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The Relationship Between Per Pupil Expenditure in Maricopa County K-12 Public School Districts and Student Preparedness at the Post-Secondary Level

Edmond Allen Lamperez, Jr., Ed.D.
Glendale Community College
6000 W. Olive Avenue
Glendale, AZ 85302
602.350.7933
edmond_lamperez@yahoo.com

Mary Dereshiwsky, PhD.
Northern Arizona University
801 South Knoles Drive
Flagstaff, AZ 86011
928.523.1892
statcatmd@hotmail.com

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Abstract

Student under preparedness is one of the major challenges facing community colleges in the United States. A contributing factor of student under preparedness at the postsecondary level is an inequitable and inadequate distribution of resources at the K-12 level. Students residing in socio-economically disadvantaged school districts that often expend less money per pupil are disproportionally under prepared for college-level course work. This study examined the relationship between per pupil expenditure in Maricopa County (AZ) K-12 public school districts and student preparedness at the post-secondary level; specifically the Maricopa County Community College District (MCCCD). Results show that the students where the most money is being spent, are the least likely to be prepared—that appears to be because these students were socio-economically disadvantaged. There are two primary implications of this study. First, the issue of "ecological equity" must be addressed in Maricopa County. Second, the issue of equity and adequacy in per pupil expenditure must be addressed in Maricopa County (and perhaps the State of Arizona). Specific policies recommended include quality preschool education, extending school hours, providing health and social services in schools, and expending more money per pupil in school districts with concentrated poverty.

Keywords: adequacy and equity in school finance, per pupil expenditure, student preparedness, social mobility

Introduction

When students enter community college and are not prepared for college level course work, it decreases their chances of successfully meeting their goals, whether that is an associate's degree, a certificate, or transfer to a university. When

students do not meet their academic goals in college, then they are unable to reach their full potential. If students are unable to meet their full potential, then the individual sustains a personal loss, and society sustains an economic and social loss. Collegiate failures at the individual level add up to become systemic social and economic problems at the aggregate level (Putnam, 2015).

A contributing factor of student under preparedness at the postsecondary level is an inequitable and inadequate distribution of resources at the K-12 level. Schools and school districts are funded, in large part, with local property tax levies, which results in large disparities in per pupil funding. Students residing in socio-economically disadvantaged school districts that often expend less money per pupil are disproportionally under prepared for college-level course work. This study examined the relationship between per pupil expenditure in Maricopa County K-12 public school districts and student preparedness at the post-secondary level; specifically the Maricopa County Community College District (MCCCD).

Social Mobility

The terms social mobility, upward mobility, and intergenerational income mobility are sometimes used interchangeably, and explain a child's chance of moving up in their income distribution relative to her or his parents (Chetty, Hendren, Kline, Saez, & Turner, 2014). This phenomenon takes its place as the core component of the "American Dream." Social mobility is an issue that receives frequent attention from the national press. For example, Fareed Zakaira asks in his November 2011 article for Time Magazine: "What Ever Happened To Upward Mobility?" Zakaria asserts that upward mobility has been declining in the United States, and he discusses upward mobility in the context of the Great Recession and income inequality; asserting that social mobility has declined and the great recession has exacerbated that trend. Even with frequent attention in the media, scholars continue to debate whether or not social mobility has declined in recent decades. The core question surrounding this debate is whether or not the United States is a less economically mobile society than it once was. Studies have shown that social mobility is less likely across generations than popularly believed (Mazumder, 2005). Some researchers have found that social mobility has declined in recent decades. For instance, Aaronson and Mazumder (2007) use an intergenerational elasticity model to measure how economic differences between families persist over time. Their model shows that intergenerational mobility has fallen in recent decades. Other researchers have found that social mobility has remained relatively stable over the past forty years. Chetty et al., (2014) find that their rank-based measures of intergenerational mobility have not changed significantly over time (the correlation between parent and child income percentile ranks, the probability that a child reaches the top fifth of the income distribution conditional on her parents' income quintile, and for children born after 1986, the correlation between parent income ranks and children's college attendance rates). They find that the probability that a child reaches the top fifth of the income distribution given parents in the bottom fifth of the income distribution is 8.4% for children born in 1971, compared with 9.0% for those born in 1986.

