

ESTATE AND INCOME TAX INCENTIVES TO  
ELDERLY IN-MIGRANTS TO OKLAHOMA:  
A COST-BENEFIT ANALYSIS

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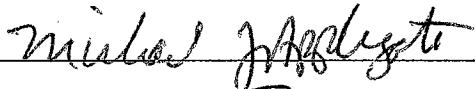
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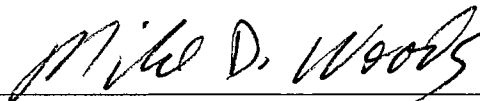
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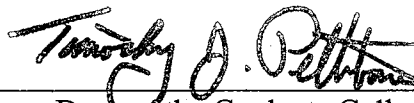


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## CHAPTER I

### INTRODUCTION

#### **The Purpose of the Study**

This research deals with the effects of state tax incentives on elderly migration. The primary purposes of this study are: (1) to develop a model for determining the benefits from, and costs of, these incentives from a state's perspective, and (2) to apply this model to Oklahoma. Economists frequently argue that tax incentives yield benefits less than costs to the sponsoring states, and they have done some work to back up this claim. There are, however, no published benefit-cost analyses of tax incentives provided to the elderly as a means of inducing them to change their residential location. Studies have been done to determine the effects of taxes and tax incentives on elderly migration, the economic impacts of elderly in-migrants, and the costs that they impose on receiving states and communities. Some of these studies provide information that is relevant for estimating the benefits and costs of tax incentives for the elderly, but this information must be integrated in a benefit-cost framework or model.

The elderly account for a small share of interstate movers, but this flow is expected to grow rapidly in the future as the elderly population grows. Thus, there is a lot of policy interest in this cohort, especially at the state level. Many states have special incentives to try to attract or retain elderly people by offering subsidies or tax incentives (Mackey and Carter, 1995a, 1995b). Among these are income tax exemptions, deductions, and credits, property tax exclusions and caps, and estate tax exemptions and rate schedules that favor the elderly.

Oklahoma policy makers are currently considering a variety of new tax incentives for the elderly aimed at increasing the number of in-migrants. We will evaluate two of them recommended by a task force on tax reform appointed by governor Keating (Legislative and Citizen Task Force on Tax Reform, 2002): 1) a 35.7 percent reduction in the individual income tax, and 2) making Oklahoma a pick-up state for the state estate tax. The latter policy would reduce the estate tax rate on an \$800,000 estate (the average size in 1987) from 5 percent to 3.2 percent. Some have suggested that states and communities include the attraction and/or retention of the elderly as part of their economic development strategy (Glasgow, 1990; Fagan and Longino, 1993). They do so, based on the belief that the elderly are a promising source of income and jobs. Longino and Crown (1989), in fact, refer to retired in-migrants as “pure gold” and claim significant benefits from elderly in- migration. On the other hand, Conway and Houtenville (2001) argue that attracting the elderly is a debatable objective, and that a comprehensive look at the economic effects of elderly in-migrants should be undertaken. In fact, without meaningful estimates of the costs and benefits of elderly in-migration, it is impossible to determine whether attracting the elderly is a wise policy objective.

### **Organization of the Study**

This study will contain six chapters, as follows:

- I. Introduction
- II. Literature review
- III. A Benefit-Cost Model of Tax Incentives for Elderly In-Migrants
- IV. Data and Estimates of Benefits and Costs

V. Benefit Cost Analysis.

VI. Conclusions, Assessment and Policy Implications

## CHAPTER II

### LITERATURE REVIEW

There is a large and rapidly growing literature on elderly migration, both within and outside economics. Two strands of this literature are especially relevant for this research: (1) studies that examine the effects of fiscal variables on elderly migration, and (2) studies that determine the economic impacts of elderly migrants.

#### **Fiscal Variables and Elderly Migration**

Barsby and Cox (1975) examined the gross interstate migration patterns of elderly movers for the period 1965- 1970, to see whether they were influenced by income and sales taxes and public expenditures. Their study is one of the few to find a negative relationship between income and sales taxes and migration (also see Cebula, 1990). They concluded, however, that “elderly persons are influenced only slightly by the availability and levels of state old-age benefits and public welfare assistance, special tax treatment, overall tax levels, and the availability of public health and hospital care.”

Cebula (1974) found that higher property taxes make a place less attractive to elderly migrants, as did Clark and Hunter (1992), Assadian (1995), and Clark, et al. (1996). The findings of Drescher (1993) on the role of the property tax, however, were less conclusive.

Cebula worked with Robert Kohn (1975) to examine the effects of fiscal policy on migration patterns. In their article they examine the impact on interstate migration of state and local government expenditures, taxation and income redistribution (transfer)

policies. They constructed a model in which a measurement of out- migration is treated as the dependent variable and listed many independent variables; among them, welfare benefits, the level of non- welfare spending, property taxes, per capita income, and climate. They tested for different responses by black and white migrants to welfare benefits, theorizing that blacks will move to places where there are higher levels of welfare spending, but that white migrants will avoid these places. That is, the higher the level of welfare benefits in an area, the less attractive it would likely be to those who are economically better off, *ceteris paribus*. They also tested the effect of higher per capita state and local government non- welfare spending; theorizing that the higher the level of this variable the more attractive the area is to both black and white migrants. Their third concern was the property tax and its link to the cost of living, arguing that the higher the property tax the higher the cost of living in an area. They concluded that, although all of the policy variables considered had a perceptible impact on the spatial allocation of human resources, differentials in welfare benefits seemed to have had the most profound impact. These results have implications for growth and development patterns in the long run. Given that blacks are attracted to areas with high welfare spending, paid for disproportionately by whites through the tax transfer process, these areas become less attractive to the economically better off (whites). Thus, fiscal variables appear to attract the poor and lead to out-migration of the economically better off. Based on these findings, Cebula and Kohn concluded that public assistance programs and methods of finance should be redesigned to attain their objectives without this destructive pattern of effects.

McLeod et al. (1984) analyzed flows of elderly interstate migrants during the 1965-1970 period and concluded that a lower level of taxation combined with increased availability of health services and warmer climates will pull or attract elderly migrants. Alternatively, higher costs of living and high crime rates will push them out.

A study conducted by Voss, Gunderson, and Manchin (1988) examined the notion of the death tax contribution to interstate migration rates, for each of the 50 states and the District of Columbia. The analytical outcome of their study indicates a separation in the decision made to leave a state of origin from the decision regarding where to settle. They found no evidence supporting the existence of a relationship between the decision to leave and death taxes, but according to them, once the decision is made, the destination state will have lower death taxes. In addition, they found that the death tax has less effect than the climate and other factors included in their model. These findings on the relative importance of death taxes are generally consistent with those of Clark and Hunter, 1992; Dresher, 1994; and Clark et al. (1996).

Katherine Dresher in her dissertation, *Local Public Finance and the Residential Location of the Elderly* (1994), aimed at investigating whether state and local public finance plays a role in the residential location of the elderly. Building on the work of McFadden (1978), she formulated a two- period model of an elderly household's choices among U.S counties. She found that elderly migrants are not sensitive to the structure of state and local taxes, but are influenced by state and local public expenditure.

A recent study done by Conway and Houtenville (2001) extends Dresher's (1994) work and also an earlier study by the authors (Conway and Houtenville, 1998). They used a model that clarifies the role of amenities, cost of living, government spending, and

taxes in elderly migration. They found that in addition to amenities and cost of living factors, the elderly tend to move to states that exempt sales taxes on food and spend less on welfare. They also found that certain taxes like personal income and death taxes also encourage migration, depending on how these taxes are measured. As noted above, however, they argue that attracting the elderly is a debatable strategy and that a comprehensive look at the economic effects of elderly in-migrants should be undertaken.

In an unpublished paper, "Chasing the Elderly: Can State and Local Government Attract Recent Retirees?" Duncombe, Robbins, and Wolf (2000) examined whether states can in fact influence the retirement destination of elderly households. They used 1985-1990 county-to-county migration data and found a positive relationship between the tax burden and the location decision. Among the fiscal variables, inheritance taxes, income taxes, and property taxes have the largest relative effects. They concluded, however, that the magnitudes of the effects of the tax reductions used to attract retirees are so small that the costs of providing them are bound to be greater than the benefits of using this means, so they suggested that it is better for the states to focus on marketing their amenities rather than using fiscal policies to recruit retirees.

It is difficult to reach an overall conclusion about the effect of taxes on elderly migration. The evidence is mixed, at best. We believe that Conway and Houtenville (2001) are on the right track in expressing their skepticism that even statistically-significant relationships are strong enough to justify the resources committed by the states to tax incentives for the elderly. The findings of Duncombe, Robbins, and Wolf (2000) reinforce this belief. They find for example, that large differences in taxes (1-2



standard deviations) are necessary to attract a small number (1-5) of elderly migrants per county.

### **Economic Impacts of Elderly Migration**

As noted above, the kind of research called for by Conway and Houtenville (2001) and Duncombe, Robbins, and Wolf (2000) is yet to be done. Previous researchers have produced estimates of the economic impacts of the elderly. These studies, considered either separately or as a group, however, fail to meet all of the standards for a rigorous benefit-cost analysis of public policies designed to influence the migration of the elderly.

Several studies focus primarily on the benefits of elderly migration (see, especially, Crown, 1988; Longino and Crown, 1989; Sastry, 1992). A few focus on the costs (Bryant and El-Attar, 1984; Longino and Biggar, 1981) of elderly migration. Several studies use input-output analysis (IOA) to estimate the direct, indirect, and induced impacts of the elderly on the income and employment of a region. Sastry (1992) uses IOA to determine the income and employment accounted for by elderly in-migrants to Florida between 1985 and 1990. Siegel and Leuthold (1993) use IOA to examine the county-level economic and fiscal impacts (effects on government taxes and spending) of a specific retirement/recreation community (Tellico Village, Tennessee). Deller (1995) uses IOA to estimate the employment effects of retirement migration on the Maine economy.

