PARENTAL SCHOOL CHOICE AND ECONOMIC GROWTH IN NORTH CAROLINA

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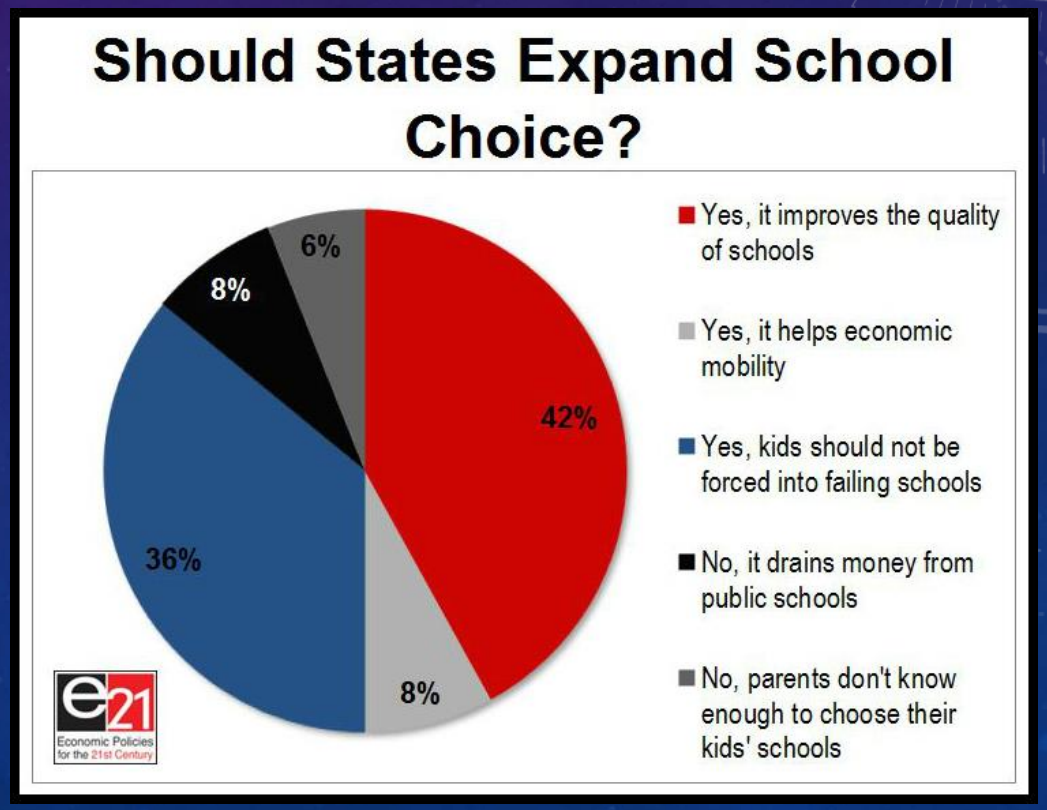
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- Common claims. What is missing?
- What about economic growth?
- Not a common question.



PRELIMINARIES

- Asking questions about relationship of parental choice and economic development is a new idea.
- Dearth of studies=Not much on which to go.
- The task undertaken was:

1. Enormous
2. Ambitious
3. Complicated

THE GOAL

- Continue the conversation concerning Choice and Economic Development
- Shed some light on this complicated question.
- Reason for lack of studies is that data are difficult to ascertain.
- Better data needed.

  Government may be able to help in this area.
- Lack of data is caveat not deal killer.

WAKE ANALYSIS

- Wake Forest Puzzle: Wake had interesting phenomenon of growth of parental school choice and economic growth—at least on the surface.
- How did other municipalities do that were similar to Wake but had different levels of choice?
- We identified 4 municipalities that were comparable to Wake in 2000—prior to massive choice growth.

Selection

- Municipalities:
  - Holly Springs
  - Apex
  - Indian Trails
  - Mooresville
- Matched on 2000 data.
- Relatively Close on:
  - Population
  - Race
  - Age
  - Income

Table 10
Wake Forest Key Matching Demographics and Control Group Averages

	2000	2012	2000 WF Difference	Change
Wake Forest Population	12590	32936		162%
Raleigh Area Control Group Average	14702	33643	2112	129%
Total Control Group Average	15034	33884	2443	125%
Wake Forest % White	79.6%	71.9%		-10%
Raleigh Area Control Group Average	81.1%	75.4%	1.5%	-7%
Total Control Group Average	83.7%	75.2%	4.1%	-10%
Wake Forest % Black	15.8%	15.1%		-4%
Raleigh Area Control Group Average	13.1%	9.4%	-2.8%	-28%
Total Control Group Average	11.4%	11.1%	-4.4%	-3%
Wake Forest Median Age	31.5	34.2		9%
Raleigh Area Control Group Average	31.0	33.7	-0.6	9%
Total Control Group Average	32.1	33.8	0.5	6%
Wake Forest Median Income	52307	71926		38%
Raleigh Area Control Group Average	70301	86532	17994	23%
Total Control Group Average	58860	71395	6553	21%
Wake Forest Per Capita Income	22767	31799		40%
Raleigh Area Control Group Average	28719	32682	5952	14%
Total Control Group Average	24690	28509	1923	15%
Wake Forest Housing Values	142100	252173		77%
Raleigh Area Control Group Average	169100	244376	27000	45%
Total Control Group Average	145975	211185	3875	45%

