma
__ high school graduate or equivalent
__ some college, no degree
__ associate's degree
__ bachelor's degree
__ graduate or professional degree

We would like to know what your family income was last year before taxes.
I will read several income categories. Please stop me when I get to the
category that includes your family income. Your best guess is fine.
[If they refuse to answer remind them that this confidential and
we are only collecting this information for statistical purposes]
__ under $10,000 per year
__ $10,000 to $14,999
__ $15,000 to $19,999
__ $20,000 to $24,999
__ $30,000 to $34,999
__ $35,000 to $39,999
__ $40,000 to $44,999
__ $45,000 to $49,999
__ $50,000 to $59,999
__ $60,000 to $99,999
__ $100,000 to $149,999
__ over $150,000

Record Gender [DO NOT ASK]
__ Male __ Female

What is your marital status?
__Single, never married __ Married __Divorced __Widowed

Thank you for your time and patience. If you have any questions about the survey, you can contact Robert C. Mathews of LSU's Institutional Review Board. His phone number is 225-578-8692, and his office is 203 David Boyd Hall. Ask for IRB #E3305.

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Table 1 Variable Names, Definition, and Means		
Variable	Definition (Source)	Mean (Std. Dev.)
Choice Yes	Dummy variable indicating whether the survey respondent favors school choice (=1) or not (1)	0.44 (0.50)
Minority	Dummy variable = 1 if respondent's race is black, Asian, American Indian/Pacific Islander, other non-white race, or Hispanic any race (1)	0.15 (0.36)
Distance to Private	Distance from respondent's house to nearest private school in miles	2.80 (2.80)
Age	Age of respondent; midpoint of age categories asked in survey with 85 used for "85 and above" (1)	42.9 (12.7)
Male	Dummy variable = 1 if respondent is male (1)	0.36 (0.48)
IMR	Inverse Mills ratio, used to correct for potential sample selection bias (2)	1.64 (0.13)
Public Proficiency	Public school proficiency test score; percentage of students in school district at or above proficient in year 2000 math section of Ohio 12th grade proficiency test (3)	58.9 (15.3)
Public Excellent	Dummy variable = 1 if respondent believes his own public school district is excellent (1)	0.27 (0.45)
Public Good	Dummy variable = 1 if respondent believes his own public school district is good (1)	0.30 (0.46)
Public Fair	Dummy variable = 1 if respondent believes his own public school district is fair (1)	0.20 (0.40)
Graduate Degree	Dummy variable = 1 if respondent has a master's, Ph.D, or professional degree (1)	0.20 (0.40)
Bachelor	Dummy variable = 1 if respondent has a bachelor's degree as highest degree (1)	0.32 (0.46)
Associate	Dummy variable = 1 if respondent has an associate's degree as highest degree (1)	0.07 (0.30)
Some College	Dummy variable = 1 if respondent has attended college but did not earn a college degree as highest level of education (1)	0.22 (0.42)
High School Grad	Dummy variable = 1 if respondent's highest level of education is a high school diploma or equivalent (1)	0.15 (0.35)
Some High School	Dummy variable = 1 if respondent's highest level of education is that they completed some high school without graduating (1)	0.03 (0.18)
No High School	Dummy variable = 1 if respondent's highest level of education is less than attending high school (1)	0.003 (0.06)
Income	Respondent's family income; midpoint of income categories in tens of thousands of U.S. dollars,	7.78 (5.76)

