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A Dynamic Economic Analysis of Property Tax Reform in Indiana

August 10, 1999

Submitted to: Indiana Manufacturers Association
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Indianapolis, IN 46282

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Executive Summary

Ever since the Town of St. John court case was first filed in September 1993, Indiana has faced the prospect of having to change its system of assessment of property for taxation. In March of this year, a study commissioned by the State Board of Tax Commissioners set forth a number of concrete policy options the state might take to bring its assessment procedures back in line with constitutional mandates. The underlying message of the Indiana Fair Market Value Study was that unless a number of additional measures were taken, Indiana's move to market value as the basis for assessment would dramatically shift the burden of property taxation among classes of taxpayers.

The Indiana Fair Market Value Study, however, has a serious shortcoming. It does not take into account the reactions of businesses, homeowners, investors, and farmers to changes in their effective tax rates. The study makes the implicit, and unrealistic, assumption that taxpayers do not change their behaviors in the presence of a tax rate change.

This study is an attempt to remedy this shortcoming. We offer an empirical analysis of the Fair Market Value study's reassessment scenario that seems to offer the least disruption to homeowners: Scenario #6. With the use of a dynamic model of the Indiana economy we demonstrate that the shift in tax burdens that occur as part of this scenario — both between and within classes of taxpayers — will have a significant, detrimental impact on the economy of the state.

Because the reassessment scenario calls for increasing the exposure of business personal property to taxation, and thus increasing the costs of carrying out productivity-enhancing investments in facilities located here, the net effect of the change is to reduce state output, income, and, ultimately, population. In particular, we find that the implementation of Scenario #6 would bring about:

- the ultimate loss of 18,900 jobs from the overall state economy, representing $972 million in annual payroll and $1.2 billion in disposable personal income;
- the loss in production of approximately $1.8 billion in goods and services;
- the cancellation of nearly $12.5 billion of business investment that would have otherwise taken place in the state economy;
- a decline in state population of 43,470, due to the exodus of workers in pursuit of better economic opportunities.

Since we do not yet know exactly what shape property tax reform in Indiana will take, these results cannot be considered to be predictions of the future. But their magnitude and direction clearly underscore the need for considering the impacts of whatever reform is actually proposed on the state's economic competitiveness.

A Dynamic Economic Analysis of Property Tax Reform in Indiana

I. INTRODUCTION

The Issue

If Indiana property tax reassessment shifts tax burden between different classes of taxpayers, what will the effect be on the overall performance of the Indiana economy? The answer to this question depends upon the nature of the tax shifts associated with reassessment and the model of the Indiana economy. This study uses two tools to provide an answer to the question. The recently published Indiana Fair Market Value Study (referred to as the IFMVS) provides a number of estimates of tax shifts likely to occur under reassessment. The Regional Economic Model (referred to as REMI) provides an extensive model of the Indiana economy, giving forecasts for state output, employment, investment and population growth. We will use data from the Indiana Fair Market Value Study to estimate the changes in tax rates faced by different taxpaying groups upon property value reassessment. We will then incorporate those changed tax rates into the REMI model to determine the impact of the tax reassessment on the Indiana economy.

Background

The property tax system in the State of Indiana is presently undergoing a major overhaul. The exact nature of the changes and the exact impact of those changes are the subject of a great deal of uncertainty. Given recent court rulings, the general consensus is that the Indiana property tax *assessments* are more likely to reflect market-value after new assessment procedures go into effect.[1]

In 1993 the State Legislature directed the State Tax Board of Tax Commissioners to "conduct a study to determine the impact of converting from the state's current true tax value property tax assessment system to a system based on market value assessment."[2] The final report of this study, known as the Indiana Fair Market Value Study (IFMVS) was released in March of this year. Despite the intrinsic uncertainty associated with reassessment, there is a general agreement that the current system *over-assesses* commercial and industrial real property relative to residential real property. The IFMVS is itself the most comprehensive and systematic research consistent with this assertion.

From this one can conclude that a move to anything remotely resembling a market

[1]Of course, uncertainty revolves around what is precisely meant by a "market-value" system of assessment. At a theoretical level the market value of any property is simple: what the property would fetch as a sale price in an open market. Even this simple concept is open to ambiguity. Consider a piece of machinery acquired by a manufacturing firm that is tailored for specific use in that firm. Its initial acquisition cost may be definitive: the $100,000 purchase price. However, after acquisition the peculiar nature of the equipment may make its resale value its scrap value. (Say $1,000) . So what is a reasonable assessment of this property?

[2] The Final Report of the Indiana Fair Market Value Study, p. i.

based system is likely to lower the business portion of the real property tax base and increase the residential portion of the real property tax base. Given an equi-revenue mandate a move to market evaluation would trigger a significant tax shift from business property owners to residential property owners. The magnitude of the shift is uncertain and is likely to vary significantly between taxing districts, and depends on a number of assumptions about the assessment of other forms of real property[3]. However, the IFMVS estimates in its baseline scenario that a move to market assessment will increase the average Indiana residential taxpayer's tax bill by 32.8%, and decrease the average Indiana business taxpayer's tax bill by 17.9%.[4]

Of course, a one-third increase in a typical homeowners property tax bill is political poison. The assumption of the IFMVS baseline scenario is that there is *no* reassessment of business personal property. It is obvious that if business personal property, consisting of business inventories and depreciable business equipment, is *valued upward* in a reassessment, then the much feared hike in personal homeowner tax liabilities would be ameliorated. Indeed, the IFMVS develops a scenario that does just that.[5]

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[3] Notably assessments of agricultural and utility property holdings

[4] See Final Report of the IFMVS, Chapter 5, p. 26, Table 9-1.

[5] It is important to note that the IFMVS attempts to analyze and predict the burden shifts under a number of different policy scenarios. It does not advocate any particular scenario.

The Scenario to be Considered

In Scenario #6 of the IFMVS, tax assessments of both business inventories and business depreciable assets are assumed to rise substantially. It is estimated that the increased assessment of these business assets lowers the increase in the tax burden of Indiana homeowners to 14.4%, and reduces the average tax decrease to business taxpayers to 9.9%.[6] These estimates are simply averages for all businesses. The estimate obscures any impact that occurs to different business types. A business with a large proportion of its taxable assets in inventories or business depreciable property, such as a large-scale durable goods manufacturer, will likely suffer a tax increase under such a scenario. On the other hand, a business with a high proportion of its assets in real property, and little in inventory and business depreciable assets, such as a golf course, would enjoy a tax reduction in the scenario.

Of course, the actual course of reassessment is yet to be determined. To the extent, however, that Scenario #6 of the IFMVS is consistent with the mandated directive of moving towards a market value based system, and also consistent with the rather obvious political goal of offsetting an unpopular tax shift to homeowners, its implications must be considered as a policy option. For this reason, this study will explore the implications of Scenario #6 for the Indiana economy, with special emphasis on how this would impact the manufacturing sector.

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[6] See IFMVS, Chapter 5, p.27, Table 9-6.

The Problem with the Indiana Fair Market Value Study

The IFMVS is a systematic attempt to estimate the impact of a move to a market value based system of property tax assessment under a variety of different scenarios. It focuses on how tax burdens will be shifted among different classes of property taxpayers if a market value based system is adopted. Its different scenarios are based on different assumptions about what constitutes market value assessments. Implicit in its methodology, however, is the assumption that a fixed tax burden is to be allocated among a fixed stock of taxable property. While this is a usable first approximation, it obscures a basic point: tax shifts change incentives, which in turn change behavior. If, after all is said and done, property tax reassessment increases the tax rate on business depreciable property, the amount of investment in business depreciable property would decline. Correspondingly, if the effective tax rate on business real property falls, we would expect an increase in the amount of investment in business real property.

Our study will attempt to estimate the ultimate impact of tax shifts of Scenario #6 on the overall performance of the Indiana economy.

Organization of This Report

Our analysis of the tax scenario #6 will proceed at two levels. First, section 2 will present estimates of the tax burden shifts between various taxpaying classes. In addition we will provide estimates of how the tax shifts will impact the manufacturing sector.