SCHOOL CHOICE NUMBERS

Table 12: Student Enrollment for Wake Forest and Control Municipalities

Municipality	Total Students		Traditional Public		Charter School		Private School		Choice	
	2000	2012	2000	2012	2000	2012	2000	2012	2000	2012
Wake Forest	4472	10727	92.6%	79.2%	6.9%	15.0%	0.6%	5.8%	7.4%	20.8%
Holly Springs	958	7280	95.3%	96.4%	0.0%	1.7%	4.7%	1.9%	4.7%	3.6%
Apex	9024	15925	100.0%	93.4%	0.0%	0.0%	0.0%	6.6%	0.0%	6.6%
Indian Trail	2126	6682	97.9%	97.6%	0.0%	0.0%	2.1%	2.4%	2.1%	2.4%
Mooresville	6887	14533	100.0%	88.4%	0.0%	11.0%	0.0%	0.6%	0.0%	11.6%
	Total Students		Traditional Public		Charter School		Private School		Choice	
	2000	2012	2000	2012	2000	2012	2000	2012	2000	2012
Wake Forest	4472	10727	4139	8495	308	1607	25	625	333	2232
Holly Springs	958	7280	913	7020	0	124	45	136	45	260
Apex	9024	15925	9024	14871	0	0	0	1054	0	1054
Indian Trail	2126	6682	2081	6522	0	0	45	160	45	160
Mooresville	6887	14533	6887	12847	0	1593	0	93	0	1686

- Note increases in students using choice schools. Wake Forest has the greatest increase by far.

WAKE RESULTS

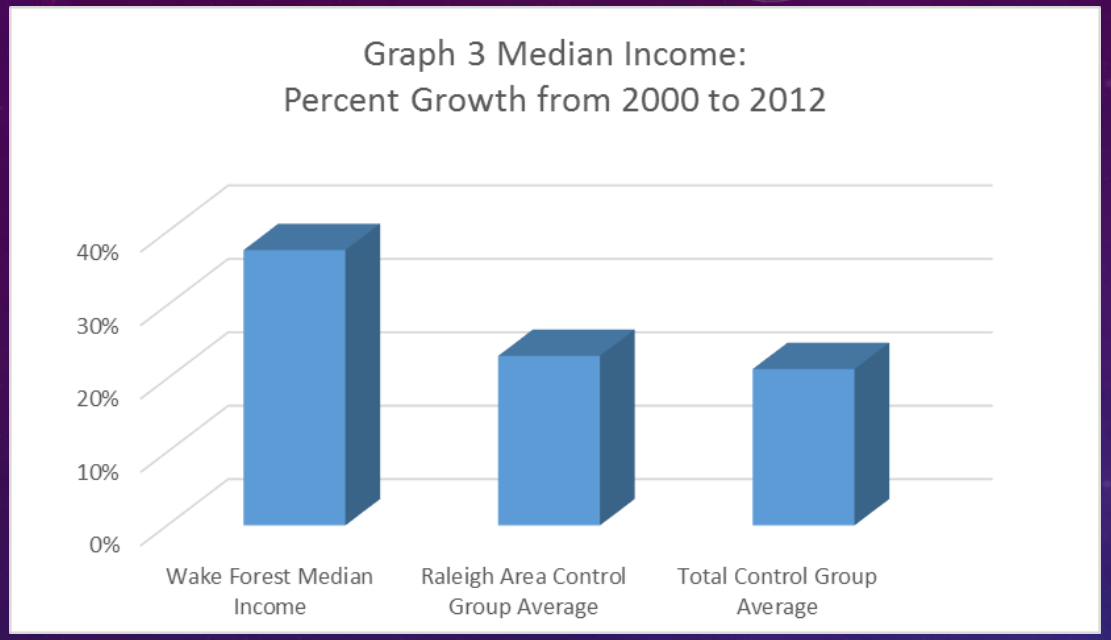
- Clear Wake Forest Effect
- Non-charter municipalities had more growth than did charter municipalities (two categories excluding Wake).
- Including Wake we see better performance for charter municipalities than for non-charter
- Any charter may not necessarily translate into economic growth.

