

Economic Analysis of the Warren County Imagination Library

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Final Report

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Executive Summary

The Warren County Imagination Library (WCIL) is a book distribution program operated in partnership with the Ohio Governor’s Imagination Library and the Dolly Parton Imagination Library. All Warren County children under the age of five are eligible to enroll in and receive a free, age-appropriate children’s book once per month.

This report illustrates the lifetime economic impact that the Warren County Imagination Library provides to its participants and the Warren County community. The report summarizes existing literature regarding the effects of shared reading and other Imagination Library programs in the United States and estimates potential benefits accruing to WCIL participants over their lifetimes.

During the early childhood period, when children are between the ages of zero and five, shared reading between parents and children is particularly important for vocabulary exposure as it has the most linguistic complexity of any shared activity between parent and child. Parents with children enrolled in the Imagination Library report significant increases in time spent reading together.¹ Further, multiple studies have found that participation in the Imagination Library is associated with significant improvement on kindergarten reading scores.² Additional research has found that differences in participation persist until at least third grade.³

As of May 2021, the Warren County Imagination Library had 6,395 active enrollees, representing 48.7 percent of eligible children in Warren County.⁴ The Economics Center estimated the lifetime impacts conferred by the Warren County Imagination Library to the current cohort of enrolled children.

At baseline, 3,274 of the 6,395 enrollees (51.2 percent) would display the core skills and behaviors necessary for kindergarten instruction by performing as Demonstrating Readiness on the State of Ohio’s Kindergarten Readiness Assessment (KRA).⁵ However, by participating in the WCIL, the Economics Center estimates that 4,339 students will achieve Demonstrating Readiness on the KRA, an increase of 1,065 students.⁶

¹ (Bondt, Willenberg, & Bus, 2020; Funge, Sullivan, & Tarter, 2017; Gordon, 2010; Harvey, 2016; Ridzi, Sylvia, & Singh, 2014; Samiei, Bush, Sell, & Imig, 2016; Skibbe & Foster, 2019; Waldron, 2018)

² (Beckett, 2013; Ridzi, Sylvia, Qiao, & Craig, 2017; Ridzi, Sylvia, & Singh, 2014; Samiei, Bush, Sell, & Imig, 2016; Waldron, 2018)

³ (Beckett, 2012; Sell, 2015)

⁴ Source: Warren County Foundation and Emsi

⁵ (Ohio Department of Education, 2020)

⁶ (Ridzi, Sylvia, Qiao, & Craig, 2017)

Table 1: Performance on the Kindergarten Readiness Assessment

Treatment	Demonstrating Readiness	Approaching Readiness	Emerging Readiness
Baseline	3,274	2,044	1,078
Imagination Library	4,339	1,346	710
Change from Baseline	1,065	(698)	(368)

Source: Economics Center analysis using data from the Ohio Department of Education and Ridzi et al., 2017.

Kindergarten readiness is a significant predictor of third grade reading.⁷ Third grade reading, in turn, represents an important milestone for students, as students advance from learning to read and instead read to learn. At baseline, 3,741 of the 6,395 enrollees (58.5 percent) are estimated to pass the Grade 3 English Language Arts (ELA) test in the fall of third grade. With participation in the WCIL, however, the Economics Center estimates that 4,145 students will pass the assessment in the fall of third grade, an increase of 404 students.

Table 2: Performance on Grade 3 ELA Assessment

Treatment	Pass Exam	Fail Exam
Baseline	3,741	2,654
Imagination Library	4,145	2,250
Change from Baseline	404	(404)

Source: Economics Center analysis using data from the Ohio Department of Education, Ridzi et al., 2017, and Justice, Koury, & Logan, 2019.

Children who are not reading at grade level by third grade are four times more likely to drop out of high school.⁸ By increasing the number of children reading at grade level by the fall of third grade, the Economics Center estimates that due to participation in the Imagination Library, an additional 48 children from the current WCIL cohort will graduate high school, who otherwise would not have graduated. Annually, this translates to an additional 9.6 students graduating high school, increasing Warren County's graduation rate from 96.5 percent to 96.9 percent.⁹ Of the 48 additional students graduating high school, the Economics Center estimates that these individuals will ultimately attain the following levels of education:

- 14 students will receive a high school diploma,
- 11 students will receive some college or an associate's degree,
- 14 students will receive a bachelor's degree, and
- 9 students will receive a graduate or professional degree.¹⁰

⁷ (Justice, Koury, & Logan, 2019)

⁸ (Hernandez, 2011)

⁹ (Ohio Department of Education, 2020)

¹⁰ (U.S. Census Bureau, 2019)

At baseline, the Economics Center estimates, due to labor force participation and unemployment rates (by educational attainment) for Warren County, that 27 of the 48 children who would not have graduated high school without the WCIL will become employed regardless of treatment through WCIL. However, given the expected increase in educational attainment, 38 of the 48 children are expected to become employed as a result of participation in the WCIL, a 40.7 percent increase.¹¹

Further, at baseline, the Economics Center estimates that the 48 children who would not have graduated high school without the WCIL would have earned a total \$896,411 in annual income. However, given the expected increase in educational attainment and therefore increased productivity, the 48 children are estimated to earn a total \$2,310,653 in annual income, a 157.8 percent increase.¹²

As graduates of the WCIL will pay taxes on and spend their increased wages, local and state governments benefit through income and sales tax collections. Annually, the increased wages earned by the participants that will now graduate due to the WCIL are expected to support an additional:

- \$40,282 in income tax revenue for the State of Ohio,
- \$17,112 in income tax revenue for local municipalities,
- \$14,543 in sales tax revenue for Ohio, Kentucky, and Indiana state governments, and
- \$3,701 in sales tax revenue for local counties.

The increased income earned by the 48 participants who would not have graduated high school without the WCIL is estimated to generate an additional \$77,758 in income and sales tax revenue, a 191.5 percent increase. These individuals are also estimated to spend an additional \$433,520 annually on retail industry purchases within the Cincinnati Metropolitan Statistical Area, or MSA, supporting the employment of 6.8 individuals with earnings of \$275,193.¹³

Additionally, as individuals with at least some college education are less likely to enroll in Medicaid, participation in the Warren County Imagination Library is estimated to result in 2 fewer individuals enrolling in Medicaid.¹⁴ This reduction in enrollment translates to \$12,621 in annual Medicaid expenditure savings for the State of Ohio.¹⁵

Finally, increased educational attainment reduces the likelihood of involvement with the criminal justice system.¹⁶ Having 48 additional high school graduates is estimated to yield

¹¹ (U.S. Census Bureau, 2020)

¹² (U.S. Census Bureau, 2019)

¹³ The Cincinnati Metropolitan Statistical Area consists of 15 counties in the States of Ohio, Kentucky, and Indiana. In Ohio, the included counties are Brown, Butler, Clermont, Hamilton, and Warren. In Indiana, the MSA includes the counties of Ohio, Dearborn, and Franklin. In Kentucky, the included counties are Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton.

¹⁴ (Ohio Medicaid Assessment Survey, 2021)

¹⁵ (Centers for Medicare & Medicaid Services, 2019)

¹⁶ (Schweinhart, 2007)

\$519,250 in lifetime savings associated with reduced involvement with the criminal justice system.

In total, these benefits sum to \$1,938,741 in annual economic impact.¹⁷ Compared with the total \$498,810 cost assumed by the Warren County Foundation to sustain the 6,395 active enrollees for five years, every \$1.00 spent by the WCIL yields an additional \$2.89 in net annual economic benefits, or \$3.89 in total each year.

¹⁷ Lifetime criminal justice savings have been annualized over a 40-year period.