Studies such as these provide useful information to policy makers, but the estimates of income and employment and taxes they produce are not equivalent to

benefits. The primary reason is that these impacts are at least partly, and in many cases almost wholly, offset by the opportunity cost of diverting labor and capital from alternative employment elsewhere in the regional economy (Hamilton and Gardner, 1986; Stabler et al., 1988; Hamilton et al., 1991). The valuation of mobile resources is also a source of difficulty (Hamilton et al., 1991). These are not reasons to abandon IOA in benefit-cost studies, but they are reasons to proceed cautiously when using this tool.

## CHAPTER III

### BENEFIT-COST MODEL

As noted above, the objectives of this study are to develop a benefit-cost model for evaluating the effectiveness of state tax incentives to attract elderly in-migrants and to apply it to the state of Oklahoma. The elements of the model are as follows.

The primary task is to estimate the present value of the net benefits (PVNB) from providing state tax incentives to prospective elderly in-migrants. If  $PVNB > 0$ , the tax incentives are appropriate from the state's perspective.

$$(1) PVNB = PVB - PVC,$$

PVB: present value of benefits; PVC: present value of costs.

$$(2) PVB = \sum_{t=1}^m Bm_t / (1+i)^t + \sum_{t=1}^w Bw_t / (1+i)^t$$

m: remaining life expectancy (life expectancy at age of in-migration minus age at in-migration) of elderly male in-migrants; w: remaining life expectancy of elderly female in-migrants; i: discount rate

$$(3) B_t = PB_t + SB_t$$

$PB_t$ : Primary Benefits;  $SB_t$ : Secondary Benefits

a

$$(4) PB_t = \sum_{e=1}^a Y_e$$

$Y_e$ : income of each elderly in-migrant, by income class; a: number of elderly in-migrants *attributable to state tax incentives*, by income class.  $Y_e$  is viewed as the direct impact from in-migration – an expansion of the export base – that triggers secondary impacts/benefits in the state economy.

$$(5) SB_t = Y_{ni_t} + Y_{nu_t}$$

$Y_{ni_t}$ : net indirect income;  $Y_{nu_t}$ : net induced income

$$(6) Y_{ni_t} = Y_{gi_t} - OCY_{gi_t}$$

$Y_{gi_t}$ : gross indirect income;  $OCY_{gi_t}$ : opportunity cost of  $Y_{gi_t}$

$$(7) Y_{nu_t} = Y_{gu_t} - OCY_{gu_t}$$

$Y_{gu_t}$ : gross induced income;  $OCY_{gu_t}$ : opportunity cost of  $Y_{gu_t}$

m

$$(8) PVC = \sum_{t=1}^m C_t / (1+i)^t$$

$$(9) C_t = CTI_t + CGSe_t$$

$CTI_t$ : cost of tax incentives for elderly in-migrants;  $CGSe_t$ : cost of government services for elderly in-migrants.

$$(10) \text{CTI} = \text{CTIc} + \text{CTIi}(1+r)$$

CTIc: cost of tax incentives for elderly in-migrants in terms of benefits of government consumption-type spending foregone; CTIi(1+r): cost of tax incentives for elderly in-migrants in terms of benefits of government investment-type spending foregone; r: rate of return on foregone investment

$$(11) \text{CGSe} = \text{CGSec} + \text{CGSei}(1+r)$$

CGSec: cost of government services for elderly in-migrants in terms of foregone consumption; CGSei(1+r): cost of government services for elderly in-migrants in terms of foregone investment

## CHAPTER IV

### DATA AND ESTIMATES OF BENEFITS AND COSTS

#### **Data Requirement**

This study requires a sample of elderly in-migrants that provides information on their incomes and assets. Given that we are not estimating coefficients of effectiveness for tax policies, it must also be a sample that is appropriate for the application of tax policy coefficient determined by other researchers.

It should be a sample of age 60-69 retirees. These individuals are generally referred to as the “young old.” They are the age cohorts most likely to be the focus of state recruiting efforts because they have higher incomes and have low service demands, particularly for health care. They are also less likely to be influenced in their relocation plans by the location of kin, unlike the “old old” (people age 70-79). Those in the 60-69 cohorts are also most likely to be in transition to retirement and sensitive to location differences.

Finally, it should be a sample that is representative of the principal characteristics of the population, especially in terms of income, assets, sex and race.

#### **The Sample of In-Migrants**

This dissertation is based on a sample of in-migrants derived from county-level data produced from the 1990 census of population (U.S. Department of Commerce, May, 1995). During that period there were 279,889 in-migrants from other states to Oklahoma. We constructed a sample consisting of all 65-74 year old in-migrants from the seven

states surrounding Oklahoma (TX, KS, AR, MO, CO, LA, NM) and the four states outside of this group that contributed the most in-migrants (CA, FL, IL, AZ).

These 11 most important states were the source of 195,204 out of 279,889 in-migrants (see Tables 1 and 2). There were 7,426 in-migrants aged 65-74 from these states. The sample was confined to this age group because the empirical estimate of the effect of tax policy on elderly migration on which we rely (Duncombe, Robbins, and Wolf, 2002) pertains to this age group only.

Table 1  
Total Number of In-Migrants to Oklahoma 1985-90  
All Ages, All Races, Male and Female-Headed Households

From	To OK	From	To OK
Texas	69,662	Mississippi	2,489
California	29,654	Kentucky	2,276
Kansas	19,309	New Jersey	2,258
Arkansas	17,287	Wisconsin	2,241
Missouri	14,335	Alaska	2,133
Colorado	10,836	Wyoming	1,971
Louisiana	7,970	Oregon	1,875
Florida	7,537	Utah	1,850
Illinois	7,235	Maryland	1,849
Arizona	5,700	Hawaii	1,735
New Mexico	5,679	South Carolina	1,700
Ohio	5,133	Nevada	1,521
New York	4,381	Montana	1,304
Michigan	4,351	South Dakota	1,207
Georgia	4,030	Massachusetts	1,133
Washington	3,762	North Dakota	866
North Carolina	3,706	West Virginia	855
Tennessee	3,695	Idaho	815
Virginia	3,589	Connecticut	716
Iowa	3,458	Maine	606
Pennsylvania	3,279	New Hampshire	571
Indiana	3,232	Delaware	521
Nebraska	3,173	Dist. of Columbia	445
Alabama	2,884	Rhode Island	294
Minnesota	2,567	Vermont	214
			279,889

Source: Calculated from Data in U.S. Bureau of the Census, 1995.

The primary purpose of this procedure was to construct a sample that is representative of in-migrants, aged 65-74, by income, sex of household head, and race. We do not know, however, if this sample is truly representative; the income, sex and social characteristic of the population are not reported by the Census Bureau. We assume that the size of the sample (the 11 states contributed 70 percent of all in-migrants) makes it likely that it is representative. The sample also provides information on income and it can be used to support estimates of assets.

This sample is useful, however, only if there are tax policy effectiveness coefficients to match. Fortunately, there are Duncombe, Robins, and Wolf (2000) have produced coefficients of tax effectiveness for elderly in-migrants, age 65-74, based on the same county – to – county migration data.

Table 2  
In-Migrants to Oklahoma from  
Eleven Most Important States  
1985-1990

Texas	69,662
California	29,654
Kansas	19,309
Arkansas	17,287
Missouri	14,335
Colorado	10,836
Louisiana	7,970
Florida	7,537
Illinois	7,235
Arizona	5,700
New Mexico	5,679
Subtotal	195,204
All Other States	91,920
All States	279,889

Source: Calculated from Data in U.S.  
Bureau of the Census, 1995.



The sample was classified by household income level in the eleven most important states as illustrated in Table 3. The categories are those used in the census data. The average and total incomes reflect our assumption that each bracket can be represented by the mid-point of the incomes within the bracket, except for the highest income category. In the later case, we assumed that the average income is \$100,000. This will bias total income downward, but not by much, given the small number of in-migrants in this category. The income range, \$ 5000- 9999, contains the largest number of in-migrants (1967), followed by the income category 1-4,999 (1, 755 in-migrants).

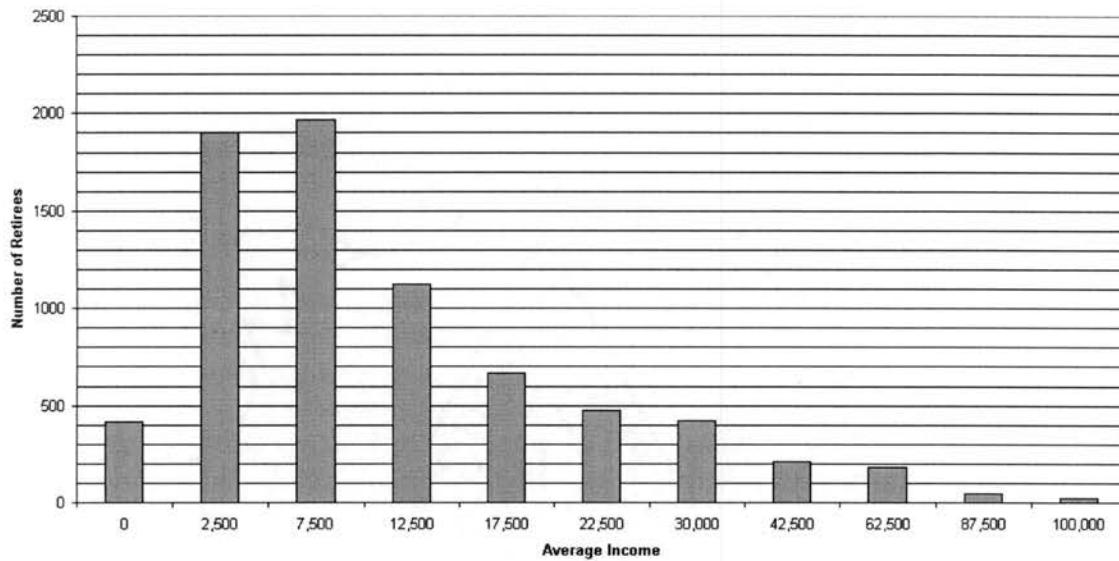
Table 3  
In-Migrants, Age 65-74, from Eleven Most  
Important States, 1985-90, by Income

Income	Number	Ave Income	Total Income
NO INCOME	413	0	0
1-4,999	1,905	2,500	4,762,500
5,000-9,999	1,967	7,500	14,752,500
10,000-14,999	1,125	12,500	14,062,500
15,000-19,999	665	17,500	11,637,500
20,000-24,999	472	22,500	10,620,000
25,000-34,999	420	30,000	12,600,000
35,000-49,999	209	42,500	8,882,500
50,000-74,999	180	62,500	11,250,000
75,000-99,999	46	87,500	4,025,000
100,000 AND OVER	24	100,000	2,400,000
	7,426		94,992,500

Source: Calculated from Data in U.S. Bureau of the Census, 1995.