Although differing opinions exist on social mobility frequency, researchers do almost universally find that income inequality has increased over the past forty years (Mazumder, 2005; Aaronson & Mazumder, 2007; Corak, 2013; Chetty et al., 2014). A powerful analogy is one of visualizing income distribution as a ladder with every step as the next income percentile, the steps have grown further apart (increased inequality), but children's chances of climbing from lower to higher has not changed as social mobility has remained stable (Chetty et al., 2014). Alan Krueger (2012) has dubbed this the "Great Gatsby Curve," in which he uses the Gini Coefficient, a measure of inequality and intergenerational elasticity of income to show that there is a positive relationship between inequality and social mobility. That is, the more inequality a country has, the less social mobility it will have. Moreover, the rise of inequality the past few decades likely is a precedent to less social mobility in the future in the United States. Educational attainment is one of the primary predictors of social mobility, and when the United States has had success in social mobility it is largely a consequence of individuals acquiring higher education credentials in excess of their parents.

Developmental Education

One of the most difficult issues facing community colleges in the United States is developmental education. Developmental education students are those who must take remedial coursework upon the onset of their college career because they are under prepared for college level coursework. Developmental education coursework occurs primarily in the subject areas of Mathematics, English, Reading, and English as a Second Language (ESL). Developmental education students are systemically different from community college students who do not remediate in gender, ethnicity, first-generation status, academic preparation, and experiences during high school and delayed college entry (Crisp, 2014).

In a 2010 issue brief for the Community College Research Center, Thomas Bailey and Sung Woo Cho find that 60 percent of incoming community college students nationwide are referred to at least one developmental course (Bailey, T. & Woo Cho, S., 2010). Since the large majority of incoming community college students are high school graduates, this is indicative of a systemic problem with student under preparedness. Less than one quarter of community college students who enroll in developmental education complete a degree or certificate within eight years of enrollment in college (Bailey, T. & Woo Cho, S., 2010). In comparison, almost 40 percent of community college students who do not enroll in any developmental education course complete a degree or certificate in the same time period (Bailey, T. & Woo Cho, S., 2010). Developmental education is costly; states spend tens of millions of dollars on remediation, and rough national estimates suggest that well over $1 billion a year are spent on these services (Bailey, T. & Woo Cho, S., 2010). Hence, developmental education is costly and not very effective.

Local Control of Education (K-12 Emphasis)

Matt Miller (2008) writing for the Center for American Progress asserted that local control of is "killing American education." First and foremost, Miller cites financial inequality as the primary problem with local control. Local control of education

means local funding of education. Property tax, as the primary contributor to school funding, results in inequity among school districts as a result of variation in property values. "As it turns out, spending gaps between states (as opposed to within states) actually account for the lion's share of financial inequity across the nation. Even after adjusting for regional cost differences and varying student needs, one study shows that the top 10 states ranked by per-pupil spending invest nearly 50 percent more per student than the lowest ranking 10, a difference of more than $2,500 per pupil" (Miller, 2008, p. 16). Inequity in school funding is a major public policy problem in the United States regarding its education system.

K-12 Financing in Arizona

The constitution of the state of Arizona Article 11, Section 2 requires a "general and uniform public school system, which system shall include: 1.Kindergarten schools, 2. Common schools, 3.High schools, 4.Normal schools, 5.Industrial schools, 6.Universities, which shall include an agricultural college, a school of mines, and such other technical schools as may be essential, until such time as it may be deemed advisable to establish separate state institutions of such character" (ARS, Article 11, Section 2). The words 'general' and 'uniform' provide no guarantee of an adequate or equitable school system. Indeed many states, as in Arizona, embrace local control to such a degree that there are wide disparities in adequacy and equity. This manifests itself in various ways, but seems accentuated with regard to funding. "The chronicle of the school funding cases in Arizona is not one of rapid steps towards this definition of the good society. It is a tale of legislative avoidance, lip service, passive resistance, outright antagonism, and inadequate funding" (First, 2007, p. 373).