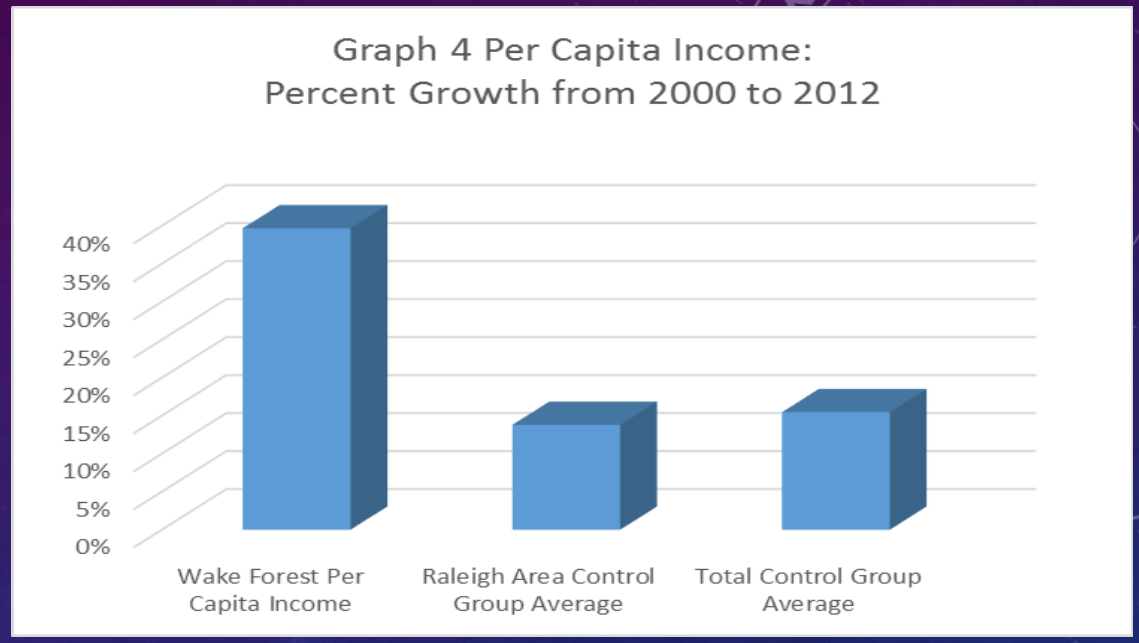
Table 13

Wake Forest Comparison to Control Districts on Economic Indicators

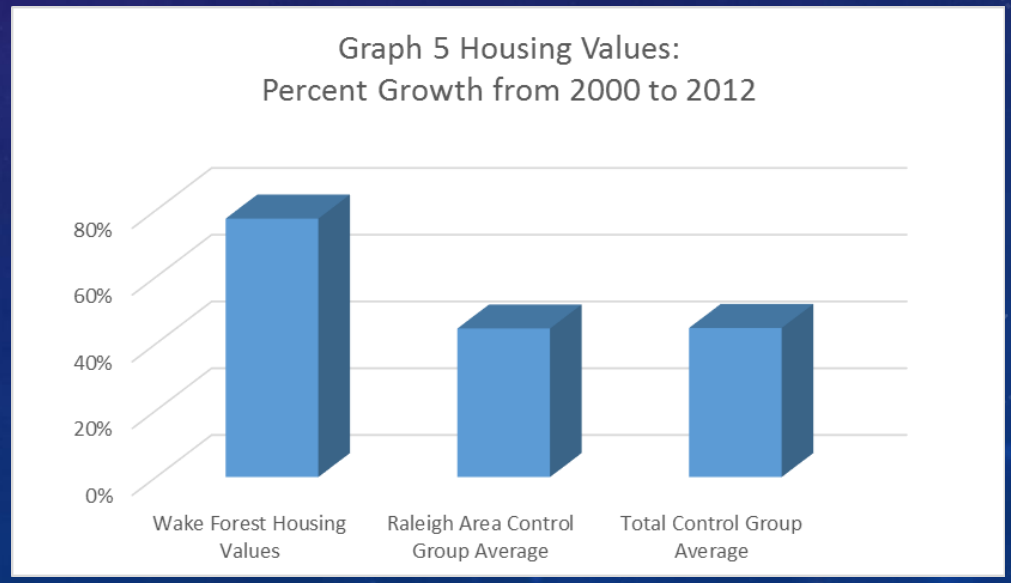
	Median Income Change	Per Capita Income Change	Housing Values Change
Wake Forest	37.5%	39.7%	77.5%
Holly Springs	24.3%	14.1%	45.3%
Mooresville	21.5%	15.3%	36.3%
Charter School Present Average	27.9%	22.4%	55.5%
Apex	21.9%	13.5%	43.8%
Indian Trial	16.3%	20.3%	55.2%
Non-Charter Present Average	16.3%	20.3%	55.2%
Charter-NonCharter Difference	9.0%	4.6%	9.8%
Wake Forest NonCharter Difference	21.2%	19.4%	22.3%
Holly Springs NonCharter Difference	8.0%	-6.2%	-9.9%
Mooresville NonCharter Difference	5.7%	-6.8%	-11.4%

Bold indicates a Suburb of Raleigh





- Median Income: Wake Forest grew 38%; comparable Raleigh suburbs grew 23%; control municipalities grew an average of 21%.
- Per capita income in Wake grew 40% -- 25% more than the other municipalities
- Housing values grew a whopping 77% in Wake Forest while housing values in the other municipalities grew on average 45%.