The distribution of in-migrant incomes is skewed towards lower incomes. This is especially evident in Figure 1.

**Figure 1**  
**Distribution of In-Migrant Retirees from Selected States, Ages 65-74, by Average Income**



Source: Calculated from Data in U.S. Bureau of the Census, 1995.

Table 4 illustrates the distribution of 65-74 years old in-migrants from the most important states, by race, sex of household head, and income, during the period 1985-90. This distribution shows that white females account for the largest number of in-migrants 65-74 years old (3422), followed by white males (3203). The other categories combined account for only 474 in-migrants.

Table 4  
In-Migrants from Eleven Most Important States,  
1985-90, by Race, Sex, and Income

Income	WM	WF	BM	BF	AIM	AIF	ORM	ORF	AOPF	MALE	FEM.
No Income	105	247	2	21	7	25			6	64	235
1,000-4,999	311	1457	23	74		38		2		284	1471
5,000-9,999	877	932	29	24	54	40	3	8		963	1004
10,000-14,999	652	400	23	22	22	6				697	428
15,000-19,999	436	196	20		3	10				459	206
20,000-24,999	280	151	18		7	16				298	174
25,000-34,999	266	120	13	8	7	6				286	134
35,000-49,999	174	26			9					183	26
50,000-74,999	132	43		5						132	48
75,000-99,999	46									46	
100,000 And Over	24									24	

WM: White Males

WF: White females

BM: Black Males

BF: Black Females

AIM: American Indian Male

AIF: American Indian Female

ORM: Other Race Male

ORF: Other Race Female

AOPF: American or Pacific Female

Source: Calculated from Data in U.S. Bureau of the Census, 1995.

Table 5 illustrates in-migrants, age 65-74, from the eleven most important states in 1985-90, by county. There were 1,132 in-migrants to Oklahoma County, while 1,042 in-migrants arrived in Tulsa County. There were no in-migrants, age 65-74, in both Harper and Nowata counties.

Table 5  
In-Migrants, Age 65-74, from Eleven Most Important States,  
1985-1990, by County

County	Number	County	Number	County	Number
Adair	25	Greer	22	Oklahoma	1132
Alfalfa	19	Harmon	12	Okmulgee	141
Atoka	46	Harper	0	Osage	45
Beaver	24	Haskell	50	Ottawa	152
Beckham	56	Hughes	15	Pawnee	33
Blaine	32	Jackson	64	Payne	129
Bryan	164	Jefferson	30	Pittsburg	148
Caddo	52	Johnston	57	Pontotoc	35
Canadian	149	Kay	158	Pottawatomie	69
Carter	147	Kingfisher	10	Pushmataha	33
Cherokee	101	Kiowa	40	Roger Mills	15
Choctaw	44	Latimer	42	Rogers	75
Cimarron	25	Le Flore	240	Seminole	76
Cleveland	316	Lincoln	100	Sequoyah	79
Coal	12	Logan	29	Stephens	185
Comanche	106	Love	21	Texas	23
Cotton	32	McClain	20	Tillman	69
Craig	32	McCurtain	69	Tulsa	1042
Creek	59	McIntosh	122	Wagoner	71
Custer	66	Major	17	Washington	65
Delaware	319	Marshall	87	Washita	20
Dewey	23	Mayes	106	Woods	12
Ellis	12	Murray	31	Woodward	22
Garfield	178	Muskogee	134		7426
Garvin	111	Noble	25		
Grady	60	Nowata	0		
Grant	8	Okfuskee	36		

Source: Calculated from Data in U.S. Bureau of the Census, 1995.

Table 6 illustrates in-migrants from the 11 most important states, by county, total income, and average income. These in-migrants had an annual income of \$ 36,259,437. Their average income ranged from \$3,026 in Alfalfa County to \$40,249 in Kingfisher County.

Table 6  
In-Migrants, Age 65-74, from Eleven Most Important States, by County,  
Total Personal Income, and Average Personal Income 1985-1990

County	No.	Total Income	Average Income	County	No.	Total Income	Average Income	
Adair	25	329,991	13,200	Lincoln	100	1,139,967	11,400	
Alfalfa	19	57,497	3,026	Logan	29	862,486	29,741	
Atoka	46	299,988	6,521	Love	21	192,493	9,166	
Beaver	24	94,997	3,958	McClain	20	74,995	3,750	
Beckham	56	909,980	16,250	McCurtain	69	807,476	11,703	
Blaine	32	244,986	7,656	McIntosh	122	699,975	5,738	
Bryan	164	1,449,941	8,841	Major	17	147,493	8,676	
Caddo	52	429,982	8,269	Marshall	87	1,079,971	12,413	
Canadian	149	2,364,942	15,872	Mayes	106	1,767,458	16,674	
Carter	147	1,752,445	11,921	Murray	31	419,988	13,548	
Cherokee	101	1,545,453	15,302	Muskogee	134	1,354,940	10,111	
Choctaw	44	354,992	8,068	Noble	25	207,496	8,300	
Cimarron	25	207,492	8,300	Nowata				
Cleveland	316	4,399,882	13,924	Okfuskee	36	349,985	9,722	
Coal	12	69,996	5,833	Oklahoma	1132	16,192,087	14,304	
Comanche	106	2,287,449	21,580	Okmulgee	141	1,372,446	9,734	
Cotton	32	274,990	8,593	Osage	45	799,978	17,777	
Craig	32	274,990	8,593	Ottawa	152	1,814,949	11,940	
Creek	59	929,980	15,762	Pawnee	33	277,489	8,409	
Custer	66	1,282,470	19,431	Payne	129	2,419,957	18,759	
Delaware	319	4,262,375	13,362	Pittsburg	148	1,634,947	11,047	
Dewey	23	267,491	11,630	Pontotoc	35	302,484	8,642	
Ellis	12	79,996	6,666	Pottawatomie	69	692,470	10,036	
Garfield	178	1,762,448	9,901	Pushmataha	33	327,484	9,924	
Garvin	111	1,279,958	11,531	Roger Mills	15	147,496	9,833	
Grady	60	789,981	13,166	Rogers	75	682,479	9,100	
Grant	8	69,996	8,750	Seminole	76	907,469	11,940	
Greer	22	127,493	5,795	Sequoyah	79	1,054,972	13,354	
Harmon	12	89,994	7,500	Stephens	185	2,217,434	11,986	
Harper				Texas	23	237,492	10,326	
Haskell	50	574,984	11,500	Tillman	69	687,475	9,963	
Hughes	15	107,495	7,166	Tulsa	1042	15,579,604	14,952	
Jackson	64	694,978	10,859	Wagoner	71	569,973	8,028	
Jefferson	30	304,989	10,166	Washington	65	1,447,478	22,269	
Johnston	57	877,483	15,394	Washita	20	239,993	12,000	
Kay	158	1,627,450	10,300	Woods	12	89,994	7,500	
Kingfisher	10	402,499	40,250	Woodward	22	124,993	5,682	
Kiowa	40	262,490	6,562			7,426	95,185,297	872,368
Latimer	42	994,983	23,690					
Le Flore	240	2,119,924	8,833					

Source: Calculated from Data in U.S. Bureau of the Census, 1995.

Table 7 illustrates the number of in-migrants by county attributable to tax policy; in this case, income tax policy. The procedure used is best explained by applying it to the example of Oklahoma County.

According to Duncombe, Robbins, and Wolf (2002), each standard deviation decrease in income taxes attracted 2.834 migrants to the “average county” in 1985-1990. Our calculations indicate that the average state income tax rate was 3.45 percent, with a standard deviation of 1.93 percent (see appendix A). Oklahoma’s average individual income tax rate was 4.5 percent, so lowering the rate by 35.7 percent (the income tax policy at issue) is equivalent to a reduction of 0.82 standard deviations ( $(4.5 - 0.643 \times 4.5) / 1.93$ ), or 2.33 in-migrants for the average county. Since Oklahoma County is 7.2 “average counties” ( $660,448 / 91,728$ ), the effect of the income tax policy was to attract  $7.2 \times 2.33$  or 16.78 in-migrants.

Table 7  
Number of In-Migrants, Age 65-74, Attributable  
to Income Tax Policy, by County  
1985-1990

County	In-Migrants	County	In-Migrants
Adair	0.53	Le Flore	1.22
Alfalfa	0.16	Lincoln	0.81
Atoka	0.35	Logan	0.86
Beaver	0.15	Love	0.22
Beckham	0.50	McClain	0.70
Blaine	0.30	McCurtain	0.87
Bryan	0.93	McIntosh	0.49
Caddo	0.77	Major	0.19
Canadian	2.23	Marshall	0.33
Carter	1.16	Mayes	0.97
Cherokee	1.08	Murray	0.32
Choctaw	0.39	Muskogee	1.76
Cimarron	0.08	Noble	0.29
Cleveland	5.28	Nowata	0.27
Coal	0.15	Okfuskee	0.30
Comanche	2.92	Oklahoma	16.78
Cotton	0.17	Okmulgee	1.01
Craig	0.38	Osage	1.13
Creek	1.71	Ottawa	0.84
Custer	0.66	Pawnee	0.42
Delaware	0.94	Payne	1.73
Dewey	0.12	Pittsburg	1.12
Ellis	0.10	Pontotoc	0.89
Garfield	1.47	Pottawatomie	1.66
Garvin	0.69	Pushmataha	0.30
Grady	1.16	Roger Mills	0.09
Grant	0.13	Rogers	1.79
Greer	0.15	Seminole	0.63
Harmon	0.08	Sequoyah	0.99
Harper	0.09	Stephens	1.1
Haskell	0.3	Texas	0.51
Hughes	0.36	Tillman	0.24
Jackson	0.72	Tulsa	14.31
Jefferson	0.17	Wagoner	1.46
Johnston	0.27	Washington	1.24
Kay	1.22	Washita	0.29
Kingfisher	0.35	Woods	0.23
Kiowa	0.26	Woodward	0.47
Latimer	0.27		87.65

Source: Calculated from Data in U.S. Bureau of the Census, 1995 and Duncombe, Robbins, and Wolf, 2000.