An equalization formula comprises the foundation of Arizona's school finance system. This formula is referred to as the foundation system, which consists of school district budget limits and a property tax called the qualifying tax rate (QTR) (Olson, 2009). The equalization base is the sum of the funding guaranteed to a school district based on the number of students enrolled. The equalization base consists of three components. The first component is the revenue control limit (RCL) or the district support level (DSL); the RCL is the largest of the three components. The RCL accounts for a school district's expenditure amount related to maintenance and operations (mainly employee salaries and benefits). A school district applies a convoluted weighted student count to apply the RCL formula. The next largest component is the capital outlay revenue limit (CORL). It is the second per pupil funding formula, which is financed by local property taxes, and all state taxpayers through equalization assistance. However, statutes allow school districts to transfer any portion of their CORL to the district's maintenance and operations fund. The final piece of the equalization base is the soft capital allocation, which is also funded through the legislature and the district's average daily membership (ADM). This soft capital cannot be transferred and is allocated toward short-term capital expenses such as computers, lab equipment, and library resources (Olson, 2009). In Arizona, the QTR and state aid make up the equalization formula designed to equalize per pupil funding. However, there are a myriad of exceptions that allow school districts to budget beyond the equalization base. These include desegregation, excess utilities, carry forward, small school adjustment, dropout

prevention, debt service, performance incentive, and registered warrants. All of these provisions allow school districts to spend in excess of the equalization formula without voter approval. School districts can also seek voter approval to spend in excess of the equalization formula including maintenance and operations overrides, K-3 overrides, capital outlay overrides, and bonds/debt service. "The equalization base has effectively equalized spending in approximately half of Arizona's school districts. But nearly as many districts need significantly greater amounts" (Olson, 2009, p. 31). Arizona's equalization formula results in inequity in school district resource allocation.

Research Design and Procedures

This study utilized a quasi-experimental design, which allowed the researcher to study the relationship of K-12 school district per pupil funding and student under preparedness at the Maricopa County Community Colleges, where the assignment of individuals to either a control or experimental group is impossible (Nachmias & Nachmias, 1999). This study also utilized a correlational design as it explored the co-variation of variables of interest—per pupil funding at the K-12 level and student preparedness at the postsecondary level.

Population and Sample

The sample included a total of 9,534 students enrolled in fall 2013 from the following MCCCD institutions: Chandler-Gilbert Community College, Estrella Mountain Community College, Gateway Community College, Glendale Community College, Mesa Community College, Paradise Valley Community College, Phoenix College, Scottsdale Community College, and South Mountain Community College. Rio Salado College was not included since it is exclusively an online institution.

The criteria included:

1. A public K-12 district in Maricopa County whose students graduated with a high school diploma and entered MCCCD and for which per pupil expenditure data was available.
2. Available student test scores (ACCUPLACER) in MCCCD Student Information System Data Warehouse.
3. Maricopa County K-12 public school district with available per pupil expenditure data.
4. Dual Enrollment/Concurrent high school students were excluded.
5. ESL (English as a Second Language) students were excluded.
6. Students with disabilities were excluded.

The rationale for selecting Maricopa County public K-12 districts was to strategically choose a geographic location wherein the student data (placement testing) was available at the postsecondary level (MCCCD) and the K-12 per pupil expenditure district data was concurrently available. These criteria enabled the researcher to determine if a link exists between K-12 per pupil expenditure and student preparedness at the postsecondary level.

Methodology

This analysis utilized per pupil quartiles (expenditure) as the independent variable and student preparedness as the dependent variable. Students in the sample were placed into quartiles contingent upon per pupil expenditure in 2013. The first quartile is made up of students from school districts that spent the least amount of money (lowest 25%) per pupil in 2013, and so on. The fourth quartile is made of students from districts that spent the most money (highest 25%) per pupil in 2013 (see Table 1).

This study utilized binary logistic regression, which is a statistical technique used to predict an outcome variable that is dichotomous (Hosmer & Lemeshow, 2000). In this case, a student is either under prepared or prepared for college level course work contingent upon placement tests. The dependent variable was student preparedness at the postsecondary level (dichotomous). The operational definition of student preparedness was testing into developmental education at the postsecondary level. The independent variable was per pupil expenditure for specified (according to enrollments at MCCCD in fall 2013) Maricopa County public high school districts in 2013. Covariates include ethnicity, gender, and socio-economic status. The predetermined type I alpha error rate is .05.