REGRESSION ANALYSIS

- The other analysis looked at choice across North Carolina by county.
- Statistical analysis (regression) to test for a relationship between amount of parental choice and economic growth.
- Variety of Data:
  - Number of students (percent) in choice per county.
  - Demographic variables by county (race, age, etc.)
  - Per capita income
  - GDP is NOT available by county by year at this time. (Preferred measure).

DATA AND ANALYSIS-REGRESSION

- Data collected from:

1. Bureau of Economic Analysis (BEA)
2. National Center of Education Statistics (NCES)
3. North Carolina Division of Non-Public Education

- We defined choice as attending a charter, private, or home school. Other schools were considered traditional public schools (non-choice).
- Data came from annual observations from years 2000 through 2012.
- Regressed explanatory variables on per capita income to test correlation.

RESULTS

Different measures suggest that a doubling of school choice within a county results in somewhere between **$872 and $2034** more in per capita income.

Table 3: The Impact of School Choice on Per Capita Income†

	Dependent variable: Per Capita Income			
Independent variables	(1)	(2)	(3)	(4)
Choice	0.0328 ***			
	(0.0038)			
Charter		0.0207 ***		
		(0.0039)		
Private			0.0148 ***	
			(0.0022)	
Home School				0.0184 ***
				(0.0055)
Unemployed Income	-0.0730 ***	-0.1253 ***	-0.0787 ***	-0.0805 ***
	(0.0067)	(0.0108)	(0.0079)	(0.0069)
Retirement Income	-0.3116 ***	-0.2163 ***	-0.3044 ***	-0.3003 ***
	(0.0128)	(0.0232)	(0.0151)	(0.0136)
Black	-0.0010	-0.0012	-0.0031 *	0.0028 **
	(0.0015)	(0.0029)	(0.0018)	(0.0014)
Hispanic	-0.0087 ***	0.0022	-0.0032	-0.0055 **
	(0.0025)	(0.0047)	(0.0029)	(0.0030)
Asian	-0.0013	0.0135 ***	0.0054 **	0.0034
	(0.0024)	(0.0039)	(0.0025)	(0.0024)
American Indian	-0.0125 ***	-0.0122 ***	-0.0114 ***	-0.0105 ***
	(0.0016)	(0.0021)	(0.0016)	(0.0017)
Urban	0.0503 ***	0.0485 ***	0.0542 ***	0.0674 ***
	(0.0069)	(0.0083)	(0.0067)	(0.0066)
R Squared	0.84	0.87	0.84	0.83

†Differences between annual observations are controlled for

‡For a more detailed explaination of statistical approach and interpretation of results please see Methodology and Results sections of the paper

LIMITATIONS

- Charter schools have only been present since the late 90s, limiting annual observations to approximately 13 years.
- Lack of data severely limited the ability to lag independent variables in regression analysis and truly assess the long run cumulative effects of choice on economic development at a small unit of analysis.
- Having a large number of counties with small numbers of choice students skew the data. To get a better fit for our data, several observations were dropped causing fewer observations upon which conclusions may be drawn.
- Despite these limitations, there does appear to be a positive correlation between the number of students enrolled in choice options with economic development measured by income.

CAVEATS

- Is per capita income a good measure of economic development?
- Maybe not, GDP would be best, but data are unavailable.
- Would growth in the number of businesses and/or housing values be a good measure?
- Maybe, but getting such data at the county level annually is extremely complicated and not standardized.

CAVEATS

We cannot definitively state the direction of causation:

1. Choice may lead to better educational outcomes and thus attract wealth to an area, increasing housing prices, and furthering business development.
2. However, it may be that school choice is a normal good meaning that as income grows, consumers desire a higher level of choice.

CONCLUSION-DISCUSSION

- Although the regression analysis does suggest a correlation between school choice and economic development, the Wake analysis may suggest that not just any educational option will bring the money.
- The Wake analysis does seem to depend on the quality of schools that are being started.
- It is quite possible that an extremely effective traditional school system (or a perceived one) could reap similar benefits.
- Although it is outside the scope of this study, our findings do suggest that we should continue to do research on whether school choice has systemic effects that breed high quality schools and in turn higher economic growth.