

Some Effects of Higher K-12 School Quality on the Michigan Economy

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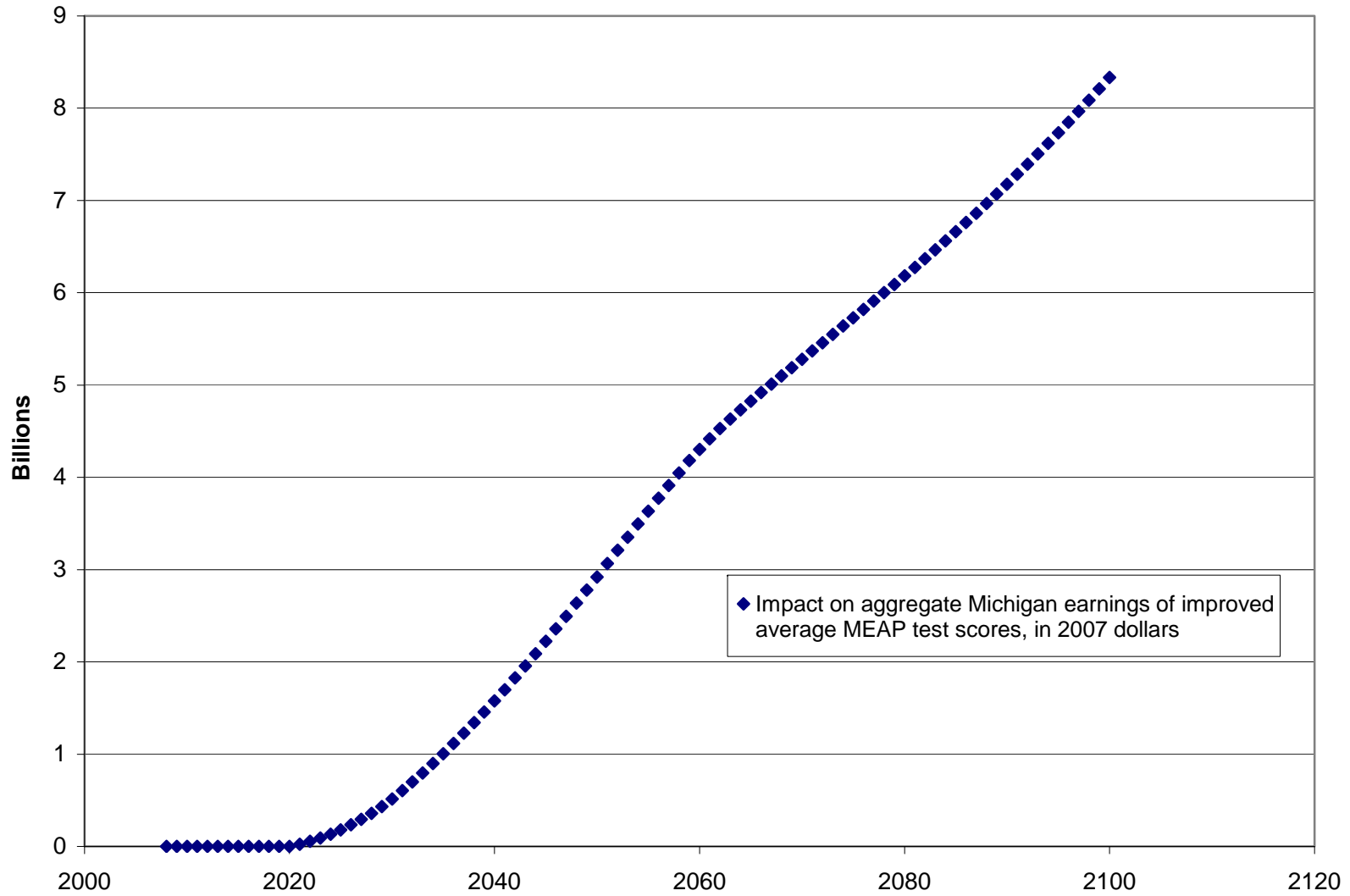
Bottom-Line Summary Results