In section 3 of this report we will use the Regional Economic Model (REMI) to estimate the impact of Scenario #6 on the Indiana State economy. The REMI model is a proprietary general-equilibrium model of the Indiana economy. It is used to forecast the impact policy changes have on Indiana state economic variables. We will model the tax rate changes implicit in section 2 into the REMI model to construct a forecast of what changes reassessment will make to the Indiana economy. The final section will present a summary and discussion of the analysis.

II. PRESENTATION OF SHIFT CALCULATIONS IN SCENARIO #6

Derivation of Potential Tax Shifts

Table 2.1 presents 1997 Indiana property tax assessment and revenue collection by property class. All data was provided by the State Board of Tax Commissioners. [7]

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[7] For most of the property classes the assessment and levy (revenue) data were provided by the State Tax Board. However, the State Tax Board's summary data did not divide business depreciable property and business inventories by industrial and commercial classification. The Tax Board did have available, however, data on business depreciable assets and business inventory by business SIC code at a county-by-county level. We used this data to estimate the proportion of business depreciable assets and business inventories held by the industrial (manufacturing) and commercial business sectors. We classified SIC codes 20 through 39 as industrial, and all others as commercial. The data provide an estimate of how much of each class of business personal property is held by the industrial and commercial sector. 51.9% of all business inventory is held by the commercial sector, while the remaining 48.1% is held by the industrial sector. 65.6% of the business depreciable property is held by the industrial sector, while 34.4% is held by the commercial sector.

Table 2.1
1996-1997 Property Tax Assessments and Revenue Levies by Property Class and Ownership Type

Property Class	(1) 1996 Assessed Tax Value	(2) 1996 True Tax Value *(=column 1 x 3)*	(3) 1997 Levy	(4) Effective Tax Rate (pct.) *(=column 3/column 4)*
Commercial Real Property	$8,873,525,410	$26,620,576,230	$807,198,932	3.03%
Industrial Real Property	3,126,271,840	9,378,815,520	284,498,935	3.03%
Commercial Depreciable	2,323,020,655	6,969,061,964	211,066,296	3.03%
Industrial Depreciable	4,449,634,315	13,348,902,946	404,287,336	3.03%
Commercial Inventory	2,041,204,263	6,123,612,788	185,447,585	3.03%
Industrial Inventory	1,891,751,927	5,675,255,782	171,869,534	3.03%
Agricultural Inventory	141,345,650	424,036,950	8,405,098	1.98%
Utility Inventory	112,342,250	337,026,750	9,041,366	2.68%
Agricultural Depreciable	352,894,460	1,058,683,380	20,973,498	1.98%
Utility Depreciable- Local	156,726,850	470,180,550	12,626,742	2.69%
Utility Depreciable - State	2,418,489,940	7,255,469,820	194,787,526	2.68%
Other Personal Property	144,616,480	433,849,440	11,665,737	2.69%
Agricultural Real Property	5,225,219,840	15,675,659,520	309,894,089	1.98%
Residential Real Property	20,320,168,620	60,960,505,860	1,635,921,601	2.68%
Utilities Real Property	370,276,010	1,110,828,030	29,829,022	2.68%
All Classes	51,947,488,510	155,842,465,530	4,297,513,297	2.76%

Source: State Board of Tax Commissioners and Author's Calculations

The first data column in Table 2.1 reports the assessed valuation of Indiana property by class. This is one-third the true tax value reported in column 2. Column 3 reports the taxes actually collected by tax class in 1997. Column 4 divides column 3 by column 2 to generate an effective tax rate for the property class.

It should be noted that there are significant variations in the tax rates assessed across different property classes. For example, agricultural real property is taxed at an effective rate of 1.98%, while business real property is taxed at an effective rate of 3.03%. We attribute these differences to jurisdictional variations in local public spending patterns. Rural districts, which contain a lot of agricultural properties are likely lower spenders. Higher spending urban districts have a greater concentration of business real properties. We expect differences in relative local tax rates to persist after revaluation.

The data in Table 2.2 reflects an equi-revenue estimate of the tax shifts that would occur under Scenario #6. The first data column in Table 2.2 indicates the estimated "multiplier" for each property class. The multiplier indicates how much higher a property class' assessment will be under a market value assessment as outlined in Scenario #6 in the <u>IFMVS.</u> As they have been derived by Professor Lawrence DeBoer of Purdue University, we refer to them as the DeBoer Multipliers.

The multipliers used assume that all classes of property (except individual personal property) are underassessed. To bring property up to market value would require: a 15% increase in the assessment of business real property, a 45% increase in the assessment for agricultural real property, a 65% increase in the assessment of residential real property, a 50% increase in inventory assessments, and a 102% increase in the value of business depreciable property.

The multiplier assumptions for the classes of real property are derived from the <u>IFMVS</u>. The increase in the assessment of business inventories is assumed to result from the elimination of the 35% tax credit. The increase in business depreciable assets assessment is based on a number of assessment adjustments estimated to increase the tax assessment of business depreciable property by a factor of 2.02.[8,9]

The second data column in Table 2.2 indicates the adjusted value of different property classes after the reassessment. The third column indicates the revenue contribution that would be made by each property class *if* the original tax rates from Table 2.1 were applied. Of course, to the extent that all classes of property have been "assessed up" tax contributions would rise. We call these the unscaled revenues. These revenues are then "scaled back" in the fourth column to generate the estimated revenue neutral tax levy by class.[10] The final data column in Table 2.2 indicated the new effective tax rate on each property class, using the original true tax value from Table 2.1 as the basis for the rate.[11]

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[8] The assumed adjustments to business depreciable assets' assessments are as follows: an elimination of the 30% minimum valuation, (a move that actually reduces such an asset's assessment), using Ohio depreciation rates (which depreciate business assets over a longer time frame), disallowing accelerated cost recovery pool classifications (which tend to depreciate assets over longer time frames), and adjustment of replacement costs for inflation. All these policies taken together are estimated to increase the assessment of business depreciable assets by a factor of 2.02. See IFMVS, Chapter 4, p.6, p. 15.

[9] For scenario #6 in the IFMVS and for the baseline scenario in this report: Real residential, real business and real agricultural multipliers are 1.65, 1.15, 1.45 respectively, (see IFMVS, Ch 5, p. 5) The multipliers for business depreciable assets and business inventories are 2.02 and 1.5 (see IFMVS, Ch 4., p.15) The multiplier for utilities personal property are 2.02 (see IFMVS, Ch 4, p.7, p.15) The IFMVS does not make clear what assumptions are made about the multipliers used for three relatively minor property classes. We use the 1.5 inventory multiplier for agricultural and utilities inventories, a multiplier of 1.15 for utilities real property, and a multiplier of 1.0 for other personal property.

[10] This is accomplished by multiplying each column in the unscaled tax revenue column by the ratio of the 1997 total levy to the unscaled projected levy.

[11] Note this rate is assuming the value of each tax class the original true tax value as reported in Table 1. We could just as derive pre and post reassessment rates from the post-assessment valuations.

