



Ohio Legislative Service Commission

Russ Keller

Fiscal Note & Local Impact Statement

Bill: H.B. 123 of the 128th G.A.

Date: May 6, 2009

Status: As Introduced

Sponsor: Reps. Goyal and Mandel

Local Impact Statement Procedure Required: Yes

Contents: To grant a nonrefundable credit against the personal income tax for individuals earning a college degree in science, technology, engineering, or math-based fields of study; and to authorize municipal corporations to grant a credit to individuals qualifying for the state credit

State Fiscal Highlights

STATE FUND	FY 2010	FY 2011	FUTURE YEARS
General Revenue Fund			
Revenues	Potential loss up to \$1.2 million or more	Potential loss up to \$13.5 million or more	Annual loss grows every year within the first ten full fiscal years that bill is effective such that the maximum revenue loss in the tenth fiscal year may be up to \$183.2 million or more
Expenditures	- 0 -	- 0 -	- 0 -

Note: The state fiscal year is July 1 through June 30. For example, FY 2010 is July 1, 2009 – June 30, 2010.

- The nonrefundable tax credit for individuals earning a college degree in science, technology, engineering, or math-based (STEM) fields of study on or after the effective date of the legislation may reduce personal income tax revenue by \$1.3 million in FY 2010 assuming the legislation is effective before Summer 2009 commencements. The GRF would bear 94.1% of any revenue loss.
- In the first full year in which the proposed bill is effective (FY 2011), the potential GRF revenue loss would range between \$10.1 million and \$13.5 million depending on the retention rate of college graduates. In the tenth full year of the proposal, the potential GRF revenue loss would range between \$137.4 million and \$183.2 million.
- Upon approval from the Board of Regents (BOR), those individuals earning a degree in a STEM field will be granted a credit based upon the level of their educational attainment such that an Associate's degree is awarded a \$5,000 credit, and progressively higher amounts are issued upon completion of a Bachelor's (\$20,000), Master's (\$30,000), or Doctoral degree (\$30,000).
- Although the bill defines "approved field of study," BOR maintains discretion in determining the eligible majors within these fields. However, the bill instructs BOR to give priority to certain fields explicitly identified. Depending on the precise

definition of eligible majors adopted, the actual revenue loss could be outside the estimated ranges.

- Individuals will be allowed to claim one-tenth of the credit amount in each taxable year, and a person may carry forward any unused credit amount for use within the nine taxable years after issuance.
- There may be an increase in administrative costs for BOR due to processing tax credit applications. LSC is uncertain of the likely magnitude of the increase, if any, or the fund from which the costs would be paid.

Local Fiscal Highlights

LOCAL GOVERNMENT	FY 2010	FY 2011	FUTURE YEARS
Local Government Funds (LGF, PLF)			
Revenues	Potential loss up to \$78,000 or more	Potential loss up to \$847,000 or more	Annual loss grows every year within the first ten full fiscal years that bill is effective such that the maximum revenue loss in the tenth fiscal year may be up to \$11.5 million or more
Expenditures	- 0 -	- 0 -	- 0 -

Note: For most local governments, the fiscal year is the calendar year. The school district fiscal year is July 1 through June 30.

- The nonrefundable tax credit for individuals earning a college degree in STEM-based fields of study may reduce personal income tax revenue. The Local Government Fund (LGF) and Public Library Fund (PLF) would bear 3.68% and 2.22%, respectively, of any revenue loss from the proposed tax credit.
- The bill grants municipal corporations permissive authority to issue a credit against their income tax for those individuals qualifying for the state credit.

Detailed Fiscal Analysis

H.B. 123 creates a nonrefundable credit against the personal income tax. The amount of the credit depends on the educational attainment of the individual. A person earning an Associate's degree on or after the effective date of the legislation may be eligible for a \$5,000 credit, and progressively higher amounts are issued upon completion of a Bachelor's (\$20,000), Master's (\$30,000), or Doctoral degree (\$30,000).

Taxpayers would apply to the Board of Regents (BOR) for a tax credit. Income tax credits are issued by BOR only for an approved field of study, which the bill defines as "a field of study in the natural sciences, technology, engineering, or mathematics that the Ohio board of regents determines is associated with job creation and retention in Ohio." The bill instructs BOR to give priority to those fields "related to information technology, power and propulsion, advanced materials, instruments and controls, electronics, and biotechnology and biosciences."

An individual may use one-tenth of the total credit per year for ten years, plus any unused credit from previous years. However, if a person becomes a nonresident of Ohio within the first five years after the credit is awarded, the person forfeits the entire credit and must repay any amounts utilized in previous tax years. If someone enrolls in college after receiving the STEM credit, the person may choose to defer the use of it and thereby extend their ten-year horizon for utilization. The deferrals are reserved for those graduates pursuing a more advanced degree on a full-time basis.