Table 8 illustrates the number of in-migrants attributable to the death tax policy at issue - a reduction from 5 percent to 3.2 percent. This is a reduction equal to 1.344 standard deviations. According to Duncombe, Robbins, and Wolf (2002) each standard deviation reduction in death tax policy resulted in 2.677 in-migrants per average county. The effect on Oklahoma County is 25.9 in-migrants ( $2.677 \times 1.344 \times 7.2$ ).

Table 8  
Number of In-Migrants, Age 65-74, Attributable to  
Death Tax Policy, by County, 1985-1990

County	In-Migrants	County	In-Migrants
Adair	0.83	Le Flore	1.89
Alfalfa	0.24	Lincoln	1.26
Atoka	0.54	Logan	1.33
Beaver	0.23	Love	0.35
Beckham	0.78	McClain	1.09
Blaine	0.47	McCurtain	1.35
Bryan	1.43	McIntosh	0.76
Caddo	1.18	Major	0.3
Canadian	3.44	Marshall	0.52
Carter	1.79	Mayes	1.51
Cherokee	1.67	Murray	0.5
Choctaw	0.6	Muskogee	2.73
Cimarron	0.12	Noble	0.45
Cleveland	8.16	Nowata	0.41
Coal	0.24	Okfuskee	0.46
Comanche	4.51	Oklahoma	25.92
Cotton	0.26	Okmulgee	1.56
Craig	0.59	Osage	1.74
Creek	2.64	Ottawa	1.3
Custer	1.03	Pawnee	0.65
Delaware	1.46	Payne	2.68
Dewey	0.19	Pittsburg	1.73
Ellis	0.16	Pontotoc	1.38
Garfield	2.27	Pottawatomie	2.57
Garvin	1.07	Pushmataha	0.46
Grady	1.79	Roger Mills	0.13
Grant	0.2	Rogers	2.77
Greer	0.24	Seminole	0.98
Harmon	0.13	Sequoyah	1.53
Harper	0.14	Stephens	1.69
Haskell	0.46	Texas	0.79
Hughes	0.56	Tillman	0.36
Jackson	1.12	Tulsa	22.11
Jefferson	0.27	Wagoner	2.26
Johnston	0.41	Washington	1.92



County	In-Migrants	County	In-Migrants
Kay	1.89	Washita	0.45
Kingfisher	0.55	Woods	0.36
Kiowa	0.4	Woodward	0.73
Latimer	0.42		135.43

Source: Calculated from Data in U.S. Bureau of the Census, 1995 and Duncombe, Robbins, and Wolf, 2000.

The data in Tables 6, 7, and 8 are used to determine the personal income attributable to tax policies, as displayed in Table 9 for the year 2000. The incomes reported in Table 6 are inflated by 1.81, the ratio of Oklahoma personal income in 2000 to Oklahoma personal income in 1989. Using Oklahoma County as our example, the reduction in death taxes attracted 25.92 migrants with an average income of \$14,304 or \$370,670. Application of the personal income adjustment factor (1.81) results in the \$670,142 reported for Oklahoma County in this table.

Table 9  
 Personal Income of In-Migrants, Age 65-74,  
 Attributable to Tax Policies, by County  
 2000

County	Personal Income from Income Tax Policy	Personal Income from Death Tax Policy	Total Personal Income from Tax Policies	County	Personal Income from Income Tax Policy	Personal Income from Death Tax Policy	Total Personal Income from Tax Policies
Adair	12,749	19,699	32,448	Le Flore	19,510	30,144	49,655
Alfalfa	848	1,311	2,159	Lincoln	16,790	25,942	42,732
Atoka	4,156	6,421	10,576	Logan	46,322	71,570	117,892
Beaver	1,064	1,645	2,709	Love	3,716	5,742	9,459
Beckham	14,771	22,822	37,593	McClain	4,776	7,379	12,154
Blaine	4,209	6,504	10,713	McCurtain	18,484	28,559	47,042
Bryan	14,830	22,913	37,742	McIntosh	5,125	7,919	13,044
Caddo	11,446	17,685	29,131	Major	3,005	4,644	7,649
Canadian	63,906	98,739	162,646	Marshall	7,514	11,610	19,123
Carter	24,970	38,580	63,550	Mayes	29,373	45,383	74,756
Cherokee	29,872	46,154	76,026	Murray	7,852	12,131	19,983
Choctaw	5,683	8,781	14,463	Muskogee	32,242	49,816	82,057
Cimarron	1,200	1,853	3,053	Noble	4,348	6,718	11,067
Cleveland	132,977	205,458	338,434	Nowata	0	0	0
Coal	1,615	2,496	4,111	Okfuskee	5,273	8,147	13,420
Comanche	113,934	176,035	289,969	Oklahoma	433,731	670,142	1,103,872
Cotton	2,609	4,032	6,641	Okmulgee	17,735	27,402	45,136
Craig	5,898	9,113	15,012	Osage	36,269	56,038	92,307
Creek	48,752	75,325	124,077	Ottawa	18,197	28,116	46,313
Custer	23,322	36,034	59,356	Pawnee	6,413	9,909	16,322
Delaware	22,745	35,143	57,888	Payne	58,730	90,742	149,473
Dewey	2,533	3,913	6,446	Pittsburg	22,292	34,443	56,735
Ellis	1,247	1,927	3,174	Pontotoc	13,944	21,545	35,489
Garfield	26,281	40,606	66,888	Pottawatomie	30,190	46,645	76,834
Garvin	14,405	22,257	36,663	Pushmataha	5,316	8,213	13,529
Grady	27,514	42,511	70,025	Roger Mills	1,551	2,397	3,948
Grant	2,066	3,193	5,259	Rogers	29,513	45,599	75,112
Greer	1,613	2,492	4,104	Seminole	13,647	21,086	34,733
Harmon	1,130	1,747	2,877	Sequoyah	23,894	36,918	60,812
Harper	0	0	0	Stephens	23,763	36,716	60,479
Haskell	6,226	9,619	15,845	Texas	9,532	14,728	24,260
Hughes	4,657	7,195	11,852	Tillman	4,248	6,564	10,812
Jackson	14,178	21,907	36,085	Tulsa	386,681	597,447	984,128
Jefferson	3,182	4,917	8,099	Wagoner	21,190	32,739	53,929
Johnston	7,430	11,481	18,911	Washington	50,094	77,398	127,492
Kay	22,737	35,131	57,868	Washita	6,340	9,796	16,136
Kingfisher	25,734	39,762	65,496	Woods	3,129	4,835	7,965
Kiowa	3,081	4,761	7,842	Woodward	4,822	7,450	12,272
Latimer	11,629	17,968	29,597		2,142,756	3,310,696	5,453,452

Source: Calculated from Data in U.S. Bureau of the Census, 1995 and Duncombe, Robbins, and Wolf, 2000.

In-migrants bring assets in addition to income. The census survey did not report the assets of in-migrants, however. We used the relationship between assets and income in Table 10 to determine the assets of in-migrants. This table is based on a 1995 survey by the U.S. Census Bureau (U.S. Census Bureau, 2001). There are five quintiles ranging from lowest to highest. The average total assets in each quintile are obtained by adding the median net worth of age 65-69 and 70-74 year olds and dividing it by two. We then calculated home equity as a proportion of total assets for each quintile (column 3, Table 10) and used that proportion times average assets as a measure of the proportion of income from asset that would be spent in Oklahoma.

Table 10  
Assets by Income Quintiles, Age 65-74  
1995

Quintiles	Average Annual Income	Average Total Assets	Proportion Spent in Oklahoma
Lowest	0-13,152	29,105	0.88
Second	13,153-24,024	87,764	0.76
Third	24,025-37,308	144,088	0.62
Fourth	37,309-58,128	190,440	0.53
Highest	58,129 +	350,752	0.51

Source: Calculated from Data in U.S. Bureau of the Census, 2001.

We already know the income of each in-migrant (see Table 6). We used the relationship between income and assets in Table 10 to determine the total assets of each in-migrant, and combined it with the probability that an in-migrant would be attracted by either income or death tax policies (see Tables 7 and 8) to determine the total assets brought to Oklahoma by the immigrants who are attracted by the two tax policies. The resulting calculations are illustrated in Table 11. Column 2 indicates the total assets of in-

migrants attributable to this study's tax policies. These totals are split in columns 3 and 4 into the shares due to death and income tax policies, respectively.