Table 2.2
Estimated Property Tax Assessments and Revenue-Neutral Levies by Property Class and Ownership Type under IFMVS Scenario #6
(dollars)

Property Class	(1) Deboer Multiplier	(2) Adjusted TTV (Column 1 x TTV)	(3) Unscaled Tax Revenues (Column 2 x Original Effective Tax Rate)	(4) Revenue Neutral Levy (Column 3 x original total levy/ unscaled total levy)	(5) Scenario #6 Effective Tax Rate (pct.) (Column 4/ unadjusted TTV)
Commercial Real Property	1.15	30,613,662,665	928,278,772	593,950,060	2.23%
Industrial Real Property	1.15	10,785,637,848	327,173,775	209,338,929	2.23%
Commercial Depreciable	2.02	14,077,505,168	426,353,917	272,798,369	3.91%
Industrial Depreciable	2.02	26,964,783,951	816,660,419	522,532,153	3.91%
Commercial Inventory	1.5	9,185,419,182	278,171,377	177,985,225	2.91%
Industrial Inventory	1.5	8,512,883,673	257,804,301	164,953,552	2.91%
Agricultural Inventory	1.5	636,055,425	12,607,647	8,066,879	1.90%
Utility Inventory	1.5	505,540,125	13,562,049	8,677,544	2.57%
Agricultural Depreciable	2.02	2,138,540,428	42,366,466	27,107,767	2.56%
Utility Depreciable- Local	2.02	949,764,711	25,506,019	16,319,776	3.47%
Utility Depreciable- State	2.02	14,656,049,036	393,470,803	251,758,431	3.47%
Other Personal Property	1	433,849,440	11,665,737	7,464,207	1.72%
Agricultural Real Property	1.45	22,729,706,304	449,346,429	287,509,902	1.83%
Residential Real Property	1.65	100,584,834,669	2,699,270,642	1,727,101,825	2.83%
Utilities Real Property	1.15	1,277,452,235	34,303,375	21,948,678	1.98%
All Classes	1.57	244,051,684,858	6,716,541,729	4,297,513,297	2.76%

Source: IFMVS and Authors' Calculations

Analysis and Discussion

The impact of Scenario #6 on the property classes' overall tax liability compared to the status quo are given in Table 2.3. Table 2.4 combines the dollar tax shifts by property classification into the tax shifts that would occur to different types of property owners, specifically: business industrial, business commercial, utilities, agricultural and residential.

The first and most obvious point of interest is that owners of business depreciable property suffers a significant increase in their tax burden. Under Scenario #6 the increase in tax burden to business and utility owners of business depreciable assets is $240 million. The effective rate on business depreciable property rises from 3.03% to 3.91%, and from 2.69% to 3.47% for utilities depreciable property.

However, a second result mitigates this apparent disaster for the business community: under either scenario the tax liability to owners of real business property declines. In Scenario #6, the effective tax rate on this class of property declines from 3.03% to 2.23% for business real property and from 2.69% to 1.98% for utilities real properties. This generates a net tax reduction of $296 million for business and utility taxpayers.

In Scenario #6 owners of business and utility inventories obtain a small degree of tax relief estimated to be worth just under $14 million. The inventory tax rate falls from 3.03% to 2.91%. Under the IFMVS Scenario #6, residential real property owners suffer a tax increase of $91 million, raising their effective tax rate from 2.68% to 2.83%.

If we divide the business community into the industrial and commercial sectors, we note a major difference between the two groups. Under Scenario #6 business as a group enjoys a tax cut of $123 million. However, this tax benefit is exclusively reaped by the commercial sector which obtains a tax cut of just under $159 million. The industrial sector actually suffers a tax increase of $36 million. The utility sector suffers a tax increase of $52 million. Finally, the residential sector suffers a $87 million tax increase.

Table 2.3
Estimated Changes in Levies by Property Class and Ownership Type under IFMVS Scenario #6
(dollars)

Property Class	Change in Levy	Percent Change
Commercial Real Property	-$213,248,872	-26.4
Industrial Real Property	-75,160,006	-26.5
Commercial Depreciable	61,732,073	+29.1
Industrial Depreciable	118,244,817	+29.1
Commercial Inventory	-7,462,360	-3.9
Industrial Inventory	-6,915,983	-3.9
Agricultural Inventory	-338,219	-4.1
Utility Inventory	-363,822	-4.2
Agricultural Depreciable	6,134,269	+29.2
Utility Depreciable - Local	3,693,034	+29.2
Utility Depreciable - State	56,970,905	+29.2
Other Personal Property	-4,201,530	-36.0
Agricultural Real Property	-22,384,187	-7.4
Residential Real Property	91,180,224	+5.4
Utilities Real Property	-7,880,344	-26.2

Table 2.4
Estimated Levies by Ownership Type under Scenario #6
by Ownership Type
(dollars)

Ownership Type	Levy Before Reassessment	Levy Under Scenario #6	Difference
Business			
Commercial	$1,203,712,813	$1,044,733,654	-$158,979,159
Industrial	860,655,805	896,824,634	36,168,829
Agriculture	339,272,685	322,684,548	-16,588,137
Utilities	246,284,656	298,704,429	52,419,773
Residential	1,647,587,338	1,734,566,032	86,978,694

III. ECONOMIC IMPACT OF TAX SHIFTS

Overview

We now turn to a detailed analysis of the effects of shifts in the property tax burden - both between and within different classes of taxpayers - on the overall economy. In this section we relax the assumption which was held throughout the IFMVS, namely, that businesses and individuals make no changes to their behavior when effective tax rates change. In a dynamic economy, such an assumption is clearly in error. When after-tax rates of return change for investments like housing, capital equipment, and land, it is reasonable to suppose that the decisions by businesses, homeowners and farmers are impacted. A full accounting of any tax law change must consider the collective impact of all of those individual decisions on the economy as a whole.

We perform such an accounting in this section of the report. Using a dynamic simulation model of the Indiana economy, we estimate the effects of the Indiana Fair Market Value Study's Scenario #6 on state employment, income, and population growth. The results demonstrate clearly that shifting burden of taxation towards businesses, particularly those which are heavy users of equipment and other physical capital, ultimately causes those businesses to cut back on investment, exacting a significant cost on economic growth. If all of the assessment reforms set forth in Scenario #6 were faithfully carried out, we find that the net effect could be a loss of as many as 18,900 jobs and more than $1.8 billion in goods and services produced.

The remainder of this section proceeds as follows. First, we introduce and briefly describe the statistical model that is the main tool for producing our estimates. This is followed by a description of the procedures used to translate the tax burden shifts presented in the preceding section into changes appropriate for use with the model. Next, we present the results of our analysis of the tax burden shift scenario in detail, followed by a summary and conclusions.

The REMI Model

The results in this section were produced with the aid of a dynamic input-output model of the Indiana economy purchased from Regional Economic Models, Inc.. The REMI model is a complex mathematical representation of the interactions between businesses, governments, and individuals in the economy. In the words of its proprietors REMI is "a forecasting and policy analysis model used to forecast the economic effects of a wide range of policy initiatives in order to provide information as an input for policy decision making in the public and private sectors."[12] The REMI model is used by numerous academics, governments and private consultants for policy analysis. The REMI web-site references over 200 policy and academic studies that have used the model over the last two decades. REMI studies have appeared in peer-reviewed economic journals including the *American Economic Review, Review of Economics and Statistics, Journal of Regional Science, & Journal of Urban Economics.*

A full description of the workings of the model is beyond the scope of this study. Its basic structure, however, can be shown in a block diagram, as we have done in Figure 3.1. The model essentially consists of three basic components: (i) an input-output model, which models the transactions between fourteen basic sectors of the overall economy, (ii) a population migration model, which details the demographic structure of the population, and (iii) a dynamic econometric model, which predicts the performance of the overall economy.

The underlying premise of the model is that regions compete with one another. In particular, when conditions change such that the region being modeled becomes, say, more competitive with the rest of the economy, people and capital flow into the region,

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[12] See REMI web site (www. Remi.com)

causing the economy to grow faster. The faster growth continues until pressure from things like higher wages and higher costs of living erode the competitive advantages that gave rise to the growth in the first place. Migration of capital and labor, induced by changes in relative prices between regions, are the engines of economic growth and change in the REMI model.

Using the REMI Model for Tax Shift Scenarios

The process of adapting the REMI model to analyze the property tax shift scenario considered in this study is straightforward. Changes in property taxes borne by businesses, including farmers and utilities, are incorporated in the model as factors that ultimately affect the return on investment. The REMI model already has baseline assumptions about *business* property taxes embedded in its baseline forecast. Changing those assumptions and developing an alternative forecast gives a measure of the effects of a policy change. Property taxes paid by homeowners are not directly represented in the REMI model. However, by making some reasonable assumptions about the relationship between property taxes and the cost of housing, their impact can be input to the model as well.