Table 1: Per Pupil Expenditure Quartiles

Per Pupil Expenditure (Dollars)		College Ready		Total
		No	Yes	
Quartile 1 (5965-6708)	Count	1519	1222	2741
	% of Total	15.9%	12.8%	28.7%
Quartile 2 (6753-7239)	Count	1251	944	2195
	% of Total	13.1%	9.9%	23.0%
Quartile 3 (7353-7705)	Count	1233	1165	2398
	% of Total	12.9%	12.2%	25.2%
Quartile 4 (7879-9578)	Count	1552	648	2200
	% of Total	16.3%	6.8%	23.1%
	Total	5555	3979	9534
	% of Total	58.3%	41.7%	100.0%

Research Question 1 Findings

Is there a significant relationship between per pupil expenditure in Maricopa County K-12 public school districts and student preparedness at the postsecondary level, specifically at the Maricopa County Community College District?

The results of the logistic regression analysis are shown in Table 2. There were significant relationships between per pupil expenditure at the secondary level and student under preparedness at the post-secondary level for quartile three and quartile four. Results for students in quartile two were not significant. The results show that students in quartile four are .52 times less likely to be college prepared compared to students in quartile one (reference group). Additionally, students in quartile three are 1.17 times more likely to be college prepared compared to students in quartile one (reference group). Students in quartile four where the most money is being spent per pupil are *less* likely to be college prepared than students in quartile one where the least amount of money is being spent per pupil.

Table 2: Logistic Regression: Research Question 1

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.	
							Lower	Upper
PerPupilQuartile			189.41	3	<.001			
PerPupilQuartile(2)	-0.06	0.06	1.23	1	0.268	0.938	0.84	1.05
PerPupilQuartile(3)	0.16	0.06	8.22	1	0.004	1.174	1.05	1.31
PerPupilQuartile(4)	-0.66	0.06	117.39	1	<.001	0.519	0.46	0.58
Constant	-0.22	0.04	32.06	1	<.001	0.804		

Note. B = coefficients of the logistic regression; S.E. = standard error; Wald = Wald statistic; df = degrees of freedom; Sig. = significance; Exp(B) = exponentiation of the coefficient or odds ratio; CI = confidence interval. Results of binary logistic regression with the dichotomous outcome variable being student -preparedness.

Research Question 2 Findings

Is there a significant relationship between per pupil expenditure in Maricopa County K-12 public school districts and student preparedness by ethnicity at the postsecondary level, specifically at the Maricopa County Community College District?

The results of the logistic regression analysis are shown in Table 3. There were significant relationships between per pupil expenditure at the secondary level and student preparedness at the post-secondary level for quartile three and quartile four. Results for students in quartile two were not significant. The results show that students in quartile four are .64 times less likely to be college prepared compared to students in quartile one (reference group). Additionally, students in quartile three are 1.12 times more likely to be college prepared compared to students in

quartile one (reference group). Additionally, almost every ethnic group is less likely to be college prepared in comparison to Whites (reference group). Ethnicity 6 (Other) is .78 times less likely to be college prepared compared to Whites. Results for ethnicity 5 (Hawaiians) is not significant. Ethnicity 4 (Native Americans) is .35 times less likely to be college prepared compared to Whites. Ethnicity 3 (Asians) is .75 times less likely to be college prepared compared to Whites. Ethnicity 2 (African Americans) is .35 times less likely to be college prepared compared to Whites. Ethnicity 1 (Hispanics) is .51 times less likely to be college prepared compared to Whites.

Table 3: Logistic Regression: Research Question 2

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Ethnicity			258.31	6	<.001			
Ethnicity(1)	-0.67	0.05	178.48	1	<.001	0.512	0.46	0.57
Ethnicity(2)	-1.05	0.10	117.91	1	<.001	0.350	0.29	0.42
Ethnicity(3)	-0.29	0.12	5.78	1	0.016	0.746	0.59	0.95
Ethnicity(4)	-1.04	0.17	37.91	1	<.001	0.352	0.25	0.49
Ethnicity(5)	-0.13	0.30	0.19	1	0.667	0.878	0.48	1.59
Ethnicity(6)	-0.25	0.08	11.17	1	0.001	0.779	0.67	0.90
PerPupilExpend			78.62	3	<.001			
PerPupilExpend(2)	-0.05	0.06	0.59	1	0.441	0.956	0.85	1.07
PerPupilExpend(3)	0.11	0.06	3.84	1	0.050	1.119	1.00	1.25
PerPupilExpend(4)	-0.44	0.06	49.83	1	<.001	0.641	0.57	0.73
Constant	0.12	0.05	6.86	1	0.009	1.128		