Table 11  
Assets Attributable to Tax Policies, by County, 2000

County	Total Assets from Tax Policies	Total Assets from Death Tax Policy	Total Assets from Income Tax Policy	County	Total Assets from Tax Policies	Total Assets from Death Tax Policy	Total Assets from Income Tax Policy
Adair	71,911	43,707	28,204	Le Flore	116,560	70,673	45,887
Alfalfa	10,158	6,140	4,018	Lincoln	91,624	55,554	36,071
Atoka	27,615	16,914	10,701	Logan	204,683	124,173	80,509
Beaver	9,545	5,928	3,617	Love	22,325	13,674	8,651
Beckham	100,995	61,354	39,641	McClain	45,818	27,736	18,083
Blaine	8,452	5,177	3,275	McCurtain	128,347	77,689	50,657
Bryan	98,349	59,704	38,645	McIntosh	39,537	24,115	15,422
Caddo	72,752	44,083	28,669	Major	8,052	4,932	3,120
Canadian	283,855	172,573	111,282	Marshall	51,797	31,529	20,268
Carter	1,905,099	1,848,371	56,728	Mayes	154,197	93,648	60,548
Cherokee	218,201	132,120	86,080	Murray	45,369	27,789	17,580
Choctaw	38,635	23,416	15,220	Muskogee	228,268	138,671	89,596
Cimarron	13,262	1,544	11,718	Noble	25,284	15,486	9,797
Cleveland	748,923	454,423	294,500	Nowata	0	0	0
Coal	10,158	6,140	4,018	Okfuskee	29,973	18,232	11,740
Comanche	620,166	376,103	244,063	Oklahoma	2,267,112	1,376,156	890,956
Cotton	17,995	10,753	7,242	Okmulgee	61,378	37,287	24,091
Craig	13,880	8,456	5,425	Osage	195,251	118,282	76,969
Creek	255,956	155,265	100,691	Ottawa	482,253	287,426	194,827
Custer	114,887	69,931	44,955	Pawnee	43,580	26,433	17,146
Delaware	122,473	74,193	48,279	Payne	245,777	149,286	96,492
Dewey	14,422	8,533	5,889	Pittsburg	165,213	100,259	64,953
Ellis	8,673	5,104	3,569	Pontotoc	1,672,432	1,635,923	36,509
Garfield	168,427	102,438	65,989	Pottawatomie	168,105	101,945	66,159
Garvin	91,859	55,761	36,097	Pushmataha	1,602,610	1,567,625	34,985
Grady	151,864	92,351	59,513	Roger Mills	10,788	6,302	4,485
Grant	11,642	7,131	4,511	Rogers	190,074	115,350	74,724
Greer	11,648	7,040	4,608	Seminole	74,449	45,303	29,146
Harmon	5,397	3,388	2,009	Sequoyah	128,244	77,732	50,513
Harper	0	0	0	Stephens	141,828	85,891	55,937
Haskell	39,385	23,957	15,427	Texas	56,329	34,362	21,967
Hughes	30,986	18,762	12,224	Tillman	28,410	17,249	11,161
Jackson	85,404	51,864	33,540	Tulsa	2,098,778	1,274,022	824,755
Jefferson	21,430	12,969	8,461	Wagoner	130,911	79,392	51,519
Johnston	43,687	26,552	17,134	Washington	170,852	103,781	67,072
Kay	145,892	88,304	57,588	Washita	39,521	23,697	15,824
Kingfisher	129,808	79,508	50,300	Woods	41,209	24,794	16,415
Kiowa	21,396	12,795	8,601	Woodward	30,475	18,420	12,055
Latimer	60,944	37,329	23,616				
					17,043,542	12,240,899	4,802,643

Source: Calculated from Data in U.S. Bureau of the Census, 1995, 2001.

U.S. mortality tables indicate that the average in-migrants age 65-74 will live for 18 years. Assuming that one-fifth of the sample of 65-74 olds, arrives in Oklahoma each year for five years, that they experience a 1 percent increase in real income each year, but that their income declines by 1.6 percent per year due to age, we arrive at the income profile in Table 12, column 2, attributable to the effect of death tax policy on Oklahoma personal income. The social security actuaries assume a 1 percent real rate of growth in personal income in making long-run forecasts for social security. U.S Census data indicate that income and earning decline with age, after age 55 at about 1.6 percent per year. Then we calculate the ratio of migrants from all states to the migrants from the 11 sample states and multiplying this ratio (1.43) by the annual personal income of in-migrants from the selected states to get the annual personal income of all expected in-migrants, as indicated in Table 12, column 4.

Table 12  
Annual Personal Income from Death Tax Policy, Adjusted for  
Mortality, Age, and Increase in Real Personal Income, 2000-2018

Year	Selected States	All States Relative to Selected States	All States
	Annual Personal Income Adjusted for Increase in Real PI & Age		Annual Personal Income Adjusted for Increase in Real PI & Age
2000	658,229	1.43	943,787
2001	1,308,684	1.43	1,876,427
2002	1,951,433	1.43	2,798,019
2003	2,586,545	1.43	3,708,661
2004	3,214,087	1.43	4,608,449
2005	3,195,106	1.43	4,581,234
2006	3,176,238	1.43	4,554,179
2007	3,157,480	1.43	4,527,284
2008	3,138,834	1.43	4,500,549
2009	3,120,297	1.43	4,473,970
2010	3,101,871	1.43	4,447,549
2011	3,083,552	1.43	4,421,284
2012	3,065,342	1.43	4,395,174
2013	3,047,240	1.43	4,369,219
2014	3,029,244	1.43	4,343,416
2015	2,423,396	1.43	3,474,733

Year	Selected States		All States
	Annual Personal Income Adjusted for Increase in Real PI & Age	All States Relative to Selected States	Annual Personal Income Adjusted for Increase in Real PI & Age
2016	1,817,547	1.43	2,606,050
2017	1,211,698	1.43	1,737,366
2018	605,849	1.43	868,683

Source: Author's Calculations

Then we repeated the same procedure to construct Table 13 and to determine the annual personal income attributable to income tax policy, adjusted for mortality, age, and increase in real personal income.

Table 13  
Annual Personal Income from Income Tax Policy, Adjusted for Mortality, Age, and Increase in Real Personal Income, 2000-2018

Year	Selected States		All States
	Annual Personal Income Adjusted for Increase in Real PI & Age	All States Relative to Selected States	Annual Personal Income Adjusted for Increase in Real PI & Age
2000	426,020	1.43	610,840
2001	847,009	1.43	1,214,466
2002	1,263,011	1.43	1,810,940
2003	1,674,069	1.43	2,400,328
2004	2,080,229	1.43	2,982,691
2005	2,067,944	1.43	2,965,076
2006	2,055,732	1.43	2,947,566
2007	2,043,591	1.43	2,930,159
2008	2,031,523	1.43	2,912,855
2009	2,019,526	1.43	2,895,653
2010	2,007,600	1.43	2,878,553
2011	1,995,744	1.43	2,861,553
2012	1,983,958	1.43	2,844,655
2013	1,972,241	1.43	2,827,855
2014	1,960,594	1.43	2,811,155
2015	1,568,475	1.43	2,248,924
2016	1,176,357	1.43	1,686,693
2017	784,238	1.43	1,124,462
2018	392,119	1.43	562,231

Source: Author's Calculations

Table 14 displays the expenditure attributable to in-migrants from all states based on their assets (adjusted, as in Tables 12 and 13, for mortality and a 5-year phase-in

period). In the absence of any information on post in-migration expenditure patterns, we assumed a constant average stream of expenditure (after full in-migration occurs).

Table 14  
Annual Income from Assets, 2000-2004

Year	Expenditure from Assets	
	Due to Death Tax Policy	Due to Income Tax Policy
2000	234,018	91,816
2001	468,036	183,631
2002	702,054	275,447
2003	936,072	367,262
2004	1,170,090	459,078
2005	1,170,090	459,078
2006	1,170,090	459,078
2007	1,170,090	459,078
2008	1,170,090	459,078
2009	1,170,090	459,078
2010	1,170,090	459,078
2011	1,170,090	459,078
2012	1,170,090	459,078
2013	1,170,090	459,078
2014	1,170,090	459,078
2015	936,072	367,262
2016	702,054	275,447
2017	468,036	183,631
2018	234,018	91,816
	17,551,346	6,886,166

Source: Author's Calculations

It is not clear whether the Census Survey incomes are before- or after-tax figures. To prepare for both possibilities, we calculated the state taxes likely to be collected on total income from all sources (expenditure and personal income). Taxes include the Oklahoma income, general sales, tobacco, and beverage taxes. Their estimates are shown in Table 15 and explained in detail in Appendix B.

Table 15  
 Determination of Taxes Collected on  
 Income and Expenditure by In-Migrants

Year	Total Taxes
2000	71,426
2001	142,008
2002	211,755
2003	280,672
2004	348,768
2005	346,709
2006	344,661
2007	342,626
2008	340,602
2009	338,591
2010	336,591
2011	334,604
2012	332,628
2013	330,663
2014	328,711
2015	262,968
2016	197,226
2017	131,484
2018	65,742
	5,088,436

Source: Calculated from  
 Oklahoma Income Tax Data  
 Provided by U.S. Internal Revenue  
 Service and Oklahoma Tax  
 Commission Annual Report, 2000.

The final data needed are the costs of public services provided to in-migrants by the State of Oklahoma. The most important item by far is Medicaid. Table 16 shows how much it cost the state to provide Medicaid for in-migrants attracted by state income and death tax policies. Detailed calculations are illustrated and discussed in Appendix C.



Table 16  
 Determination of Costs of Providing  
 Medicaid to In-Migrants

Year	Total Program Costs
2000	83,403.55
2001	170,143.2
2002	260,319.1
2003	354,034
2004	451,393.4
2005	460,421.3
2006	469,629.7
2007	479,022.3
2008	488,602.7
2009	498,374.8
2010	508,342.3
2011	518,509.1
2012	528,879.3
2013	539,456.9
2014	550,246
2015	449,000.8
2016	343,485.6
2017	233,570.2
2018	119,120.8
	7,505,955

Source: Calculated from Data in Oklahoma  
 Executive Budget, Fiscal 2001.

Finally, Table 17 illustrates the cost to the state treasury of the income and death tax income incentives provided the elderly. The annual amounts are estimates made by the Oklahoma Tax Commission for the Legislative Tax Force on Tax Reform (2002). We assume that they must be provided throughout the 1985-1990 period to generate a steady flow of in-migrants.

Table 17  
Tax Revenue Foregone from Tax  
Incentives for the Elderly, 2000-2004

Year	Income Tax Revenue Foregone	Death Tax Revenue Foregone
2000	53,000,000	52,000,000
2001	53,000,000	52,000,000
2002	53,000,000	52,000,000
2003	53,000,000	52,000,000
2004	53,000,000	52,000,000

Source: Legislative and Citizen Task Force on Tax Reform,  
2002.

## CHAPTER V

### BENEFIT-COST ANALYSIS

This chapter deals with the costs and benefits associated with the in-migrants attracted by tax policies. According to the model of chapter three, there are two types of benefits: primary and secondary. There are two sources of each type: personal income and expenditure from assets. There are two scenarios: one in which personal income is assumed to be income before taxes, and one in which personal income is assumed to be income after taxes. There are two sources of costs: taxes foregone due to the adoption of tax policies favoring the elderly, and the cost of Medicaid for elderly in-migrants.