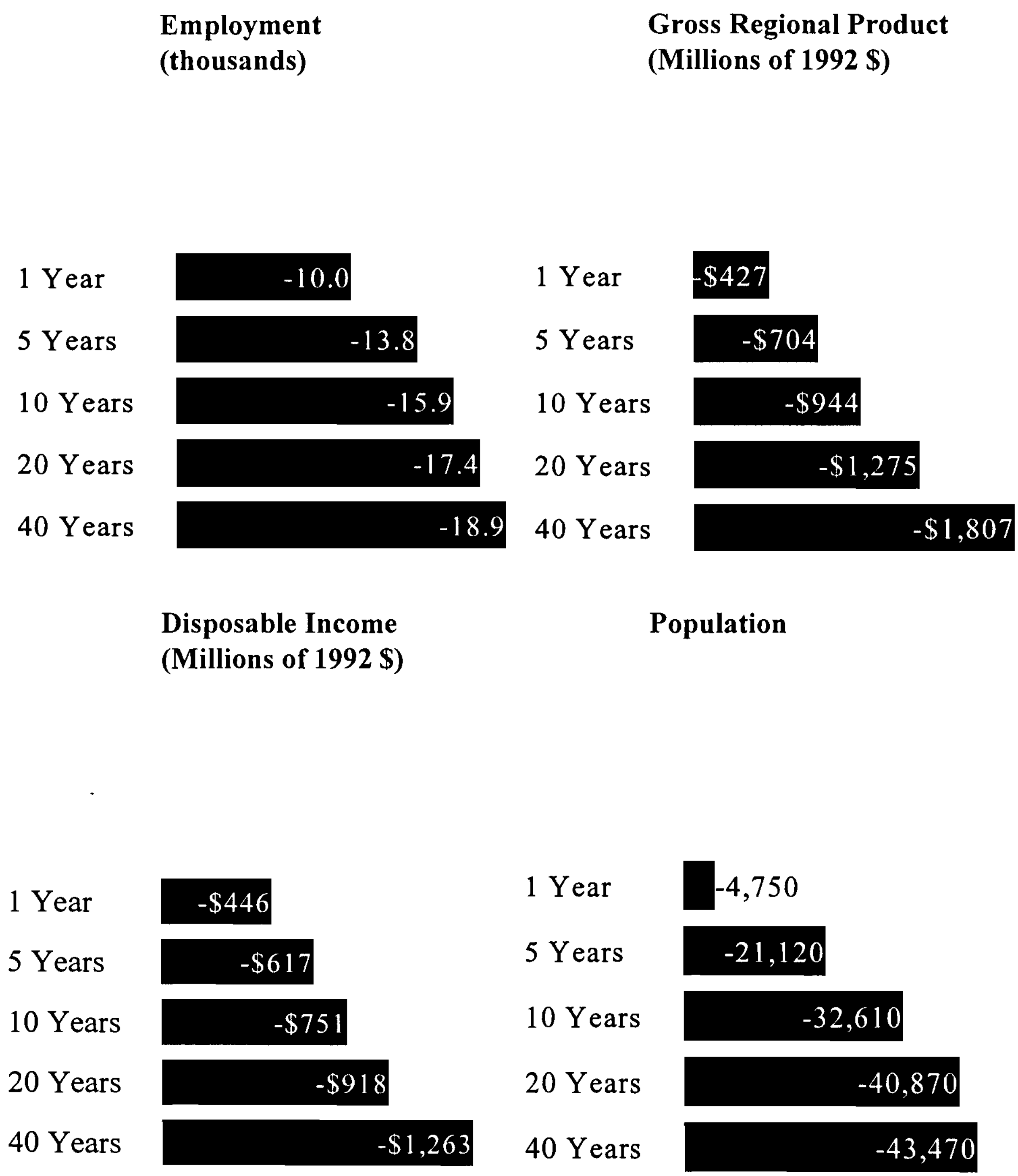
We have seen from the preceding section that the property tax changes envisioned by the Fair Market Value Study ultimately result in changes in the effective tax rates that owners of property and equipment pay. To study the impact of these changes, we must carefully scale these tax rate changes into units that are consistent with the baseline assumptions used in the model. Details of this scaling process are given in Table 3.1.

Table 3.1
Derivation of REMI Policy Variable Changes

	A.	B.	C.	D.
Business Taxes:	**Old Effective Tax Rate (pct.)**	**New Effective Tax Rate (pct.)**	**Difference (pct.)**	**REMI Change (pct.)**
Equipment Tax Rate	2.90	3.75	.85	.42
Business Property Tax Rate	2.81	2.71	.10	.05

There are two relevant tax policy variables in the REMI model for the study of business property taxes: the equipment tax rate, and the overall business property tax rate. Both are expressed as percentage rates, using the estimate of total capital stock embedded in the model as the base. The REMI equipment tax rate corresponds directly to the tax on business personal property. The REMI model, however, makes no distinction between utilities, farming, and other types of business. In the model, all three classes of taxpayers are simply considered to be business. Thus the effective tax rates for business equipment given in column A of Table 3.1 are a blend of the rates on business personal property for business, utilities, and other taxpayers. The 2.9 percent tax rate in the first row of column A represents the tax rate prior to reassessment. The Fair Market Value study's Scenario #6 raises this effective rate to 3.75 percent, a 0.85 percentage point increase.

Figure 3.2
Effects of IFMVS Scenario #6 on Indiana Economic Indicators



impact in the next column reflects differences in economic activity that are predicted after forty years have elapsed. These impacts are shown graphically in Figure 3.2.

It is useful to pause a moment to explain the nature of the two different impacts. Since the increase in the business equipment tax rate is the single largest policy change in our baseline scenario, our explanation here will focus on that single change. However, the same mechanism we describe will apply to the other tax changes as well.

When the business equipment tax rate increases, the after tax rate of return to new equipment purchased by businesses goes down. Therefore, less equipment is purchased, expansions which relied on that equipment do not take place, and vendor purchases and employee wages that would have been paid as part of those expansions are not made. This "direct impact" of the policy change is felt mainly in the industries which make heaviest use of physical capital equipment.

The indirect impact comes about as employees, vendors and governments who are not paid by the businesses who cut back on their investments realize lower income, which, in turn, reduce their own expenditures. These indirect effects occur across the entire spectrum of industries, including retail, services, and government. In the short term, there will be both direct and indirect effects registered on the state economy.

The impact changes with the passage of more time, as some people and businesses begin to migrate out of the state in search of better employment and business opportunities. This causes a continued decrease in total economic output, but the out-migration also slightly improves the competitive positions of the companies and workers who do stay. This causes the economic downturn to eventually slow and the overall economy to stabilize, although at a lower level that it would have been before the policy change.

Employment, output, income, and population all suffer downturns due to the tax shifts in IFMVS Scenario #6, as can be seen from Table 3.2. All of the figures in these and the following tables represent changes from the baseline forecast due to the policy change.

When considering the long run impacts for variables like output and income, which are measured in dollars, care must be taken to correct for the effect of inflation to bring these figures back into line with what they can purchase in the present. Over the course of the 40 years being simulated in the REMI model, it is estimated that the cumulative effect of price inflation over that time will be almost 240 percent. Thus in the second row of Table 3.2 the fact that the decline in personal income as a result of reassessment is nearly ten times as large in the long run as it is in the short term must be discounted by that fact.

There are two kinds of corrections one must make to account for price changes, however. The first is, as alluded to above, the correction over time for the general rise in prices. But part of the impact of tax reassessment also is to slightly raise all prices, even in the short run. This rise comes about due to the increased costs of production by those their employees.

As migration takes place over the longer term, the pattern of decline shifts even more away from manufacturing. With population decline, government employment and services industries employment are significantly affected. In the long term, only a little less than 8 percent of the total job losses inflicted by IFMVS Scenario #6 are manufacturing jobs.