Note. B = coefficients of the logistic regression; S.E. = standard error; Wald = Wald statistic; df = degrees of freedom; Sig. = significance; Exp(B) = exponentiation of the coefficient or odds ratio; CI = confidence interval. Results of binary logistic regression with the dichotomous outcome variable being student -preparedness.

Research Question 3 Findings

Is there a significant relationship between per pupil expenditure in Maricopa County K-12 public school districts and student preparedness by gender at the postsecondary level, specifically at the Maricopa County Community College District?

The results of the logistic regression analysis are shown in Table 4. There was not a significant relationship between gender and student preparedness at the post-secondary level. There were significant relationships between per pupil expenditure at the secondary level and student preparedness at the post-secondary level for quartile three and quartile four. Results for students in quartile two were not significant. The results show that students in quartile four are .52 times less likely to be college prepared compared to students in quartile one (reference group). Additionally, students in quartile three are 1.18 times more likely to be college prepared compared to students in quartile one (reference group).

Table 4: Logistic Regression: Research Question 3

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Gender	-0.03	0.04	0.62	1	0.431	0.967	0.89	1.05
PerPupilQuartile			189.88	3	<.001			
PerPupilQuartile(2)	-0.06	0.06	1.22	1	0.270	0.938	0.84	1.05
PerPupilQuartile(3)	0.16	0.06	8.25	1	0.004	1.175	1.05	1.31
PerPupilQuartile(4)	-0.66	0.06	117.73	1	<.001	0.518	0.46	0.58
Constant	-0.20	0.04	20.76	1	<.001	0.818		

Note. B = coefficients of the logistic regression; S.E. = standard error; Wald = Wald statistic; df = degrees of freedom; Sig. = significance; Exp(B) = exponentiation of the coefficient or odds ratio; CI = confidence interval. Results of binary logistic regression with the dichotomous outcome variable being student -preparedness.

Research Question 4 Findings

Is there a significant relationship between per pupil expenditure in Maricopa County K-12 public school districts and student preparedness by socio-economic status at the postsecondary level, specifically at the Maricopa County Community College District?

The results of the logistic regression analysis are shown in Table 5. There was a significant relationship between Pell status and student preparedness at the post-secondary level. Pell recipients were .65 times less likely to be college prepared than those who did not receive a Pell grant. There were significant relationships between per pupil expenditure at the secondary level and student preparedness at the post-secondary level for quartile three and quartile four. Results for students in quartile two were not significant. The results show that students in quartile four are .56 times less likely to be college prepared compared to students in quartile one

(reference group). Additionally, students in quartile three are 1.18 times more likely to be college prepared compared to students in quartile one (reference group).

Table 5: Logistic Regression: Research Question 4

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Pell	-0.42	0.04	97.64	1	<.001	0.654	0.60	0.71
PerPupilQuartile			148.68	3	<.001			
PerPupilQuartile(2)	-0.07	0.06	1.33	1	0.249	0.935	0.84	1.05
PerPupilQuartile(3)	0.16	0.06	8.22	1	0.004	1.176	1.05	1.31
PerPupilQuartile(4)	-0.58	0.06	89.01	1	<.001	0.561	0.50	0.63
Constant	-0.04	0.04	1.05	1	0.306	0.958		

Note. B = coefficients of the logistic regression; S.E .= standard error; Wald = Wald statistic; df = degrees of freedom; Sig. = significance; Exp(B) = exponentiation of the coefficient or odds ratio; CI = confidence interval. Results of binary logistic regression with the dichotomous outcome variable being student -preparedness.

