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## Evaluating the Structural Effects of Property Tax Abatements on Economic Development Across Industries: Dissertation Summary

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# Evaluating the Structural Effects of Property Tax Abatements on Economic Development Across Industries

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This research mainly comprises two empirical studies. First, in an econometric analysis using statewide city-level data in Indiana, the first-difference model developed by Heckman and Hotz is applied to estimate the effect of property tax abatements (PTAs) over different sectors. The results indicate that a large majority of jobs created by the property tax abatement programs occur in the service sector, not the manufacturing sector. Despite the significant amount of attention focused on the manufacturing sector in discussions surrounding the implementation of property tax abatement programs, the analysis demonstrates that there is no significant contribution to employment in this sector.

A balance between the output effect and the substitution effect may explain the variation in the economic effect of PTAs across different sectors. Even though the output effect of the PTA programs increases demand for labor in the community, a decrease in the cost of capital induces substitution of capital for the relatively more expensive labor. Overall, the net impact of PTAs on the employment of each sector hinges on the balance between the output effect and the substitution effect.

In addition, by applying the dummy variable technique, the analysis finds that the economic effect of PTAs diminishes over time. This finding confirms with the copycat behavior hypothesis proposed by previous scholars. Furthermore, the empirical results suggest that property tax abatements should be used only in the needy areas to maintain the long-term success of this program.

Subsequently, in the Indianapolis case study, the empirical evidence suggests that regulating the use of property tax abatement programs is effective in keeping companies and jobs in the underprivileged communities. While this program has been effective in general, there are some concerns raised in the analysis. First, most applicants are current local companies, some of which repeatedly make use of the same

existing jobs as a threat in their pursuit for tax breaks. Furthermore, even though needy center cities have dominated the use of property tax abatements in the early years of its adoption, their comparative advantage obtained through this program seems to diminish over the long run.

## SUMMARY OF THE DISSERTATION

The first two research questions of this analysis are concerned with the inter-jurisdictional economic effect of property tax abatements. While scholars have estimated the effectiveness of PTAs in general, very few have considered the potential variation in their effects over different sectors. Without understanding how PTAs influence different types of business, the granting decision of the tax relief can be inefficient. Therefore, the first research question of this analysis examines how the effectiveness of property tax abatement programs varies in attracting economic activities for different sectors. By applying a first-difference model on the statewide city-level sample collected from Indiana, this analysis improves the methodology used by other researchers and measures the cross-sector economic effect of PTAs within a geographic area not inspected before.

For a couple of reasons, it is argued that property tax abatements are typically used to attract investment from the manufacturing industry. First, the products of manufacturing firms are usually transported to the national market. Thus, manufacturers do not rely heavily on local market and are more willing to move to pursue the best tax incentive offers. In addition, because property tax abatements reward capital investments, they are more lucrative for capital-intensive firms like those in the manufacturing sector.

While the manufacturing sector has attracted the most attention, this analysis demonstrates that there is no significant employment contribution to this sector through the operation of property tax abatement programs. Instead, it is found that a great majority of jobs created by the property tax abatement program come from the service industry. Likewise, this tax incentive program has also contributed significantly to the local labor demand of the retail and wholesale trade sectors.

A balance between the output effect and the substitution effect may explain the variation in the economic effect of PTAs across different sectors. On one hand, property tax abatements reduce the cost of capital, increasing the net rate of return on capital in the PTA-adopting community. A higher rate of return on capital induces capital to move into the PTA-adopting jurisdiction. As a result, the increased supply of capital

increases demand for labor and land in the community, which is the output effect.

On the other hand, property tax abatements reduce the cost of capital relative to the cost of labor because labor is an unsubsidized factor in production. The change in the relative factor prices induces the change in capital/labor ratio. A decrease in the cost of capital to firms in the PTA-adopting community induces substitution of capital for relatively more expensive labor, and the demand for labor will be reduced at each level of output. Overall, the net impact of PTAs on the employment of each sector hinges on the balance between the output effect and the substitution effect.

In the output effect, the capital/labor ratio in the production function determines how many jobs will be created for a certain amount of property tax levies forgone. In this regard, offering property tax abatements to the capital-intensive manufacturing firms may not be very cost-effective in terms of job creation due to a high capital/labor ratio. In addition, it is also doubtful how many new jobs will be created when manufacturing companies upgrade their production equipment and facilities after the establishment of a new business. In Indiana, a great number of property tax abatements are offered to existing companies for the purchase of manufacturing equipment.

As for the substitution effect, how seriously this effect will negatively impact labor demand depends on how easily companies can adjust their production function to take advantage of this tax relief. In other words, how practical is it for them to increase the capital/labor ratio in the production process when the relative price changes? In this regard, it is the manufacturing sector that can better adjust this ratio. Thus, labor in the manufacturing sector is more likely to be hurt by the substitution effect.

In summary, for the positive output effect, offering of property tax abatements to the manufacturing sector is not very cost-effective in terms of job creation due to its high capital/labor ratio. Moreover, for the negative substitution effect, labor in the manufacturing companies can be affected more seriously because it is easier for manufacturers to alter the factors ratio in their production functions. A combination of these two reasons may explain why this analysis finds significant effects of PTAs on the job growth of the service and other sectors, but not on that of the manufacturing sector.

The second research question of this analysis is concerned with the structural change in the economic effect of property tax abatements over time. In contrast, the theme of the third research question is an investigation of this effect for jurisdictions with different economic conditions. Seemingly, these two

research questions are independent to each other. In reality, they are closely related.