Table 3.4
Impact of Tax Shifts on the Indiana Economy
Income Table

Income ($ millions)	Short Term Impact	Long Term Impact
Wage and Salary Disbursements	-$260.1	-$1,190
Proprietor and Other Labor Income	-59.8	-414
Personal Income	-288.3	-2,420
Disposable Personal Income	-236.6	-2,110
Millions of 1992 Dollars: Disposable Personal Income	-445.7	-1,260

The loss of jobs results in a significant decrease in payroll, as can be seen from Table 3.4. The short term impact of $288.3 million in personal income is mostly due to cutbacks in wages and salaries. In the longer term, other sectors of income, such as rental income and income from transfer payments, become a bit more pronounced. All of the lines of Table 3.4 do not correct for the effects of price inflation. When price changes are taken into account, the long term effect of IFMVS Scenario #6 is a more than $1.2

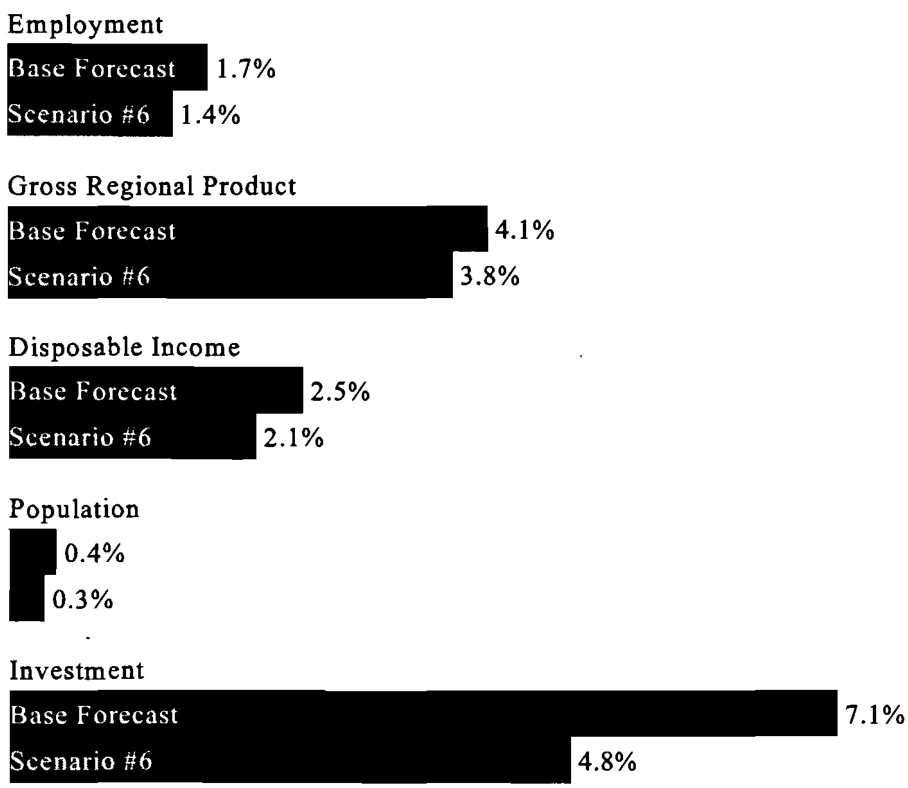
reassessment of IFMVS Scenario #6 is the change in investment. Investment by Indiana manufacturers in new capital and equipment is one of the biggest reasons for the above average performance of the overall Indiana economy since 1985 (see Appendix A). Since IFMVS Scenario #6 increases the effective tax rate on business personal property, it decreases the after-tax rate of return on investment.

The effect of the policy is to reduce the level of investment that takes place in the state economy, as is shown in Figure 3.3. The cumulative change in inflation-corrected levels of investment over the course of the economic simulation is shown for three categories of business investment: residential, non-residential structures, and producers durable equipment. In the long term, investment in all three categories is down by more than $12.4 billion, led by a nearly $8.9 billion decline in producers durable equipment spending. The latter is the category of spending that has the largest new tax exposure under IFMVS Scenario #6.

Finally, a measure of the overall scale of the economic impact caused by the implementation of IFMVS Scenario #6 can be obtained by comparing the growth in the economy after reassessment with what growth would have been without it. As can be seen from Figure 3.4, the effects on growth as measured by conventional economic indicators is significant. In the first year of the policy change, the forecasted growth of total employment is shaved from 1.7 to 1.4 percent as a result of reassessment. Changes in the growth of Gross Regional Product and Disposable Income are of a similar order of magnitude.

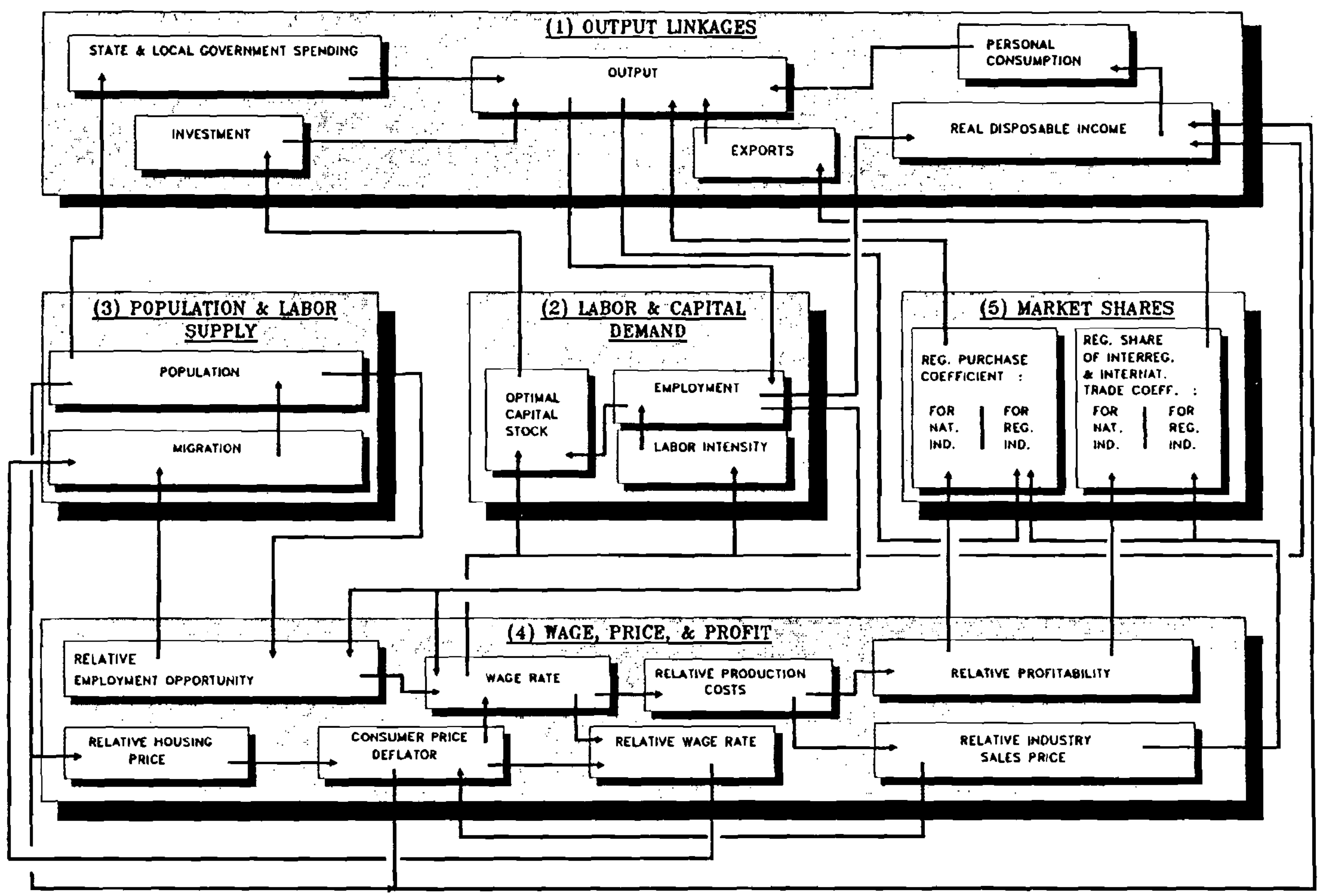
Figure 3.4
Impact of Scenario # 6 on Growth of Selected
Indiana Economic Indicators

Percent Growth in First Policy Year



Scenario #6 is significant. Ultimately, it causes the loss of 18,900 jobs, the removal of more than $1.2 billion from the pockets of Indiana consumers, and a decline in the state's total population of 43,470 people. Its impact on business investment, one of the major factors behind the state's economic growth, is more dramatic. Scenario #6 reduces the growth in spending in the first policy year from 7.1 to 4.8 percent, or by more than a third. Over the course of forty years, it results in the cancellation of more than $12.6 billion of business investment, measured in inflation-corrected dollars.

