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THE RESEARCH AND DEVELOPMENT TAX CREDIT FOR GEORGIA

The state of Georgia and approximately 29 other states offer a Research and Development (R&D) tax credit, allowing firms engaged in R&D activities in the state to reduce their state tax liability. The Georgia credit is patterned after the federal version of the research and development credit, referred to as the Research and Experimentation (R&E) credit. The credit is designed to stimulate further investment in R&D by the private sector that will in turn create high wage, high-tech jobs in the state.

Since the introduction of the federal level R&E credit, many studies have been conducted on the effectiveness of the federal credit in increasing research and development efforts. Early studies of the federal R&E tax credit found a very small effect on the level of research and development undertaken as a result of the credit. This may be because these studies were capturing only the short-run effect of the credit since many were conducted shortly after the credit's introduction in 1981. As time passed, firms were in a better position to use the credit and it was expected that utilization of the credit would increase. Studies conducted later seem to suggest just such a larger effect. In general, these later studies found that a dollar of tax credit stimulated at least one dollar of additional

spending on R&D. This implies that reducing the cost of R&D through the use of a tax credit by 10 percent will increase national R&D expenditures 10 percent in the long run.

Only a few studies have been done on the effectiveness of the credit granted at the state level. The major justification of a state level R&D tax credit is because the spillovers from R&D are believed to have local benefits.^a Therefore, the state would be in a position to build an agglomeration economy around a high tech core. It is assumed that these jobs would be high-wage jobs and would stimulate further growth in the state economy. The only nationwide study attempting to estimate the effect of state R&D tax credits is by Wilson (2005). The author assumes that R&D funds are completely mobile between states so that it is the incremental difference between the cost of conducting R&D activities in one state versus another that is the deciding factor on where to locate and not the overall cost in any one state. The research shows the responsiveness of state R&D spending to be almost zero. This implies that R&D activities are very mobile and suggests that increasing the state R&D tax credit may attract R&D activities from other states but not create new R&D

expenditures nationally. One potential weakness of this study is that the author does not control for public spending in the model. In other studies of the effectiveness of general tax incentives, public spending was found to have a strong influence on the location decisions of a firm. Omission of this variable from this study may influence these findings as well.

The effectiveness of the tax credit in stimulating additional R&D however, is only part of the story. The end goal of granting an R&D tax credit is to increase economic activity and raise the standard of living. Therefore, a second question must be posed. To what extent do increases in R&D activity result in increases in employment and investment for a state? To date, there exist no economic study linking increased expenditures on research and development at the state level to higher employment rates and standards of living. There have been many studies though, that consider the effect of taxes on economic growth. In general, these studies have shown only a very weak and sporadic relationship between tax incentives and increased economic activity. Most of these studies find that instead of tax cuts, firms value public expenditures on non-transfer items such as education, roads, and health.^b

Georgia policy makers have as of late considered modifications to the state R&D tax credit. The purpose of these would be to make the state more attractive to firms specializing in R&D activities. Several modifications to the credit are discussed below. Each is considered on the basis of its administrative feasibility and its potential success in achieving the goal of increased employment and investment to the state of Georgia.

- *Option 1.* Make the state credit permanent. As it is currently written, the state R&D tax credit would expire on 12/31/2005.
- *Option 2.* Expand the tax credit to include applied research activities in addition to basic research activities. This would be administratively difficult for the state. At this time, the state relies on the federal interpretation of the federal definition of qualified research and development activities. Qualified activities on the federal level are limited to basic research activities. Allowing a broader definition of qualified research activities to be eligible for the state credit would require state resources focused on interpretation and auditing of state applications for the credit. This could be costly as interpretation of this provision on the federal level is quite complex.^c

- *Option 3.* Allow a whole or partially refundable tax credit, or allow firms to sell unused credits. Currently, unused credits can be carried forward 10 years. Because many firms have negative tax liabilities, they cannot immediately use the credits earned by their R&D activities.^d In these cases, the credit has very little influence on the firm's level of R&D. To expand its impact, the credit could be made refundable. Many European countries do this, as does Hawaii and Iowa.^e Another approach would be to allow the unused credits to be sold. Both New Jersey and Louisiana allow firms to sell their excess credits under certain conditions.^f
- *Option 4.* Adjust the calculation of the base of R&D. The current calculation for the base amount creates a disincentive for undertaking a large amount of R&D in any one year.^g Since the base is dependant on past R&D expenditures, increasing R&D expenditures substantially in one year or even increasing R&D expenditures steadily over time creates a higher and higher base for the firm. Only expenditures in excess of the base are eligible for the credit. By increasing the base one year, the firm will cause some qualified R&D expenditures to be ineligible for the credit in future years since they no longer exceed the base of qualified expenditures.
- *Option 5.* Exempt purchases of tangible property used in the production of research and development from state and local sales tax.

Without any guidance from academic studies, it is difficult to determine the size of the effect on R&D expenditures from any of the changes discussed above. In theory, adoption of any provision that expands the scope of the R&D tax credit will result in an increase in R&D activity in the state. But, the size of the increase in activity is not expected to be large. The academic literature has found, in general, the impact of economic development incentives to be weak and fairly small.

As a first step it may be beneficial to take a state inventory of existing high-tech and R&D firms, other government sponsored R&D programs, and university sponsored research programs in order to understand the players and resources already active in the state. Discussions with these organizations may help identify the most useful type of support for this industry and a particular niche for the state of Georgia. If modifications to the tax credit are found to be warranted,

the more prudent approach would be to consider the exemption of purchases of tangible property, modifications to the base calculation, and the possibility of refundable credits. Attempting to decouple the state definition of qualified expenses from the federal definition may encourage more R&D activity in the state but at a large administrative cost to the state in terms of audits and regulations.

NOTES

^aSee Jaffe, Trajtenberg, and Henderson (1993) and Anselin, Varga, and Acs (1997) for evidence supporting localized spillovers.

^bSee Bartik (1991) for a review of the literature concerning the effect of economic development tax incentives.

^cResponse to this option comes from informal discussions with state tax officials at the Georgia Department of Revenue.

^dAccording to data on Georgia corporate returns only about 40 percent of returns have a positive tax liability.

^eIowa will double the value of the tax refund under certain conditions.

^fNew legislation passed in 2005 by the Georgia Assembly provides a tax credit to certain Georgia firms in the film industry. The legislation allows any unused credits generated by the tax provision to be sold.

^gSee Eisner, et. al. (1984) and Altshuler (1988) for a thorough discussion of how the base computation affects the value of the federal credit.

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ABOUT THE AUTHOR

Laura Wheeler is a Senior Researcher at the Fiscal Research Center with the Andrew Young School of Policy Studies. She received her Ph.D. in economics from the Maxwell School at Syracuse University. Prior to coming to FRC, Laura worked for several years with the Joint Committee on Taxation for Congress and as an independent consultant on issues of tax policy. Her research interests include state and local taxation, corporate taxation, and welfare policy.

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