#### Primary Benefits

Table 18 shows the primary benefits from Oklahoma tax policy favoring the elderly. This case assumes that the personal income reported in the Census Survey is “before” - tax income which is the appropriate proxy for primary benefits. The bases of primary benefit estimates, therefore, are the incomes and expenditures reported earlier in Tables 6, 7, 8, and 9.

We assume that one fifth of the in-migrants arrive in each of the first 5 years, that they will live in Oklahoma 18 years, that they will experience a 1 percent per year increase in real personal income, but that their income will otherwise fall by 1.6 percent per year as a consequence of pure aging (as indicated by age-income profiles).

Table 18  
 Primary Benefits from Tax Policy, 2000-2018  
 (Personal Income Before Tax)

Year	Personal Income (Before Taxes)		Expenditures from Assets		Primary Benefits
	From Income Tax Policy	From Death Tax Policy	From Income Tax Policy	From Death Tax Policy	
2000	610,840	943,787	91,816	234,018	1,880,461
2001	1,214,466	1,876,427	183,631	468,036	3,742,560
2002	1,810,940	2,798,019	275,447	702,054	5,586,460
2003	2,400,328	3,708,661	367,262	936,072	7,412,322
2004	2,982,691	4,608,449	459,078	1,170,090	9,220,307
2005	2,965,076	4,581,234	459,078	1,170,090	9,175,477
2006	2,947,566	4,554,179	459,078	1,170,090	9,130,913
2007	2,930,159	4,527,284	459,078	1,170,090	9,086,611
2008	2,912,855	4,500,549	459,078	1,170,090	9,042,571
2009	2,895,653	4,473,970	459,078	1,170,090	8,998,791
2010	2,878,553	4,447,549	459,078	1,170,090	8,955,270
2011	2,861,553	4,421,284	459,078	1,170,090	8,912,005
2012	2,844,655	4,395,174	459,078	1,170,090	8,868,996
2013	2,827,855	4,369,219	459,078	1,170,090	8,826,241
2014	2,811,155	4,343,416	459,078	1,170,090	8,783,739
2015	2,248,924	3,474,733	367,262	936,072	7,026,991
2016	1,686,693	2,606,050	275,447	702,054	5,270,243
2017	1,124,462	1,737,366	183,631	468,036	3,513,496
2018	562,231	868,683	91,816	234,018	1,756,748
	43,516,656	67,236,036	6,886,166	17,551,346	135,190,203

Source: Author's Calculations

Table 19 is the same as Table 18 except that taxes that would be collected from personal income and expenditures are added to benefits (see Appendix B for calculations). This table reflects the assumption that personal income in the census survey is income “after” taxes. Thus, it is necessary to add taxes to get a correct estimate of primary benefits to society.

Table 19  
 Primary Benefits from Tax Policies  
 (Personal Income After Taxes)

Year	Personal Income (After Taxes)		Expenditures From Assets		Tax Collections	Primary Benefits
	From Income Tax Policy	From Death Tax Policy	From Income Tax Policy	From Death Tax Policy		
2000	610,840	943,787	91,816	234,018	106,046	1,986,507
2001	1,214,466	1,876,427	183,631	468,036	210,839	3,953,399
2002	1,810,940	2,798,019	275,447	702,054	314,391	5,900,851
2003	2,400,328	3,708,661	367,262	936,072	416,712	7,829,035
2004	2,982,691	4,608,449	459,078	1,170,090	517,814	9,738,121
2005	2,965,076	4,581,234	459,078	1,170,090	514,756	9,690,234
2006	2,947,566	4,554,179	459,078	1,170,090	511,716	9,642,629
2007	2,930,159	4,527,284	459,078	1,170,090	508,694	9,595,305
2008	2,912,855	4,500,549	459,078	1,170,090	505,690	9,548,261
2009	2,895,653	4,473,970	459,078	1,170,090	502,704	9,501,495
2010	2,878,553	4,447,549	459,078	1,170,090	499,735	9,455,005
2011	2,861,553	4,421,284	459,078	1,170,090	496,784	9,408,789
2012	2,844,655	4,395,174	459,078	1,170,090	493,850	9,362,847
2013	2,827,855	4,369,219	459,078	1,170,090	490,934	9,317,175
2014	2,811,155	4,343,416	459,078	1,170,090	488,035	9,271,774
2015	2,248,924	3,474,733	367,262	936,072	390,428	7,417,419
2016	1,686,693	2,606,050	275,447	702,054	292,821	5,563,064
2017	1,124,462	1,737,366	183,631	468,036	195,214	3,708,710
2018	562,231	868,683	91,816	234,018	97,607	1,854,355
	43,516,656	67,236,036	6,886,166	17,551,346	7,554,770	142,744,972

Source: Author's Calculations

### Costs

Table 20 depicts the costs of tax policy. Columns 2 and 3 are estimates of revenues foregone by the Governor's Legislative and Citizens Task Force on Tax Reform (2000). Column 4 contains an estimate of the cost of Medicaid that will be provided by Oklahoma to the in-migrants attracted by tax policy (detailed calculations are in Appendix C). We assume (as noted earlier) that the tax policy must be applied for the duration of the migration period to attract migrants over that period.

Table 20  
 Costs Attributable to State Tax Incentives for  
 Elderly In-Migrants, 2000-2018

Year	Income Tax Revenues Foregone	Death Tax Revenues Foregone	Medicaid Costs	Total Costs
2000	53,000,000	52,000,000	83,404	105,083,404
2001	53,000,000	52,000,000	170,143	105,170,143
2002	53,000,000	52,000,000	260,319	105,260,319
2003	53,000,000	52,000,000	354,034	105,354,034
2004	53,000,000	52,000,000	451,393	105,451,393
2005			460,421	460,421
2006			469,630	469,630
2007			479,022	479,022
2008			488,603	488,603
2009			498,375	498,375
2010			508,342	508,342
2011			518,509	518,509
2012			528,879	528,879
2013			539,457	539,457
2014			550,246	550,246
2015			449,001	449,001
2016			343,486	343,486
2017			233,570	233,570
2018			119,121	119,121
	265,000,000	260,000,000	7,505,955	532,505,955

Source: Author's Calculations

### Present Value of Primary Benefits

Table 21 is the same as Table 18, except that the primary benefits are now discounted at 3 percent per year. This discount rate is the low end of the range of social discount rates recommended by Gramlich (1997).

Table 21  
Present value of Primary Benefits  
(Personal Income Before Taxes)

Year	Personal Income (Before Taxes)		Expenditures From Assets		Primary Benefit	Discount Factor (i:0.03)	Present Value of Primary Benefits
	From Income Tax Policy	From Death Tax Policy	From Income Tax Policy	From Death Tax Policy			
2000	610,840	943,787	91,816	234,018	1,880,461	1.00	1,880,461
2001	1,214,466	1,876,427	183,631	468,036	3,742,560	1.03	3,633,553
2002	1,810,940	2,798,019	275,447	702,054	5,586,460	1.06	5,265,774
2003	2,400,328	3,708,661	367,262	936,072	7,412,322	1.09	6,783,325
2004	2,982,691	4,608,449	459,078	1,170,090	9,220,307	1.13	8,192,123
2005	2,965,076	4,581,234	459,078	1,170,090	9,175,477	1.16	7,914,847
2006	2,947,566	4,554,179	459,078	1,170,090	9,130,913	1.19	7,646,996
2007	2,930,159	4,527,284	459,078	1,170,090	9,086,611	1.23	7,388,246
2008	2,912,855	4,500,549	459,078	1,170,090	9,042,571	1.27	7,138,289
2009	2,895,653	4,473,970	459,078	1,170,090	8,998,791	1.30	6,896,824
2010	2,878,553	4,447,549	459,078	1,170,090	8,955,270	1.34	6,663,562
2011	2,861,553	4,421,284	459,078	1,170,090	8,912,005	1.38	6,438,222
2012	2,844,655	4,395,174	459,078	1,170,090	8,868,996	1.43	6,220,536
2013	2,827,855	4,369,219	459,078	1,170,090	8,826,241	1.47	6,010,241
2014	2,811,155	4,343,416	459,078	1,170,090	8,783,739	1.51	5,807,086
2015	2,248,924	3,474,733	367,262	936,072	7,026,991	1.56	4,510,358
2016	1,686,693	2,606,050	275,447	702,054	5,270,243	1.60	3,284,241
2017	1,124,462	1,737,366	183,631	468,036	3,513,496	1.65	2,125,723
2018	562,231	868,683	91,816	234,018	1,756,748	1.70	1,031,904
	43,516,656	67,236,036	6,886,166	17,551,346	135,190,203		104,832,312

Source: Author's Calculations

Table 22 is an application of the same procedures and discount rate used in Table 20 to primary benefits where personal income is assumed to be income after taxes.

**Table 22**  
**Present Value of Primary Benefit**  
**(Personal Income After Taxes)**

Year	Personal Income (After Taxes)		Expenditures From Assets			Primary Benefits	Discount Factor (i:0.03)	Present Value of Primary Benefits
	From Income Tax Policy	From Death Tax Policy	From Income Tax Policy	From Death Tax Policy	Tax Coll.			
2000	610,840	943,787	91,816	234,018	106,046	1,986,507	1.00	1,986,507
2001	1,214,466	1,876,427	183,631	468,036	210,839	3,953,399	1.03	3,838,251
2002	1,810,940	2,798,019	275,447	702,054	314,391	5,900,851	1.06	5,562,118
2003	2,400,328	3,708,661	367,262	936,072	416,712	7,829,035	1.09	7,164,676
2004	2,982,691	4,608,449	459,078	1,170,090	517,814	9,738,121	1.13	8,652,195
2005	2,965,076	4,581,234	459,078	1,170,090	514,756	9,690,234	1.16	8,358,881
2006	2,947,566	4,554,179	459,078	1,170,090	511,716	9,642,629	1.19	8,075,550
2007	2,930,159	4,527,284	459,078	1,170,090	508,694	9,595,305	1.23	7,801,861
2008	2,912,855	4,500,549	459,078	1,170,090	505,690	9,548,261	1.27	7,537,486
2009	2,895,653	4,473,970	459,078	1,170,090	502,704	9,501,495	1.30	7,282,105
2010	2,878,553	4,447,549	459,078	1,170,090	499,735	9,455,005	1.34	7,035,412
2011	2,861,553	4,421,284	459,078	1,170,090	496,784	9,408,789	1.38	6,797,110
2012	2,844,655	4,395,174	459,078	1,170,090	493,850	9,362,847	1.43	6,566,912
2013	2,827,855	4,369,219	459,078	1,170,090	490,934	9,317,175	1.47	6,344,543
2014	2,811,155	4,343,416	459,078	1,170,090	488,035	9,271,774	1.51	6,129,735
2015	2,248,924	3,474,733	367,262	936,072	390,428	7,417,419	1.56	4,760,959
2016	1,686,693	2,606,050	275,447	702,054	292,821	5,563,064	1.60	3,466,718
2017	1,124,462	1,737,366	183,631	468,036	195,214	3,708,710	1.65	2,243,830
2018	562,231	868,683	91,816	234,018	97,607	1,854,355	1.70	1,089,238
	43,516,656	67,236,036	6,886,166	17,551,346	7,554,770	142,744,972		110,694,084

Source: Author's Calculations

### Present Value of Costs

Then we applied the 3% discount factor to total costs to obtain the present value of total costs illustrated in Table 23.