Figure 3.1
Endogenous Linkages in the REMI Model



The Economic Impact of Governor O'Bannon's Proposed Property Tax Agenda

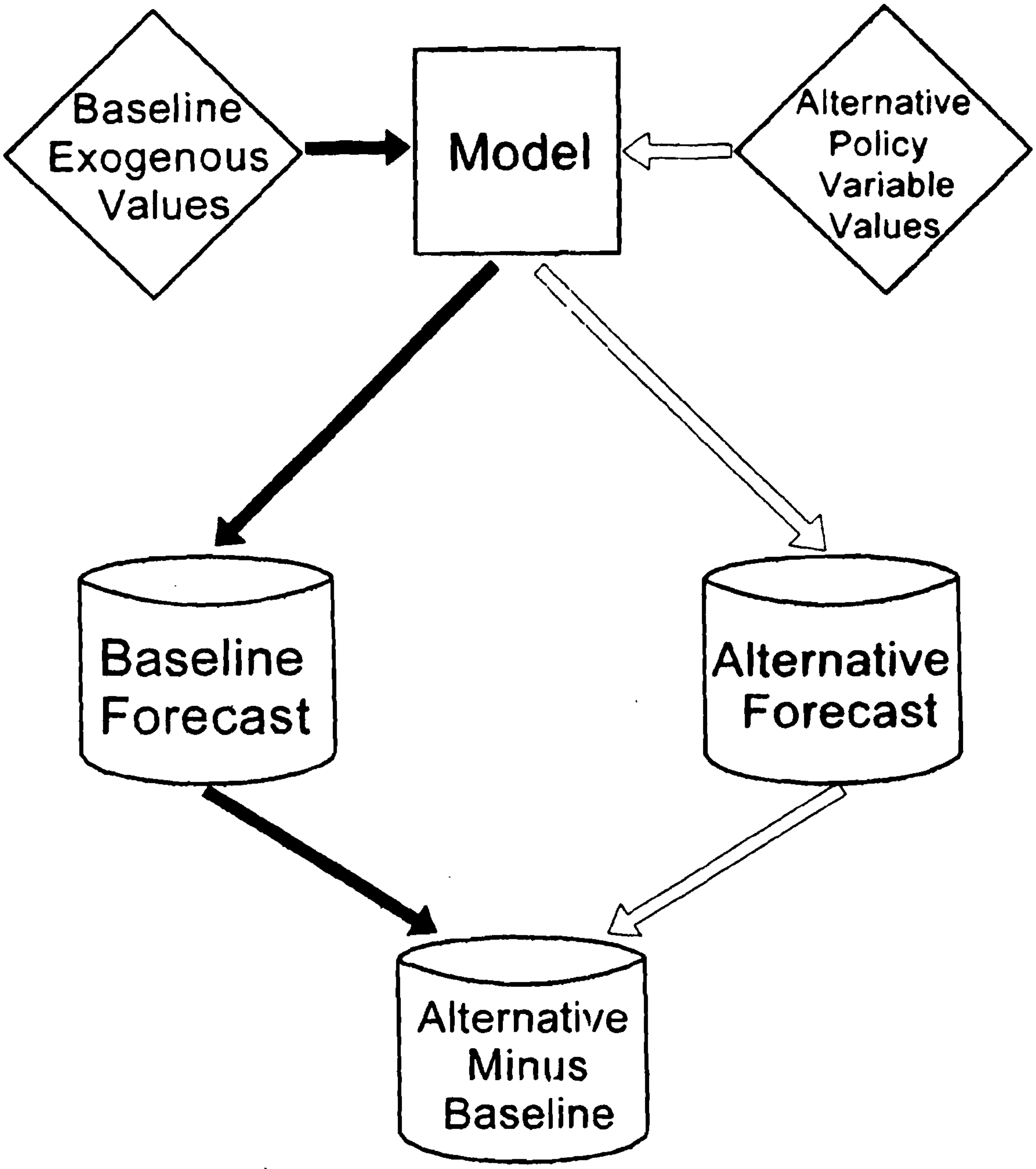
There are three main points made in this study:

[1] Proposals to implement fair market value assessment methods in the Indiana property tax system have very significant impacts on the tax burdens borne by different types of tax payers.

[2] The Indiana Fair Market Value Study does not adequately measure the likely true impact of those burden shifts, since it does not account for the impact that tax changes will have on individual and business behavior.

[3] A more complete accounting of how the economy would react to one such proposal, the Fair Market Value Study's Scenario #6, shows that even such a "revenue neutral" change in tax policy can have a significant, negative impact on the state's growth.