	assuming $300,000 as highest income (1)	
Kids05	Number of children ages 0 to 5 living in respondent's house at least half of the time (1)	0.47 (0.79)
Kids617	Number of children ages 6 to 17 living in respondent's house at least half of the time (1)	0.70 (0.98)
School Disciplines	Number of disciplinary actions per 100 students at school district level for 2000-1 school year (4)	49.6 (36.2)
Opinion Own Public	Respondent's opinion of quality of his own public school district, where 1 = poor, 2 = not good, 3 = fair, 4 = good, and 5 = excellent (1)	3.39 (1.51)
Opinion Own Private	Respondent's opinion of quality of his nearest private school, where 1 = poor, 2 = not good, 3 = fair, 4 = good, and 5 = excellent (1)	3.17 (1.99)
Opinion Typical Public	Respondent's opinion of quality of the typical public school district in Ohio, where 1 = poor, 2 = not good, 3 = fair, 4 = good, and 5 = excellent (1)	2.86 (1.32)
House Price	Sale price of respondent's house in 2000 in U.S. dollars (5)	130,770 (75,948)
Private Attend Rate	Percentage of students in Census block group enrolled in grades 1-12 who attend private schools (6)	19.9 (17.7)
Blue Collar	Percentage of employed civilian population age 16+ in Census block group with blue collar jobs; blue collar defined as the following occupations: farming, protective services, food preparation, fishing and forestry, construction, extraction and maintenance, production, transportation, and material moving (6)	27.9 (13.1)
Attend Public	Dummy variable = 1 if respondent has children who attend public school (1)	0.35 (0.48)
Attend Private	Dummy variable = 1 if respondent has children who attend private school (1)	0.12 (0.32)
Attend Both	Dummy variable = 1 if respondent has children who attend both public and private school (1)	0.04 (0.19)
Black	Dummy variable = 1 if respondent is racially black (1)	0.11 (0.31)
Hispanic	Dummy variable = 1 if respondent is ethnically Hispanic of any race (1)	0.02 (0.13)
Asian	Dummy variable = 1 if respondent is racially of Asian or Pacific Islander descent (1)	0.01 (0.12)
Indian	Dummy variable = 1 if respondent is racially of American Indian, Intuit, or Aleutian descent (1)	0.003 (0.057)
Other Race	Dummy variable = 1 if respondent is non-white but of some other racial/ethnic mix other than the above categories (1)	0.01 (0.12)
White	Dummy variable = 1 if respondent is racially white (1)	0.85 (0.36)

% Minority School	Percent non-white enrollment in public school district (7)	30.6 (27.9)
Rural	Percentage of housing units in Census block group that are in rural areas (6)	1.21 (5.89)
Number of observations = 1240. Sources: (1) = survey instrument, (2) = sample selection probit from appendix, (3) = Ohio Department of Education (2002a), (4) = Ohio Department of Education (2002c), (5) = FARES (2002), (6) = GeoLytics (2002), (7) = Ohio Department of Education (2002b)		

Table 2 Probit Results Dependent Variable = Choice Yes					
Explanatory Variable	Baseline	Race 1	Race 2	School Outcomes 1	School Outcomes 2
Income	0.000084 (0.01)	-0.00012 (-0.02)	0.00016 (0.02)	0.00012 (0.02)	-0.0012 (-0.16)
Minority	0.20* (1.93)	- -	- -	0.20* (1.93)	0.22* (2.13)
Age	-0.0033 (-1.02)	-0.0031 (-0.98)	-0.0034 (-1.08)	-0.0033 (-1.03)	-0.0035 (-1.08)
Male	-0.13* (-1.72)	-0.13* (-1.69)	-0.13 (-1.64)	-0.13* (-1.72)	-0.12 (-1.59)
Public Proficiency	-0.0097** (-3.40)	-0.0093** (-3.27)	-0.0098* (-2.43)	-0.0098** (-3.07)	- -
School Disciplines	- -	- -	- -	-0.00016 (-0.13)	- -
Opinion Own Public	- -	- -	- -	- -	-0.10** (3.94)
Graduate Degree	-0.35** (-3.35)	-0.35** (-3.34)	-0.35** (-3.28)	-0.35** (-3.35)	-0.34** (-3.21)
Bachelor	-0.060 (-0.68)	-0.056 (-0.63)	-0.057 (-0.64)	-0.060 (-0.67)	-0.056 (-0.63)
Kids05	0.090* (1.79)	0.090* (1.79)	0.088* (1.76)	0.090* (1.79)	0.094* (1.86)
Kids617	0.10** (2.59)	0.098* (2.55)	0.099** (2.60)	0.10** (2.59)	0.11** (2.77)
House Price	4.61×10^{-7} (0.69)	4.37×10^{-7} (0.65)	5.07×10^{-7} (0.76)	4.51×10^{-7} (0.67)	1.90×10^{-7} (0.30)
Blue Collar	0.0082* (2.21)	0.0083* (2.23)	0.0081* (2.12)	0.0081* (2.19)	0.0096** (2.67)
Black	- -	0.23* (1.89)	- -	- -	- -
Hispanic	- -	0.29 (1.07)	- -	- -	- -
Asian	- -	0.18 (0.58)	- -	- -	- -
Indian	- -	-0.56 (-0.87)	- -	- -	- -
Other Race	- -	0.039 (0.12)	- -	- -	- -
White	- -	- -	0.0021 (0.01)	- -	- -
% Minority School	- -	- -	0.0040 (1.08)	- -	- -