Prior research has found that in the years immediately following the adoption of the property tax abatement program by state legislation, cities under economic and fiscal stress are more likely to provide PTAs to alleviate their economic problems. Scholars argued convincingly that if this program works effectively in disadvantaged areas, it would boost the welfare for both the PTA-adopting municipalities and the whole region.

Unfortunately, due to copycat behavior, researchers found that more and more jurisdictions tend to adopt similar local economic development policies over time. As a result, the comparative advantage created for the poor areas through tax incentives diminishes in the long run.

Through use of the dummy variable technique, this analysis finds that there is a diminution in the effectiveness of the property tax abatement programs over time. The regression results show that when the deduction of the local property tax base grew by one percent in the 1980s, total employment increased by 820. Nonetheless, total employment grew only by 156 jobs in 1992 for the same amount of property tax base deducted.

In 1982, 26 of the 53 Indiana cities used in this analysis provided property tax abatements. In 1995, 50 of them were PTA-offering municipalities. As the number of PTA-adopting jurisdictions keeps growing and its stimulating effect continues to decrease, it is plausible that in the near future property tax abatements, instead of being a selective tax incentive, may become a universal tax reward with no real impact.

The third research question examines whether the regulation of property tax abatement programs can effectively boost the economy of center cities. To deal with the copycat behavior problem, prevent the effectiveness of tax incentives from declining, help poor areas, and increase regional welfare, scholars have proposed regulation of the use of tax incentives in only the economically distressed areas. While they have provided convincing theoretical arguments for this proposition, there is no empirical evidence to support its validity. Investigation of the third research question through an Indianapolis case study puts this policy recommendation into testing.

Though Indianapolis does not limit the provision of property tax abatements in any specific area, it has adopted other regulations to aid in the relocation of low-paying jobs to Center Township and other poor townships. Companies with an average wage rate lower than \$12.10 per hour must locate in Center Township to be eligible for property tax abatements.

In addition, with Metropolitan Development Commission as the sole designating body, it is assured that companies cannot manipulate different townships to pursue better tax incentive package. Through a logit study, this study also finds that the Commission has used its discretion to provide more generous property tax abatements to companies who are willing to locate in Center Township.

The empirical evidence suggests that the Indianapolis property tax abatement program was effective in stimulating the local economy and in keeping companies and jobs in the underprivileged communities, especially in Center Township. Billions of dollars in real and personal property have been invested, and tens of thousands of jobs have been affected by the tax abatement recipients in Indianapolis over the last seven years. A great proportion of these jobs and capital investments were located in Center Township.

While this program has been effective in general, there are some concerns raised in the analysis. By comparing the number of new and retained jobs contributed by the Indianapolis program, it is clear that most applicants were current local companies. Furthermore, existing jobs have been used and reused as a tool in the pursuit for tax breaks. City officials may want to revise this program so that it can be more successful in attracting new companies and generating new employment positions.

Though Center Township has dominated in the use of property tax abatements, especially for real property, its use of this program has started to decrease since the early 1990s. Previous research suggested that the copycat behavior of wealthier jurisdictions could explain why center cities would lose their relative dominance in the use of tax incentives over the long run. This theory, however, cannot account for the intriguing trend in Center Township because there is only one designating body for the nine townships in Indianapolis. With Metropolitan Development Commission as the sole designating body, it is not feasible for the copycat behavior to occur in this region. For the continued success of this program, it is important for future studies to examine this phenomenon.

## **POLICY RECOMMENDATIONS**

This section proposes a number of policy recommendations based on the empirical findings. First, local development officials are advised to be more specific in shaping their policy objectives. Even though job creation is the number one concern for local economic development agencies, most of the

development policies provide subsidies to capital, not labor. Scholars have warned about this disparity between means and goal. This analysis confirms that property tax abatements as subsidies to capital investment are not effective in promoting job growth in the manufacturing sector.

While subsidies to capital might indirectly contribute to the expansion of local employment, they may not be the most effective method. If job creation in the manufacturing sector is the main goal, local government may do better by subsidizing labor directly.

Second, due to the substitution effect triggered by the reduced capital price, even if companies invest in more capital as a result of the property tax abatement program, the net effect on local labor demand may not be positive. Municipalities should devote more effort to following up on the actual economic contributions of individual PTA-receiving firms. If promises made in the statements of benefits are broken, governments should take action and terminate the tax breaks.

Third, it is recommended that local governments be more selective in the provision of property tax abatements. Studies like this analysis can provide more information with regard to the economic effect of PTAs on different sectors. With this knowledge, government officials have a better chance of making more informed decisions. Furthermore, property tax abatement programs can be used together with other entrepreneurial demand-side policies. For instance, if development agencies find that their community has a comparative advantage over a specific sector, or that there are some regional or national markets worth exploiting, generous tax incentives can be provided to promote the targeted industries. Not only can more jobs be created, but the mixture of the whole local economy can be reshaped in a more favorable fashion.

Finally, findings of this analysis support regulation of the use of property tax abatements. This restriction can be applied either in state legislation or by city councils. Without any limitations, all cities can use them on all sectors, and empirical evidence suggests that this is precisely what will occur in the long run. Furthermore, due to this widespread use, the economic effect of property tax abatements tends to diminish over time if no restrictions are applied. When all jurisdictions provide property tax abatements to most of the firms, it works very much like a statewide property tax rate cut. In such a case, poor communities cannot effectively revitalize their economies through this program. Finally, the findings of this analysis reveal that the operation of this program is a waste of administrative costs that results in no significant impact.