Policy Simulation

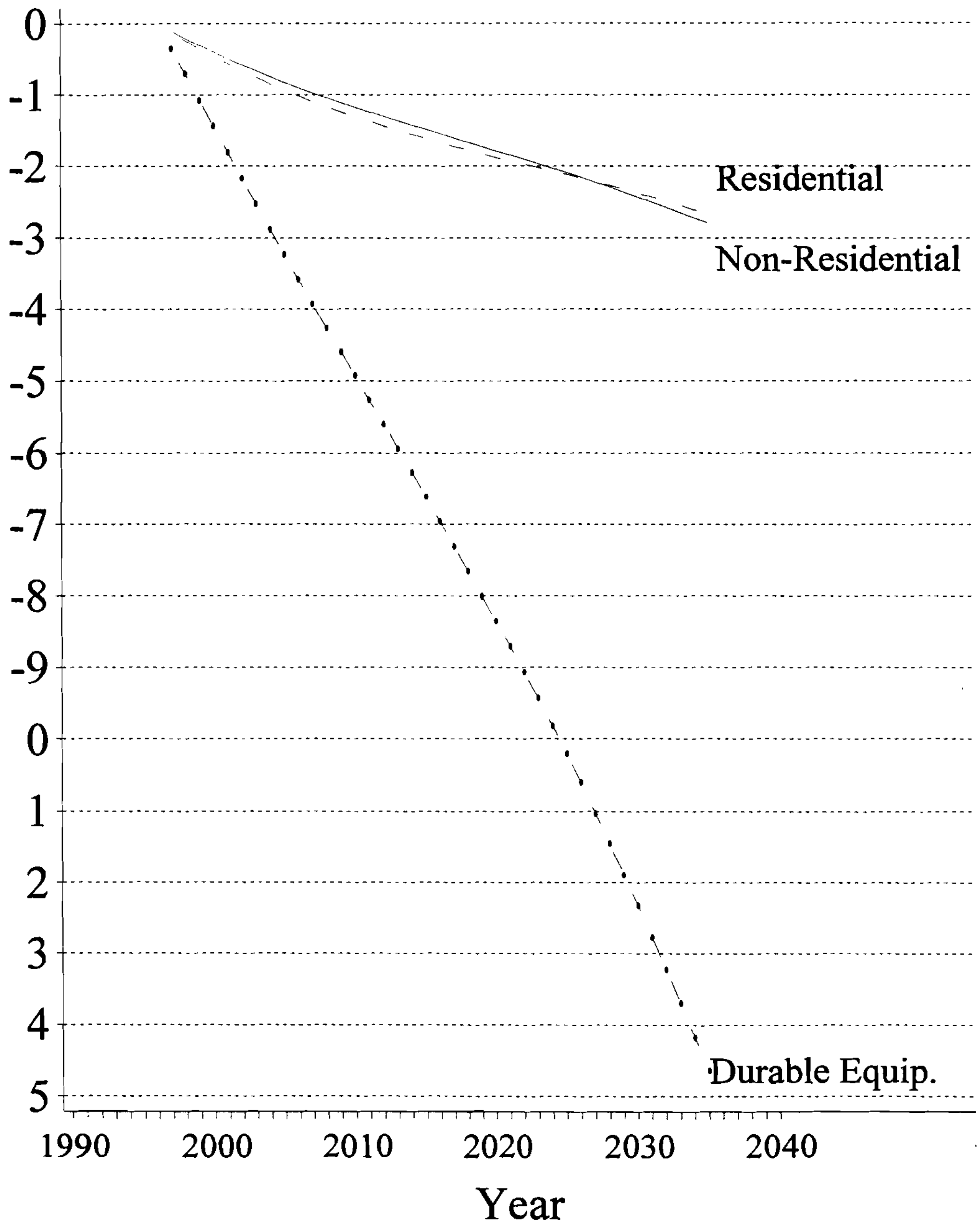


Indiana Fair Market Value Study's Scenario #6
Tax Burden Shifts

Business Personal Property Taxes	↑	**Up 30%**
Business Property Taxes	↓	**Down 4%**
Residential Property Taxes	↑	**Up 6%**

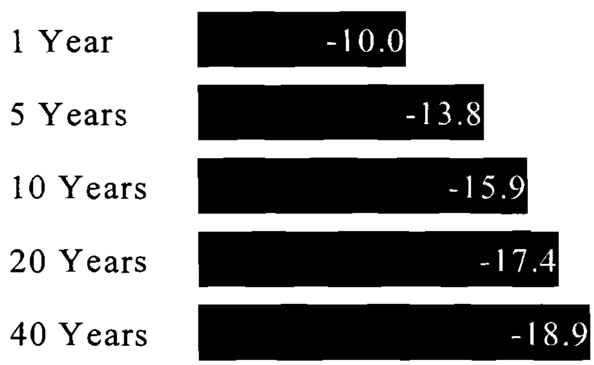
Cumulative Change in Capital Investment by Category
Indiana Fair Market Value Study Scenario #6

Billions of 1992 $

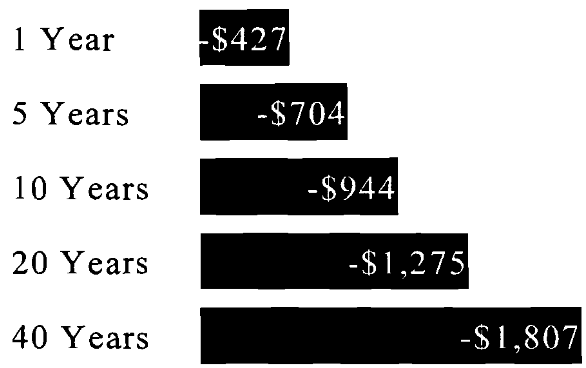


Effects of the Indiana Fair Market Value Study's Scenario #6 on Employment, GRP, Disposable Income and Population

Employment
(thousands)

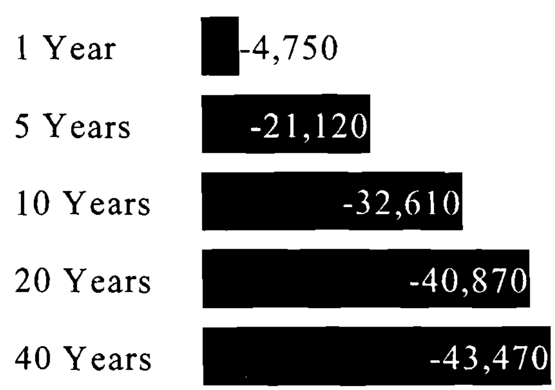


Gross Regional Product
(Millions of 1992 $)



Disposable Income
(Millions of 1992 $)

Population



Impact of the Indiana Fair Market Value Study's Scenario # 6 on Growth of Selected Indiana Economic Indicators

Percent Growth in First Policy Year

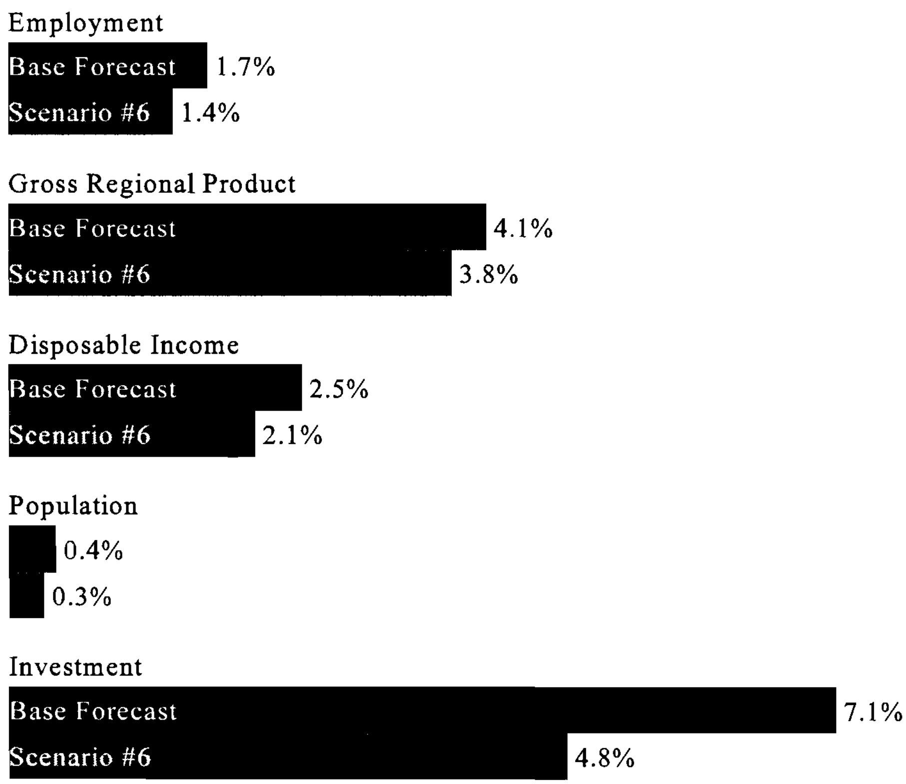
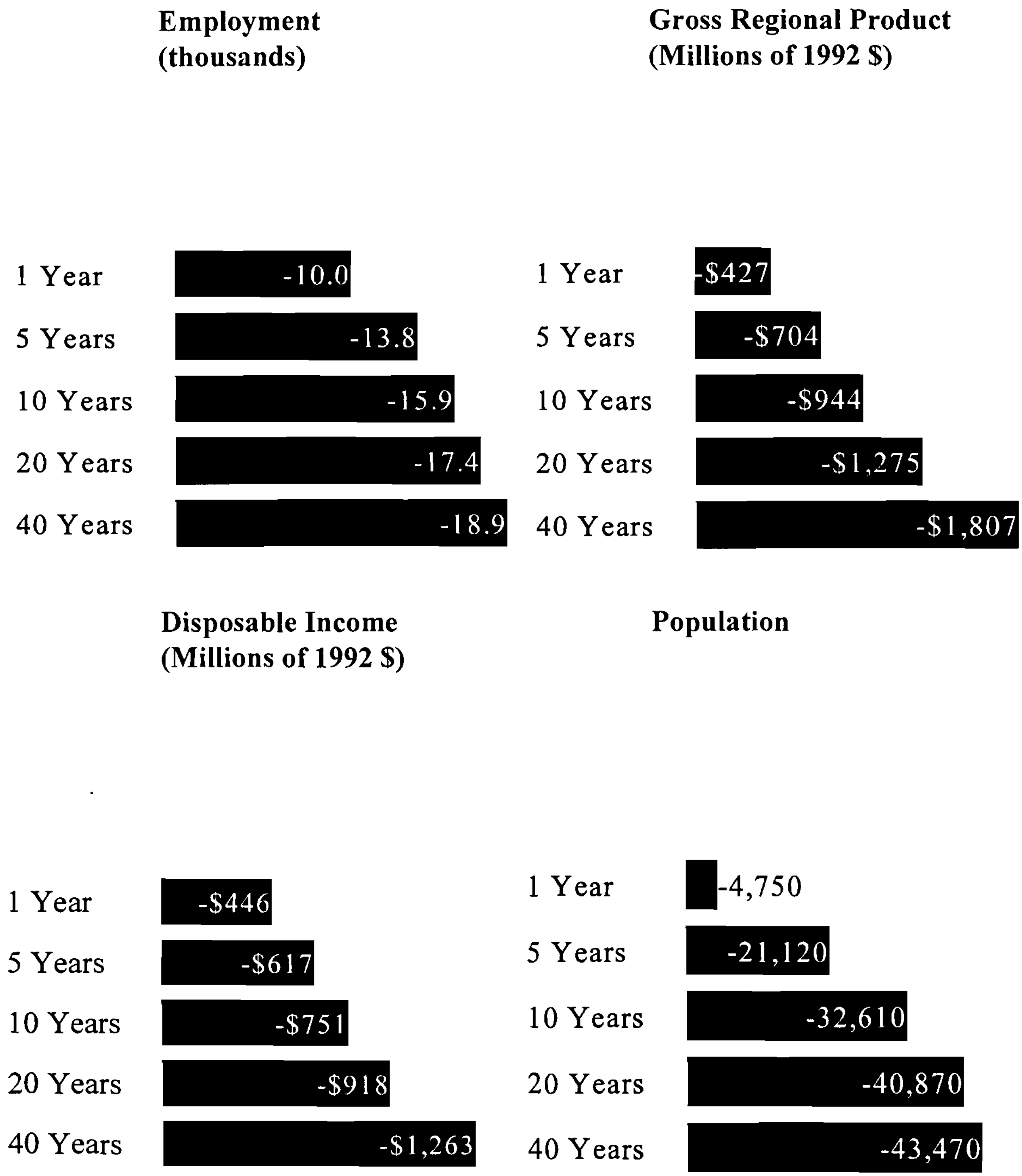