- These estimates are based on a simulation model of how a state's economy responds to improvements in the quantity or quality of labor supply. This model has been previously used in research by Bartik, sponsored by the Pew Charitable Trusts, on the state economic development impacts of high-quality early childhood education programs. The model is fully documented in various papers posted at the Upjohn Institute's website, including "The Economic Development Effects of Early Childhood Programs", at http://www.upjohn.org/early_childhood_full_report-2-28-08.pdf. (Of course, the estimates reflect the findings of the author, and should not be interpreted as official views of Pew or the Upjohn Institute.)
- A modest increase in MEAP reading and math scores in early elementary—equivalent to about a 5% increase in the MEAP pass rate—would, via its effects on the quality of labor of Michigan students who remained in Michigan, increase long-run Michigan earnings and economic output by 1.1%. A 1.1% increase in economic output is equivalent to an increase in Michigan output in today's economy of \$3.5 billion in annual production of goods and services.
- A modest increase in high school graduation rates of 5%—from the current 75% graduation rate to 80%—would, via its effects on the quality of labor of Michigan students who remained in Michigan, increase long-run Michigan earnings and output by 1.4%. This is equivalent to an increase in Michigan's output today of \$4.6 billion in annual production of goods and services.
- A 5% increase in the MEAP pass rate would be roughly achieved if each student's test score levels in early elementary moved up about 2 months in grade level equivalents (e.g., from 3.6, or "3rd grade, 6th month", to 3.8, "3rd grade, 8th month"). For each student who increased both reading and math test scores in early elementary by 2 months, we would expect the present value of the resulting future earnings in Michigan to increase by about \$13,000.
- If one student is turned from a high school dropout to a high school graduate, this increases the present value of future earnings in Michigan by about \$282,000.
- These estimates can be scaled up or down for larger or smaller increases in average MEAP scores, or in high school graduation rates. However, they should not be added together, as part of the effects of better elementary test scores come about through increasing high school graduation rates.

Logic of the Model

- A state's economy is affected by both labor demand and labor supply. Labor demand is affected by such factors as business tax rates, the quality of the state's infrastructure, and national demand for the state's industrial specialties. Both the quantity and quality of labor supply matters. Labor supply can be affected by how desirable a state is as a place to live, birth rates, family stability, and education at all levels from preschool through college. In general, an increase in either labor demand or labor supply will boost state employment, earnings, and overall economic output.
- From previous research, there are estimates of how the employment rate, wage rate, and weekly hours of labor supply is affected by early elementary school test scores, and by whether an individual graduates from high school.
- At the state level, labor supply's effects must be adjusted downwards by two factors: (1) Out-migration; (3) How much labor demand responds to an increase in labor supply.
- Labor is not as mobile across state lines as is sometimes assumed. The evidence suggests that of children in K-12 schooling in a state, the percentage remaining in that state during their working career will remain in a range from 70% to 80%. This percentage only goes down modestly for smaller states, or for states that are slower growing.
- Availability of plentiful supplies of skilled labor is a key location factor for business. Estimates suggest that labor demand responds by about two-thirds of an increase in labor supply. That is, if the supply of some type of labor goes up by 3000 persons, demand for that type of labor will increase by 2000. There will be some displacement of other workers, but only about one-third. The number and quality of jobs is NOT fixed, but responds to labor supply availability.
- These effects on a state's economy take some time to be fully realized. Specifically, an improvement in the quality of labor due to improved schooling takes an entire generation before it pervades the entire labor market.
- More immediate economic benefits occur if future earnings increases are capitalized into higher housing values today. There is considerable evidence that such capitalization takes place within a state, when parents choose a district or school. If these local capitalization effects apply at the state level, a 5% increase in MEAP pass rates would increase Michigan residential housing values by 1.3% or \$7.7 billion.
- The MEAP test score increase considered here is an increase of 0.2 standard deviations in average test scores on both MEAP reading and math tests in early elementary grades. This is roughly equivalent to 2 months higher learning levels for all students, or a 5% increase in the MEAP pass rate.

Impact on Aggregate Michigan Earnings of Improved Average MEAP Test Scores, in 2007 Dollars



Impact on Aggregate Michigan Earnings of Lower High School Dropout Rate, in 2007 Dollars