White * % Minority School	- -	- -	-0.0047 (-1.24)	- -	- -
Inverse Mills Ratio	0.18 (0.61)	0.18 (0.61)	0.17 (0.58)	0.17 (0.57)	0.19 (0.63)
Constant	-0.22 (-0.38)	-0.24 (-0.42)	-0.18 (-0.26)	-0.19 (-0.30)	-0.48 (-0.85)
Pseudo R-squared	0.046	0.047	0.047	0.046	0.048
Ln pseudo-likelihood	-812.3	-811.5	-811.5	-812.3	-810.3
Number of observations = 1240. Parameter estimates shown with signed t-values in parentheses below. * = statistically significant at 0.10, ** = statistically significant at 0.01 level of significance.					

Table 3 Probit Results Dependent Variable = Choice Yes					
Explanatory Variable	School Outcomes 3	School Outcomes 4	School Outcomes 5	School Outcomes 6	Education
Income	-0.0008 (-0.12)	-0.0016 (-0.22)	0.00025 (0.04)	-0.0021 (-0.30)	-0.00082 (-0.12)
Minority	0.19* (1.89)	0.19* (1.89)	0.18* (1.77)	0.20* (1.97)	0.20* (1.98)
Age	-0.0035 (-1.08)	-0.0032 (-0.98)	-0.0040 (-1.26)	-0.0040 (-1.21)	-0.0031 (-0.96)
Male	-0.12 (-1.60)	-0.12 (-1.58)	-0.13* (-1.74)	-0.10 (-1.34)	-0.14* (-1.89)
Public Proficiency	-0.0060* (-1.93)	-0.0033 (-1.01)	-0.0093** (-3.28)	-0.0045 (-1.42)	-0.010 (-3.58)
Opinion Own Public	-0.078** (-2.79)	- -	- -	-0.10** (3.59)	- -
Opinion Typical Public	- -	- -	-0.57* (-2.02)	- -	- -
Opinion Own Private	- -	- -	- -	0.11** (5.76)	- -
Public Excellent	- -	-0.44** (3.54)	- -	- -	- -
Public Good	- -	-0.36** (3.40)	- -	- -	- -
Public Fair	- -	-0.039 (-0.35)	- -	- -	- -
Graduate Degree	-0.34** (-3.18)	-0.33** (-3.13)	-0.35** (-3.28)	-0.33** (-3.05)	- -
Bachelor	-0.058 (-0.65)	-0.057 (-0.64)	-0.055 (-0.62)	-0.081 (-0.91)	- -
Associate	- -	- -	- -	- -	0.38** (2.61)
Some College	- -	- -	- -	- -	0.16 (1.60)
High School Grad	- -	- -	- -	- -	0.075 (0.66)
Some High School	- -	- -	- -	- -	0.10 (0.49)
No High School	- -	- -	- -	- -	0.42 (0.64)
Kids05	0.092* (1.83)	0.099* (1.95)	0.089* (1.78)	0.077 (1.52)	0.088 (1.76)
Kids617	0.11** (2.87)	0.12** (2.98)	0.10** (2.63)	0.12** (2.97)	0.11** (2.89)
House Price	4.51×10^{-7} (0.68)	5.10×10^{-7} (0.77)	4.12×10^{-7} (0.62)	2.38×10^{-7} (0.36)	4.53×10^{-7} (0.68)

Blue Collar	0.0079* (2.14)	0.0079* (2.15)	0.0079* (2.15)	0.0090* (2.43)	0.0082* (2.21)
Inverse Mills Ratio	0.19 (0.63)	0.21 (0.70)	0.19 (0.63)	0.26 (0.86)	0.19 (0.64)
Constant	-0.19 (-0.33)	-0.45 (-0.77)	-0.044 (-0.08)	-0.64 (-1.07)	-0.39 (-0.68)
Pseudo R-squared	0.050	0.057	0.048	0.071	0.043
Ln pseudo-likelihood	-808.5	-802.7	-810.3	-791.2	-814.4
Number of observations = 1240. Parameter estimates shown with signed t-values in parentheses below. * = statistically significant at 0.10, ** = statistically significant at 0.01 level of significance.					