Figure 3.2
Effects of IFMVS Scenario #6 on Indiana Economic Indicators



impact in the next column reflects differences in economic activity that are predicted after forty years have elapsed. These impacts are shown graphically in Figure 3.2.

It is useful to pause a moment to explain the nature of the two different impacts. Since the increase in the business equipment tax rate is the single largest policy change in our baseline scenario, our explanation here will focus on that single change. However, the same mechanism we describe will apply to the other tax changes as well.

When the business equipment tax rate increases, the after tax rate of return to new equipment purchased by businesses goes down. Therefore, less equipment is purchased, expansions which relied on that equipment do not take place, and vendor purchases and employee wages that would have been paid as part of those expansions are not made. This "direct impact" of the policy change is felt mainly in the industries which make heaviest use of physical capital equipment.

The indirect impact comes about as employees, vendors and governments who are not paid by the businesses who cut back on their investments realize lower income, which, in turn, reduce their own expenditures. These indirect effects occur across the entire spectrum of industries, including retail, services, and government. In the short term, there will be both direct and indirect effects registered on the state economy.

The impact changes with the passage of more time, as some people and businesses begin to migrate out of the state in search of better employment and business opportunities. This causes a continued decrease in total economic output, but the out-migration also slightly improves the competitive positions of the companies and workers who do stay. This causes the economic downturn to eventually slow and the overall economy to stabilize, although at a lower level that it would have been before the policy change.

Employment, output, income, and population all suffer downturns due to the tax shifts in IFMVS Scenario #6, as can be seen from Table 3.2. All of the figures in these and the following tables represent changes from the baseline forecast due to the policy change.

When considering the long run impacts for variables like output and income, which are measured in dollars, care must be taken to correct for the effect of inflation to bring these figures back into line with what they can purchase in the present. Over the course of the 40 years being simulated in the REMI model, it is estimated that the cumulative effect of price inflation over that time will be almost 240 percent. Thus in the second row of Table 3.2 the fact that the decline in personal income as a result of reassessment is nearly ten times as large in the long run as it is in the short term must be discounted by that fact.

There are two kinds of corrections one must make to account for price changes, however. The first is, as alluded to above, the correction over time for the general rise in prices. But part of the impact of tax reassessment also is to slightly raise all prices, even in the short run. This rise comes about due to the increased costs of production by those their employees.

As migration takes place over the longer term, the pattern of decline shifts even more away from manufacturing. With population decline, government employment and services industries employment are significantly affected. In the long term, only a little less than 8 percent of the total job losses inflicted by IFMVS Scenario #6 are manufacturing jobs.

Table 3.4
Impact of Tax Shifts on the Indiana Economy
Income Table

Income ($ millions)	Short Term Impact	Long Term Impact
Wage and Salary Disbursements	-$260.1	-$1,190
Proprietor and Other Labor Income	-59.8	-414
Personal Income	-288.3	-2,420
Disposable Personal Income	-236.6	-2,110
Millions of 1992 Dollars: Disposable Personal Income	-445.7	-1,260

The loss of jobs results in a significant decrease in payroll, as can be seen from Table 3.4. The short term impact of $288.3 million in personal income is mostly due to cutbacks in wages and salaries. In the longer term, other sectors of income, such as rental income and income from transfer payments, become a bit more pronounced. All of the lines of Table 3.4 do not correct for the effects of price inflation. When price changes are taken into account, the long term effect of IFMVS Scenario #6 is a more than $1.2

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Figure 3.4
Impact of Scenario # 6 on Growth of Selected
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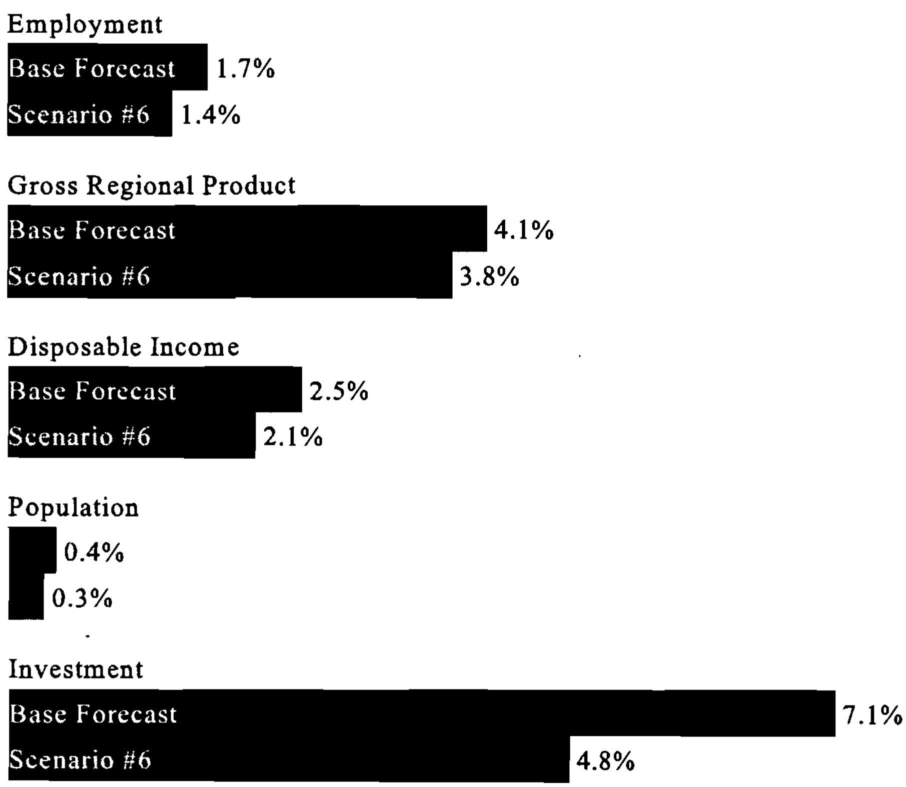

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