A person may earn an additional STEM credit certificate by earning a more advanced degree, but the credit value of the higher degree is the maximum amount of personal income tax credit a person can claim over the ten-year period.

The bill authorizes municipal corporations to grant a credit to individuals qualifying for the state credit.

Fiscal effect

BOR publishes statistics for Ohio residents that graduate from Ohio colleges and universities. In using this data, as well as information from the National Center for Education Statistics (NCES), the U.S. Census Bureau, and the Ohio Department of Taxation, I estimate the total revenue loss to be between \$10.8 million and \$14.3 million in the first full fiscal year after enactment and between \$146.0 million and \$194.7 million in the tenth full year after enactment. The estimate assumes present conditions and trends remain constant in future years, including the Ohio personal income tax rates, the patterns of educational attainment among Ohio residents, and the composition of STEM degrees as a share of total degrees. Beyond the tenth year, the revenue loss will grow at about the same pace as Ohio personal income.

The revenue loss would depend directly upon the Regents' specific determination of eligible majors within the bill's "approved field of study" definition. In constructing the estimate, I used BOR data identifying the share of total degrees conferred for majors within the Engineering category, and the Natural Sciences and Mathematics category. The bill allows a credit for a degree in technology, but the majors comprised in this field are more difficult to identify. Therefore, I excluded from this analysis all other degrees not encompassing engineering, math, and the natural sciences. The National Science Foundation includes social sciences and psychology in its definition of Science and Engineering degrees, but those categories were deemed outside the scope of this analysis given the bill's definition. If social science graduates are included in the interpretation of approved fields of study, the total revenue loss of the STEM credit will increase by 43% to 54%. Moreover, the proposed credit would apply to a larger share of total conferred Associate's (21.3%), Bachelor's (37.5%), Master's (27.9%), and Doctoral (33.9%) degrees. If, on the other hand, BOR adopts a more restrictive definition of eligible majors, that would reduce the revenue loss.

Table 1: BOR Analysis of 2007 Spring Term Graduates Employed In Ohio¹		
Degree	Number of Degrees² (Average Starting Salary)	
	Natural Sciences & Mathematics	Engineering
Associate's Degree	547 (\$32,293)	1,108 (\$40,019)
Bachelor's Degree	1,702 (\$34,492)	1,711 (\$48,278)
Master's Degree	151 (\$48,941)	210 (\$57,056)
Doctoral Degree	37 (\$43,812)	18 (\$83,641)

To determine the tax base eligible for the STEM credit, I multiplied the estimated number of degrees by a corresponding starting salary, which was specified in BOR performance reports. IRS statistics indicate that nonwage income for Ohio taxpayers is primarily derived from retirement savings and pensions as well as capital gains on investments. As such, this analysis assumes recent college graduates earn very little income beyond their wages and salaries. Therefore, the taxable personal income for all individuals is set equal to wages and salary. This surely understates the total income

¹ http://regents.ohio.gov/perfrpt/statProfiles/Graduate_Retention_Spring_Grads_2003-2007.pdf.

² The number of degrees and starting salaries published in the Board of Regents analysis do not account for every individual obtaining a college degree within a full calendar year. As such, the number of graduates in the respective fields is treated as a sample of the total population of Ohio college graduates for a given year.

and the resulting foregone tax revenue, but this fiscal effect is more or less neutralized by the assumption regarding average salary. The Regents' data identify average salaries for employed graduates, which is not a true average of all persons earning a degree. Obviously, unemployed individuals are absent from the analysis and their inclusion would lower both the average starting salary and the resulting estimate of foregone revenue.

I adjusted the tax base of college graduates to prevent double-counting of single individuals progressing through the education system. The adjustment is manifested in Table 2 where "Revenue Loss for Prior Year Graduates" is specified. I subtracted the value of the lesser degree's credit as the next highest degree is attained. In using data from the U.S. Census Bureau, this analysis estimated that 29.1% of Associate's degree graduates will earn a higher degree, 11.7% of Bachelor's degrees earned in a STEM field will attain an advanced degree making them eligible for a \$30,000 credit, and 13.2% of individuals within a STEM field will earn a Doctoral degree after their Master's completion.

The Ohio Department of Taxation publishes statistics on Ohio returns by various income classes. For each \$5,000 range of tax year (TY) 2005 federally adjusted incomes, I computed an effective tax rate. The effective tax rate represents the individual income taxes paid after accounting for other credits. Given that statutory rates were reduced from TY 2005 through TY 2009 as part of the tax reform enacted by H.B. 66 of the 126th General Assembly, the effective rate for all Ohio taxpayers will likely decrease. To account for these statutory rate reductions, I reduced the effective tax rate for each income band by 21%.