Table 4 Probit Results Dependent Variable = Choice Yes					
Explanatory Variable	Kids 1	Kids 2	Capitalization	Distance 1	Distance 2
Income	-0.0017 (-0.24)	0.0048 (0.51)	0.014 (1.29)	0.000048 (0.01)	0.000046 (0.01)
Minority	0.21* (2.10)	0.22* (2.15)	0.22 (1.34)	0.20* (1.92)	0.20* (1.94)
Age	-0.0049 (-1.63)	-0.0046 (-1.50)	0.0019 (0.47)	-0.0033 (-1.02)	-0.0031 (-0.98)
Male	-0.11 (-1.47)	-0.11 (-1.41)	-0.036 (-0.30)	-0.13* (-1.72)	-0.13* (-1.73)
Public Proficiency	-0.0083** (-2.83)	-0.0082** (-2.84)	-0.0058 (-1.28)	-0.0096** (-3.24)	-0.0095** (-3.32)
Graduate Degree	-0.36** (-3.45)	-0.38** (-3.63)	-0.40* (-2.51)	-0.35** (-3.35)	-0.36** (-3.37)
Bachelor	-0.10 (-1.17)	-0.10 (-1.15)	-0.12 (-0.81)	-0.060 (-0.68)	-0.064 (-0.72)
Kids05	- -	- -	- -	0.090* (1.79)	0.090* (1.79)
Kids617	- -	- -	- -	0.099** (2.59)	0.098** (2.57)
Attend Public	0.062 (0.74)	0.27* (1.93)	- -	- -	- -
Attend Private	0.55** (4.51)	0.50** (2.44)	- -	- -	- -
Attend Both	0.41* (2.04)	-0.055 (-0.15)	- -	- -	- -
Income*Attend Public	- -	-0.028* (-1.86)	- -	- -	- -
Income* Attend Private	- -	0.0036 (0.19)	- -	- -	- -
Income* Attend Both	- -	0.055 (1.46)	- -	- -	- -
House Price	$3.31x10^{-7}$ (0.49)	$4.08x10^{-7}$ (0.60)	$8.68x10^{-7}$ (0.79)	$4.65x10^{-7}$ (0.70)	$4.83x10^{-7}$ (0.72)
Blue Collar	0.0084* (2.26)	0.0085* (2.29)	0.0073 (1.19)	0.0082* (2.17)	0.0083* (2.43)
Distance to Private	- -	- -	- -	-0.0014 (0.10)	- -
Rural	- -	- -	- -	- -	-0.0031 (0.49)
Inverse Mills Ratio	0.16 (0.52)	0.19 (0.63)	-0.21 (-0.50)	0.18 (0.61)	0.18 (0.62)
Constant	0.037 (0.07)	-0.098 (-0.17)	-0.036 (-0.04)	-0.22 (-0.39)	-0.24 (-0.42)

Pseudo R-squared	0.054	0.058	0.023	0.046	0.046
Ln pseudo-likelihood	-805.2	-801.7	-320.4	-812.3	-812.2
Number of observations = 1240, except for "Capitalization" column, with 493 observations of homeowners without children. Parameter estimates shown with signed t-values in parentheses below. * = statistically significant at 0.10, ** = statistically significant at 0.01 level of significance.					

Table A1 Sample Selection Probit Dependent Variable is Responded			
Variable Name	Definition (Source)	Mean (Std. Dev.)	Probit Results
Responded	Dummy variable = 1 if person responded to the phone survey (1)	0.122 (0.327)	- -
Bathrooms	Number of full bathrooms (toilet plus shower) in respondent's house (2)	1.415 (0.56)	-0.074* (3.76)
House Size	Thousands of square feet of floor space of respondent's house (2)	1.573 (0.57)	0.0001** (6.91)
Patio	Dummy variable = 1 if respondent's house has a patio (2)	0.066 (0.25)	0.15* (6.13)
Attendance Rate	Student attendance rate for 1999-2000 school year for respondent's public school district (3)	92.711 (3.37)	0.018** (9.73)
Distance to Hazard	Distance from respondent's house to nearest environmental hazard in miles (4,5)	0.942 (0.65)	-0.051* (3.28)
Air Pollution	Point source releases of air pollution in 100,000s of pounds for Census tract of the respondent's house (4)	0.116 (0.92)	0.0847** (6.85)
Racial Heterogeneity	Measure of ethnic heterogeneity in respondent's Census block group, ranging from 0 (homogeneous) to 1 (highly heterogeneous) (6)	0.116 (0.11)	0.650** (8.87)
Babies	Percentage of persons in respondent's Census block group who are between 0 and 4 years of age (6)	6.894 (2.75)	0.020** (9.46)
Single	Percentage of adults in respondent's Census block group who have never married (6)	25.643 (9.63)	0.010** (21.93)
English Speaking	Percentage of persons age 5 and up who only speak English at home in respondent's Census block group (6)	93.336 (5.32)	0.0063 (2.37)
High School Education	Percentage of persons 25 years or older in respondent's Census block group whose highest educational attainment is a high school diploma, including equivalency (6)	29.934 (12.31)	0.0095** (12.94)
Graduate Degree	Percentage of persons 25 years or older in respondent's Census block group whose highest educational attainment is a graduate degree, either Master's, Doctorate, or professional school degree	10.194 (9.60)	0.0083** (6.98)