Table 23  
Present Value of Costs

Year	Income Tax Revenues Foregone	Death Tax Revenues Foregone	Medicaid Costs	Total Costs	Discount Factor	Present Value of Total Costs
2000	53,000,000	52,000,000	83,404	105,083,404	1	105,083,404
2001	53,000,000	52,000,000	170,143	105,170,143	1.03	102,106,935
2002	53,000,000	52,000,000	260,319	105,260,319	1.0609	99,217,946
2003	53,000,000	52,000,000	354,034	105,354,034	1.092727	96,413,866
2004	53,000,000	52,000,000	451,393	105,451,393	1.125509	93,692,197
2005			460,421	460,421	1.159274	397,163
2006			469,630	469,630	1.194052	393,307
2007			479,022	479,022	1.229874	389,489
2008			488,603	488,603	1.26677	385,708
2009			498,375	498,375	1.304773	381,963
2010			508,342	508,342	1.343916	378,254
2011			518,509	518,509	1.384234	374,582
2012			528,879	528,879	1.425761	370,945
2013			539,457	539,457	1.468534	367,344
2014			550,246	550,246	1.51259	363,777
2015			449,001	449,001	1.557967	288,197
2016			343,486	343,486	1.604706	214,049
2017			233,570	233,570	1.652848	141,314
2018			119,121	119,121	1.702433	69,971
	265,000,000	260,000,000	7,505,955	532,505,955		501,030,411

Source: Author's Calculations

### Present Value of Net Primary Benefits

Then we obtained the difference between the present value of primary benefits and the present value of costs to get the present value of net primary benefits as illustrated in Table 24. Following the scheme used above, this is the case where personal income is before-tax income. The bottom line is that the present value of net primary benefits (PVNPB) is significantly less than zero: i.e. the tax policies produce costs much larger than benefits.

Table 24  
 Present Value of Net Primary Benefit  
 (Personal Income Before Taxes)

Year	PVNPB
2000	-103,202,943
2001	-98,473,382
2002	-93,952,172
2003	-89,630,541
2004	-85,500,074
2005	7,517,684
2006	7,253,688
2007	6,998,757
2008	6,752,582
2009	6,514,861
2010	6,285,307
2011	6,063,640
2012	5,849,590
2013	5,642,897
2014	5,443,309
2015	4,222,162
2016	3,070,193
2017	1,984,409
2018	961,933
	-396,198,099

Source: Author's Calculations

Table 25 tells the same story, even when taxes are added to personal income.

Table 25  
 Present Value of Net Primary Benefit  
 (Personal Income After Taxes)

Year	PVNB with Tax Collections
2000	-103,096,897
2001	-98,268,684
2002	-93,655,828
2003	-89,249,190
2004	-85,040,003
2005	7,961,717
2006	7,682,242

Year	PVNB with Tax Collections
2007	7,412,372
2008	7,151,778
2009	6,900,142
2010	6,657,157
2011	6,422,528
2012	6,195,967
2013	5,977,199
2014	5,765,957
2015	4,472,762
2016	3,252,669
2017	2,102,516
2018	1,019,267
	-390,336,327

Source: Author's Calculations

### Internal Rate of Return

Tables 26 and 27 arrays the data on net benefits by year. Given these arrays, the internal rates of return (-.155 and -.15) were calculated with Microsoft Excel.

Table 26  
Calculation of Internal Rate of Return  
(Personal Income Before Taxes)

Year	Net Benefits
2000	-103,202,942.694
2001	-101,427,583.258
2002	-99,673,859.150
2003	-97,941,711.727
2004	-96,231,086.388
2005	8,715,056.178
2006	8,661,282.935
2007	8,607,588.690
2008	8,553,968.229
2009	8,500,416.226
2010	8,446,927.337
2011	8,393,496.104
2012	8,340,117.039
2013	8,286,784.554

Year	Net Benefits
2014	8,233,493.008
2015	6,577,990.469
2016	4,926,757.839
2017	3,279,925.419
2018	1,637,627.010
	-0.155

Source: Author's Calculations

Table 27  
Calculation of Internal Rate of Return  
(Personal Income After Taxes)

Year	Net Benefits
2000	-103,096,897
2001	-101,216,744
2002	-99,359,468
2003	-97,525,000
2004	-95,713,272
2005	9,229,812
2006	9,172,999
2007	9,116,283
2008	9,059,658
2009	9,003,120
2010	8,946,663
2011	8,890,280
2012	8,833,967
2013	8,777,718
2014	8,721,528
2015	6,968,418
2016	5,219,579
2017	3,475,139
2018	1,735,234
	-0.150

Source: Author's Calculations

### Present Value of Net Primary and Secondary Benefits

Secondary benefits are those arising from the indirect and induced effects of primary benefits. Although most economists would admit secondary benefits only in

circumstances of widespread unemployment or excess capacity, they are provided here to illustrate their potential importance.

To estimate secondary benefits, we used the 1999 version of IMPLAN (Minnesota IMPLAN Group, 2000) to derive detailed value-added Type II multipliers (column 3 of Table 28). Type II multipliers capture direct, and induced effects of changes in expenditures. These were combined with a detailed distribution of income, and expenditures based on that income (from the U.S. Labor Department's 2000 Consumer Expenditure Survey). These coefficients were applied to estimated primary benefits for each year (from the personal income before taxes case) discounted at 3 percent, and summed over all years, 2000-2018, to get the estimates in column 4, Table 28.

Table 28  
Determination of Total Impact of Expenditures by In-Migrants  
2000-2018

Item	Share Total Expend.	IMPLAN Type II Multiplier	PV Primary and Secondary Benefits
450 Food at Home	0.085	1.351932	12,046,723
454 Food Away from Home	0.047	1.403378	6,914,610
455 Alcoholic Beverages	0.006	1.406383	884,606
48 New Residential Structures	0.036	3.384398	12,772,593
461 Owner-Occupied Dwellings	0.112	1.193366	14,011,571
462 Rented Dwellings	0.045	1.355811	6,395,976
463 Other Lodging	0.016	1.62561	2,726,663
444 Natural Gas	0.011	2.793653	3,221,516
443 Electricity	0.032	1.245634	4,178,646
210 Fuel Oil	0.004	5.915476	2,480,532
441 Telephone Services	0.023	1.633047	3,937,510
445 Water and Other Public Services	0.011	1.736444	2,002,390
468 Personal Services	0.012	2.902877	3,651,784
448 Other Household Expenses	0.016	1.383725	2,320,945
449 Housekeeping Supplies	0.016	1.423711	2,388,015
449 Household Furnishings and Equip	0.04	1.423711	5,970,037

Item	Share Total Expend.	IMPLAN Type II Multiplier	PV
			Primary and Secondary Benefits
449 Apparel and Services	0.04	1.423711	5,970,037
451 Vehicle Purchases	0.072	1.433558	10,820,390
451 Gasoline and Motor Oil	0.049	1.433558	7,363,877
456 Vehicle Finance Charges	0.004	1.459288	611,922
479 Maintenance and Repairs	0.02	1.58221	3,317,335
460 Vehicle Insurance	0.021	1.705843	3,755,377
477 Vehicle Rental	0.01	1.543345	1,617,924
434 Public Transportation	0.015	1.816116	2,855,815
460 Health Insurance	0.059	1.705843	10,550,820
490 Medical Services	0.023	1.711683	4,127,113
449 Drugs	0.027	1.423711	4,029,775
488 Fees and Admissions	0.013	1.539185	2,097,632
449 Entertainment Equipment	0.034	1.423711	5,074,531
449 Personal Care Products	0.013	1.423711	1,940,262
449 Reading	0.006	1.423711	895,505
497 Education	0.005	2.074234	1,087,234
449 Tobacco Products	0.006	1.423711	895,505
449 Miscellaneous	0.03	1.423711	4,477,527
460 Life and Personal Insurance	0.013	1.705843	2,324,757
	0.972		159717456

Source: Share of Total Expenditures from U.S. Department of Labor, 2002, *Consumer Expenditures in 2000*; Type II Multipliers from Minnesota IMPLAN Group, 2000.

All together, estimated secondary benefits were only \$54,885,144 (\$159,717,456-\$104,832,312). So, even if it were appropriate to add secondary benefits to primary benefits in doing a social benefit-cost analysis, they would not be large enough in this case to make net benefits positive.

## CHAPTER VI

### CONCLUSIONS, ASSESSMENT, AND POLICY IMPLICATIONS

The results of this study indicate that Oklahoma's effort to attract elderly in-migrants by offering additional income and estate tax concessions would be a source of a net loss to the state. This result is attributable primarily to the small effect of such policies in attracting elderly in-migrants, and to the relatively small income and assets of the majority of the elderly in-migrants estimated to be attracted by the policies.