Discussion

These results are curious, as students in quartile four where the most money is being spent per pupil are *less* likely to be college prepared than students in quartile one where the least amount of money is being spent per pupil. There are additional variables outside of per pupil expenditure affecting preparedness. The students that make up quartile four are overwhelmingly from Phoenix Union High School District. Phoenix Union High School District spent over $9,578 per pupil in 2013. However, Phoenix Union High District also has the highest poverty rate (36%) according to "Arizona School District Spending (Classroom Dollars) Fiscal Year 2013" from the State of Arizona Office of the Auditor General.

There is an abundance of research indicating that there is a relationship between academic achievement and socioeconomic status; students from lower SES households are more likely to struggle academically. (Sirin, 2005). "Thus, even when the current school financing system achieves its goal of financial equity between poor and wealthy school districts, it does not necessarily achieve a comparable "ecological equity"—because students in poor and wealthy school districts do not enjoy comparable living circumstances outside school" (Sirin, 2005, p. 446). The term "ecological equity" refers to the environment that students from economically disadvantaged backgrounds endure in comparison to their wealthier counterparts. The plight of students from economically disadvantaged school districts includes poverty, homelessness, violence, illegal drug trafficking, and limited social services (Sirin, 2005). Therefore, educational finance inequity must also be solved concurrently with "ecological inequity" in order to achieve positive

educational and societal outcomes. “Poor school districts have more than their equal share of challenges to deal with, and consequently they need adequate financial resources that may be more than equal to those needed by wealthier schools” (Sirin, 2005, p. 446). This indicates that Maricopa County public school districts (particularly its largest urban district—Phoenix Union High School District) have a problem with equity as well as adequacy regarding per pupil expenditure. In addition, it is important to note that although Phoenix Union High School District expended $9,578 per pupil in 2013 that is still considerably below the national average which was $11,864 in 2013 according to *Quality Counts 2014* an annual assessment of state school spending published in *Education Week* (Lloyd and Swanson, 2014).

Implications

There are two primary implications of this study. First, the issue of “ecological equity” must be addressed in Maricopa County. Second, the issue of equity and adequacy in per pupil expenditure must be addressed in Maricopa County (and perhaps the State of Arizona). Policy transformations are needed in these two areas of educational public policy. It is not possible to solve a crisis in education without addressing public policy in a larger context. Students who are socio-economically disadvantaged will not succeed in school in aggregate by focusing solely on educational policies like funding, accountability, or standardized test scores. A larger conversation must occur that focuses on mitigating the adverse impacts of poverty outside the classroom and the school. These results show that students from socio-economically disadvantaged backgrounds remain at an academic disadvantage even when more money is spent on a per pupil basis. The adverse impacts of poverty must be addressed aside from school district spending in order to raise classroom achievement and life chances.

Addressing “Ecological Equity”

Robert Putnam (2015) advocates for several public policies intended to benefit the socio-economically disadvantaged and halt the widening “opportunity gap”. Mechanisms to increase the income of the socio-economically disadvantaged include the expansion of the Earned income Tax Credit (EITC), expand the existing child tax credit by making the credit fully refundable so that it can help the poorest kids, and the protection of antipoverty programs such as food stamps, housing vouchers, and child care support (Putnam, 2015).

Additionally (and specifically regarding education), Putnam advocates quality preschool education as a mechanism to mitigate the adverse impacts of poverty on human development and scholastic success. “For example, the carefully studied, high-quality pre-K program offered in all public elementary schools in Boston has been proven highly effective, though expensive. Key ingredients of the Boston program, according to education specialists Greg Duncan and Richard Murnane include a high quality curriculum; well paid, well trained, well coached teachers; and provisions for accountability” (Putnam, 2015, p. 250). Putnam also advocates extending school hours to offer more extracurricular and enrichment activities as research shows positive results for socio-economically disadvantaged children

(Putnam, 2015). Along the same lines, Putnam argues that putting health and social services in schools that serve socio-economically disadvantaged children helps to improve learning as well as providing other community benefits (Putnam, 2015).