	(6)		
Blue Collar	Percentage of employed civilian population age 16+ in respondent's Census block group with blue collar jobs; blue collar defined as being in the following occupations: farming, protective services, food preparation, fishing and forestry, construction, extraction and maintenance, production, transportation, and material moving (6)	29.180 (13.32)	-0.0048* (4.04)
Income Heterogeneity	Coefficient of variation for household income in respondent's Census block group (higher means more heterogeneous) (6)	0.690 (0.15)	0.400** (9.49)
Poverty	Percentage of persons in respondent's Census block group living in a family whose total family income is below the poverty threshold appropriate for that family (6)	8.078 (8.82)	-0.0090** (9.42)
Not Crowded Housing	Percentage of owner-occupied housing units in respondent's Census block group that have 0.50 or fewer occupants per room (6)	80.098 (8.87)	0.0046* (4.06)
Number of observations = 10,498 (1) = survey instrument, (2) = FARES (2002), (3) Ohio Department of Education (2002b), (4) U.S. EPA (2002a), (5) U.S. EPA (2002b), (6) GeoLytics (2002). Parameter estimates shown with Wald chi-square values in parentheses below. ** = statistically significant at 1% level, * = statistically significant at 10% level.			

Table A2
Role of School Quality in Survey Non-Response

Good School[a]	Support Choice		
	No	Yes	Total
No	320	311	**631**
Yes	403	248	**651**
Total	**723**	**559**	**1282**

Test Statistic	DF	Statistic Value	P-Level
Chi-Square	1	16.3205	<.0001
Likelihood Ratio Chi-Square	1	16.3527	<.0001
Continuity Adj. Chi-Square	1	15.8686	<.0001
Mantel-Haenszel Chi-Square	1	16.3078	<.0001

[a] Good school = 1 if above median pass rate on *math2profabove00* (59.2%)

[1] Many of these programs are discussed in West (1997), Toma (1996), Willms and Echols (1992), and Gauri and Vawda (2003).
[2] The rate of refusal by those answering the phone was 44%, a number we found to be quite high. The survey was relatively short, so the refusals may have been related to subject matter; in particular, those without children are less interested in school issues and thus less likely to respond. We address this with a selection model.
[3] A contingency table, reported in Table A2, confirms this hypothesis (Chi-square(1) = 16.32).
[4] In comparing the basic model from Table 2 with a model that doesn't include the IMR (not reported), we see that the effect of having children in the house of school age or pre-school cage is slightly understated in the uncorrected model. The effect of school quality is also understated in the uncorrected model and the effect of blue collar workers is overstated. These differences justify use of the IMR, even though its coefficient is insignificant.
[5] The LR test statistic is 0.0013, with a marginal probability of 0.97 and a chi-square value of 6.64. The Moran's I test statistic is 0.056 with a marginal probability of 0.40.
[6] With a critical value of 18.5 at the 1% level, the calculated Breusch-Pagan test statistic is 88.3.

[7] One might also suspect multicollinearity, but the correlations among the explanatory variables are not particularly high, and parsimonious specifications could not make Income anywhere close to statistically significant.

[8] In fact, in an unreported regression we add Ndist, the number of school districts in an urban area, and Ndist*Income to the baseline regression, finding the interaction term negative and Income positive, results consistent with Brunner and Imazeki (2006).

[9] Keeping Income and deleting House Price did not make Income significant, and vice versa.

[10] Except in one regression that does not use individual survey data, and in that regression, Female has a negative sign, opposite what we find.

[11] It may also be consistent with Kenny (2005), who finds school voucher proposals more likely to succeed in states with major urban areas (cities with at least 400,000 people in 1990). Major urban areas in the U.S. tend to have a higher proportion of minority residents than smaller cities.

[12] We consider the possibility that black respondents in high minority schools may be more likely to favor school choice, but find no difference in pattern of results when we interact these two variables.

[13] Thanks to Eric Brunner for suggesting this test.