Finally, I applied the effective rate to the corresponding income to determine a tax liability for each salary of every degree level and field of study. Only the tax liability for those STEM credits awarded to the Associate's degree graduates exceeded the available credit; however, no adjustments were necessary to account for an insufficient credit amount for any other degree level. To project the revenue loss over ten full years, I assumed the starting salaries for each respective field and degree level would grow at a rate consistent with recent Ohio trends. I assumed the taxpayers between two and ten years removed from their graduation would experience personal income increases consistent with those forecasted by Global Insight for the entire state population.

Incentive effect on behavior

Data from BOR indicate that approximately 75% of Ohio resident students remain in Ohio one-half year following graduation. Some of these departing students will be offset by nonresident students that graduate from Ohio colleges and remain in the state. Although there is no data on the migration patterns of college graduates, the NCES published data suggesting net migration trends for Ohio college freshman are essentially zero. In other words, for every Ohio high school graduate that leaves the state to attend college, an out-of-state resident chooses to enroll at an Ohio university.

If one assumes that net migration patterns for freshman and recent graduates are the same, the 75% retention rate also represents the minimum percentage of Bachelor's degree graduates who will remain in Ohio. However, it is uncertain how much the retention rate will increase as a result of the bill. I assumed a 100% rate when I estimated the maximum revenue loss of this exemption.

An exemption-eligible Bachelor's degree graduate earning \$44,000 in FY 2010 will save approximately \$867 on his or her Ohio income taxes. All things being equal, the individual will remain in Ohio unless the after-tax earnings of another available job surpass that of the Ohio position. However, the cost of living in other states, as well as individual tastes and preferences will factor into the decision. Therefore, the incentive provided by the Ohio personal income tax exemption will influence college graduates to varying degrees.

**Table 2: Static revenue loss of STEM income tax credit
using an unduplicated estimate of individual income earned by
eligible population within first ten full years after college graduation**

Full Year After Enactment	[1]	[2]	[3]	[4]	[5]
Revenue Loss for New Graduates by Degree Level:					
Associate's	\$2,021,881	\$2,042,100	\$2,062,521	\$2,083,146	\$2,103,977
Bachelor's	9,244,812	9,617,933	10,007,067	10,766,970	11,207,237
Master's	2,570,733	2,715,459	2,812,973	2,913,994	3,124,683
Doctoral	504,243	515,343	532,301	544,288	556,642
Subtotal for New Grads:	<u>14,341,668</u>	<u>14,890,835</u>	<u>15,414,861</u>	<u>16,308,398</u>	<u>16,992,538</u>
Revenue Loss for Prior Year Graduates	0	14,685,551	30,773,208	47,179,772	64,579,795
Total Revenue Loss for New and Prior Year Grads:	<u>14,341,668</u>	<u>29,576,385</u>	<u>46,188,069</u>	<u>63,488,169</u>	<u>81,572,334</u>
75% of potential GRF loss	10,121,632	20,873,534	32,597,230	44,806,776	57,569,675
100% of potential GRF loss	13,495,510	27,831,379	43,462,973	59,742,367	76,759,566

Year (cont.)	[6]	[7]	[8]	[9]	[10]
Revenue Loss for New Graduates by Degree Level:					
Associate's	\$2,125,017	\$2,146,267	\$2,167,730	\$2,189,407	\$2,211,301
Bachelor's	11,910,826	12,401,775	12,914,114	13,700,486	14,511,083
Master's	3,236,860	3,353,070	3,525,112	3,690,241	3,822,733
Doctoral	576,546	589,937	616,680	631,396	646,575
Subtotal for New Grads:	<u>17,849,249</u>	<u>18,491,049</u>	<u>19,223,636</u>	<u>20,211,529</u>	<u>21,191,692</u>
Revenue Loss for Prior Year Graduates	<u>82,883,561</u>	<u>102,921,736</u>	<u>124,444,578</u>	<u>147,789,286</u>	<u>173,458,684</u>
Total Revenue Loss for New and Prior Year Grads:	<u>100,732,810</u>	<u>121,412,785</u>	<u>143,668,214</u>	<u>168,000,815</u>	<u>194,650,376</u>
75% of potential GRF loss	71,092,180	85,687,073	101,393,842	118,566,575	137,374,503
100% of potential GRF loss	94,789,574	114,249,431	135,191,789	158,088,767	183,166,003

Note: Totals may not add due to rounding.