Addressing Adequacy and Equity

In order to optimize social mobility outcomes, the issues of "ecological equity" and adequacy and equity must be addressed concurrently. Given the results of this study, it is clear that socio-economically disadvantaged students require *both* remedy from the myriad of challenges of growing up in a high poverty area as well as significantly more resources in their schools. Moreover, it is important to stress that these issues are not mutually exclusive; they more likely have an endogenous relationship. The issue of adequacy reflects the extent to which the State of Arizona invests in public education. According to "Arizona School District Spending (Classroom Dollars) Fiscal Year 2013" from the State of Arizona Office of the Auditor General, the State of Arizona expended an average of $7,496 per pupil in 2013 (the mean per pupil expenditure for students in this study was $7,423), which is 37% less than the national average of $11,864 in 2013 according to *Quality Counts 2014* an annual assessment of state school spending published in *Education Week* (Lloyd and Swanson, 2014). Moreover, the large urban school district in this study—Phoenix Union High School District—expended $9,578 per pupil in 2013; an amount heavily subsidized with Title 1 funds, which is still 19% below the national average. Putnam asserts that much more money must be expended in schools within impoverished areas in order to improve their quality. "If we care about the opportunity gap, our aim must be not merely to equalize funding, but to more nearly equalize results, and that will require massively more compensatory funding" (Putnam, 2015, p.252).

In its most basic form, equity in school funding reflects the extent to which there is fairness in the amount schools are funded (usually quantified by per pupil expenditure)—in this case within the sample of students in this study, or alternatively within Maricopa County, or the State of Arizona. The State of Arizona utilizes an equalization formula to address equity. However, there are multiple ways that districts can obtain additional funds (such as overrides and transfers). The result, is large differences in per pupil expenditure as shown in this study—the minimum per pupil expenditure was 5,965 dollars in 2013, and the maximum per pupil expenditure was 9,578 dollars in 2013 for a range of 3,613 dollars. If we define adequacy as providing the minimum funding necessary for students to succeed and further define equity as *equality in outcomes* then education funding in Maricopa County and the State of Arizona is not adequate or equitable.

Benefits of Education Policy Transformations

The key to understanding the benefits of educational policy transformations is the realization that addressing adequacy and equity, and advancing towards "ecological equity" benefits not just the students who reside in disadvantaged areas, but also the entire region. The region will benefit from an overall increase in economic activity, more qualified workforce, more discretionary spending per capita, higher

rate of entrepreneurship, bigger tax base, decrease in persons requiring government economic subsidy, lower crime rates, among other economic and social benefits. Educational policy changes ultimately pay for themselves by reducing expenditure on other economic subsidies in the long term and enhancing economic output. Putnam cites research by Clive Belfield et al. (2012) in which Belfield estimates the annual and lifetime costs imposed on taxpayers as well as society as a whole for "opportunity youth" who are people (age 16-24) neither in school nor at work. They estimate the lifetime taxpayer burden of 1.59 trillion and the societal lifetime burden of 4.75 trillion. Most of these costs are lost earnings, lower economic growth, and lower tax revenue—less than 5 percent reflect the cost of welfare programs (Putnam, 2015). In short, it costs us a lot more to *not* implement necessary changes to educational policies that address "ecological equity" and adequacy and equity. Investment in public education and other related social investments should be viewed as a prerequisite to an economically and socially mobile citizenry where life chances are not contingent upon initial life circumstance—it is only when all of our children have democratic access to upwardly mobile outcomes that our democratic ideals are realized.

Limitations

This study operationalized student under preparedness as placement into developmental education. This study relied on the Maricopa County Community College District methodology for developmental education placement, which is the ACCUPLACER test. The population of this study consisted of Maricopa County Community College District students who attended a Maricopa County public K-12 school district, and who took placement testing at MCCCD for course placement during the fall 2013 semester. Purposive sampling was used to identify students who currently attend MCCCD and took placement tests to enter MCCCD during fall 2013. Approximately, ten percent of the students in the sample did not graduate from high school in 2013, ideally all of them would have. The sample may not be representative of all students in Maricopa County or the State of Arizona.

Recommendations for Research

The population in this study was limited to students in Maricopa County public school districts who attended one of the Maricopa County Community College District institutions in fall 2013. A future study may endeavor to expand the population sample to include students who attended other institutions of higher education. Additionally, a longitudinal element could be added to this study that tracks social mobility outcomes over time for a cohort of students, essentially comparing social mobility outcomes for students grouped by educational expenditure levels and relevant covariates.

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