These results reflect Duncombe, Robbins, and Wolf's finding (2000) that large tax breaks are required to attract even small numbers of elderly In-Migrants. They are also consistent with the conclusions of Conway and Houtenville (2001) and the findings of Iowa Legislative Fiscal Bureau (1997) and Dresher (1994). It confirms what one would expect because of the small effect of tax policies; namely, that the revenue losses from tax policies are likely to significantly outweigh the economic and fiscal benefits from the in-migration that occurs.

The fiscal benefits from in-migrants, in the form of additional taxes collected, are also very small. Fortunately, the demands on government services – in the form of Medicaid expenditures by the state – are also small. This is especially true for a state like Oklahoma where the federal government has traditionally paid the largest share of the Medicaid bill.

There are several ways in which our results may be biased downward (i.e., less than the true net benefits). One primary concern is that the tax policy effectiveness coefficients from Duncombe, Robins, and Wolf (2000), may be too small. Tax policy

coefficients from other studies are also small, however. In fact, they are not statistically different from zero in many studies, including the Iowa Legislative Fiscal Bureau (1997) and Dresher (1994) studies.

The proposed tax policies may also have some impact on the migration decisions of 55-64 years old. There is no basis, however, for determining an impact of income and death tax policies on this age cohort that is comparable to the basis on which this study rests. If this age cohort were affected by tax policies in same proportion as 65-74 year old in-migrants, it would significantly increase the impact of tax policies. There were 10,703 in-migrants 55-64 year olds (1.44 times the number who were 65-74 year olds), with an average 1985-90 income of \$14,185 (vs. \$12,818 for 65-74 year olds, or 10.7 percent higher). The two age cohorts also had similar distributions of income. So there could be a potential impact on 55-64 year olds as much as 1.5 times the impact on 65-74 year olds – or an additional \$150 million. This would still not be enough to make PVNPB positive, even with the addition of secondary benefits, but it would close the gap considerably.

The highest income bracket may contain more income than we accounted for; however, if it were increased significantly, it would not materially affect the results. For example, if it were increased 100 percent, the PVNPB would increase only about 3 percent.

We also made no provision for the value of volunteer work in-migrants. This is a potentially important omission. For example, 7000 volunteers  $\times$  500 hours per year  $\times$  \$10 per hour = \$35 M. There is no evidence we know, however, that would allow us to apply these or any other numbers, to the sample of in-migrants we drew from the 1990 census.



Finally, we assumed that tax policies would affect in-migrants equally at all income levels. They may, however, only affect the plans of high-income migrants. If they do, the results could be changed dramatically. The largest impact would occur if the effects of tax policy were confined to the three highest income brackets. The impact would depend on the actual income in the highest bracket of \$100,000 or more. If the level of income in that bracket were just \$100,000, the IRR would be 0.6 percent. It would take an average income of \$265,000 in the highest bracket to raise the IRR to 3.0 percent – the break even level when the social rate of discount is 3 percent.

Unlike Longino and Crown (1989), we find that elderly in-migrants to OK are not “pure gold” if the ranks of the in-migrants are in fact dominated by low income elderly with modest assets. When that kind of wealth is combined with very modest tax effectiveness coefficients, it is hard to escape the conclusion that general tax concessions to the elderly are a poor investment from the state’s perspective.

Alternatively, the tax concessions we have examined could be a good investment if they: (1) also attracted younger retirees, (2) attracted retirees who contribute real income through volunteer activities, and (3) attracted primarily higher-income retirees. These are the possibilities on which future research should be focused.

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## APPENDIXES

## Appendix A

### Table A. 1

Determination of Average Tax Rates, and Standard Deviations of  
Tax Rates, and Tax Policy Effectiveness Coefficients

State	Taxable Inc 2000	Taxable Inc 2000	Income Tax Ave Tax Rate 2000	Death Tax Ave Tax Rate 2000
AL	317,198	9,739,215	3.3	3.2
AK	2,232	1,982,156	0.1	3.2
AZ	361,727	11,880,017	3.0	3.2
AR	196,217	5,437,080	3.6	3.2
CA	3,129,764	78,912,729	4.0	3.2
CO	441,801	12,509,508	3.5	3.2
CT	352,714	10,703,740	3.3	6.9
DE	86,113	2,342,584	3.7	3.2
FL	64,504	6,483,410	1.0	3.2
GA	870,458	19,143,568	4.5	3.2
HI	168,569	3,085,162	5.5	3.2
ID	165,707	2,974,375	5.6	3.2
IL	821,891	35,476,002	2.3	3.2
IN	638,054	18,245,494	3.5	4.8
IA	338,417	8,655,370	3.9	7.5
KS	235,527	7,538,631	3.1	3.2
KY	556,308	9,507,999	5.9	3.2
LA	146,633	9,368,427	1.6	3.2
ME	166,735	3,454,048	4.8	3.2
MD	1,081,927	15,117,083	7.2	3.2
MA	901,071	19,430,609	4.6	3.2
MI	1,107,256	29,254,154	3.8	3.2
MN	801,395	15,764,424	5.1	3.2
MS	134,694	5,263,232	2.6	3.5
MO	506,328	14,726,076	3.4	3.2
MT	92,344	2,074,979	4.5	7.6
NE	160,155	4,796,619	3.3	3.2
NV	13,722	5,653,057	0.2	3.2
NH	46,941	4,204,760	1.1	3.2
NJ	657,207	24,155,511	2.7	3.2
NM	106,646	3,277,730	3.3	3.2
NY	2,688,161	46,911,763	5.7	4.9
NC	1,072,638	19,701,768	5.4	3.2
ND	19,052	1,769,335	1.1	3.2

State	Taxable Inc 2000	Taxable Inc 2000	Income Tax	Death Tax
			Ave Tax Rate 2000	Ave Tax Rate 2000
OH	1,625,487	33,596,407	4.8	5.6
OK	339,839	7,617,386	4.5	5
OR	665,699	8,850,041	7.5	3.2
PA	1,228,142	34,826,989	3.5	7
RI	125,857	2,941,818	4.3	3.2
SC	453,409	9,057,657	5.0	3.2
SD	2,594	2,005,989	0.1	3.2
TN	26,130	13,835,988	0.2	8.1
TX	41,058	47,422,151	0.1	3.2
UT	316,792	5,067,503	6.3	3.2
VT	54,767	1,786,780	3.1	3.2
VA	822,648	20,024,298	4.1	3.2
WA	55,185	18,459,553	0.3	3.2
WV	102,225	4,124,765	2.5	3.2
WI	1,038,710	17,220,685	6.0	3.2
WY	2,887	1,535,241	0.2	3.2
		Average	3.45	3.78
		Std Dev	1.93	1.34
		OK Std Dev	0.82	1.344
		In-Migrants per Average County	2.33	3.60

Table A. 1 illustrates: (1) the derivation of the average income and the death tax rate for each state, (2) the standard deviation of the distribution of state income and death tax rates, and (3) the determination of the number of in-migrants per average county. The income tax rate is the one that applies to taxable income of \$50,000. The taxable income and estate levels are those used in the empirical analysis by Duncombe, Robbins, and Wolf (2000).

The average income and death tax rates in 2000 were 3.45 percent and 3.78 percent, respectively. The standard deviation for the income and death taxes were 1.93 percent and 1.34 percent, respectively. A reduction in Oklahoma's income tax by 35.7 percent is equivalent to 0.82 standard deviations. A reduction in Oklahoma's death tax



from 5 percent to 3.2 percent is equivalent to 1.344 standard deviations. Applying Oklahoma's 0.82 standard deviation to Duncombe, Robbins, and Wolf's (DRW) income tax coefficients of 2.834 in-migrants per standard deviation yields 2.33 in-migrants per average county. Applying Oklahoma's 1.344 standard deviations to DRW's death tax effectiveness coefficient of 2.677 per standard deviation yields 3.6 in-migrants per average county in Oklahoma.

## Appendix B

Table B.1 illustrates the calculation of taxes that would be collected by the state of Oklahoma on the income and expenditure of the in-migrants attracted by state tax policy favoring the elderly. The calculations use an effective income tax rate of 2.383 percent—the weighted average income tax rate paid on taxable income up to \$100,000. They also use a state sales tax rate of 4.5 percent, and assume (based on actual 2000 sales and excise tax collections) that tobacco and beverage taxes are 10.1 percent of sales tax collections. Total tax collections are determined, first, for the 11 most important states, and then adjusted upward for the remaining 38 states to get the final total taxes collected from in-migrants from all states.

Table B  
Determination of Taxes Collected From Income of Inmigrants Attracted by Tax Policy.

Year	Selected States							All States			
	Income from Death Tax	Income from Lower Income Tax	Weighted Income Tax Rate	Income Tax Collection	Income Subj to Sales Tax (No Assets)	Subj Sales Collections as Prop Sales	Tobacco & Beverage Tx. Coll.	Tobacco & Beverage Taxes Collected	All States Total Relative to Taxes Selected	Total Collected	
2000	639,678	388,001	0.02383	24490.1	513839.5	23122.8	0.101	2335.4	49,948.2	1.43	71,426.0
2001	1,271,801	771,420	0.02383	48690.9	1021610.5	45972.5	0.101	4643.2	99,306.6	1.43	142,008.4
2002	1,896,435	1,150,297	0.02383	72605.0	1523366.0	68551.5	0.101	6923.7	148,080.2	1.43	211,754.6
2003	2,513,648	1,524,672	0.02383	96236.0	2019160.0	90862.2	0.101	9177.1	196,274.3	1.43	280,672.2
2004	3,123,504	1,894,585	0.02383	119583.3	2509044.5	112907.0	0.101	11403.6	243,893.9	1.43	348,768.3
2005	3,105,058	1,883,396	0.02383	118877.1	2494227.0	112240.2	0.101	11336.3	242,453.6	1.43	346,708.6
2006	3,086,721	1,872,274	0.02383	118175.1	2479497.5	111577.4	0.101	11269.3	241,021.8	1.43	344,661.1
2007	3,068,493	1,861,217	0.02383	117477.2	2464855.0	110918.5	0.101	11202.8	239,598.4	1.43	342,625.8
2008	3,050,372	1,850,225	0.02383	116783.4	2450298.5	110263.4	0.101	11136.6	238,183.5	1.43	340,602.4
2009	3,032,358	1,839,299	0.02383	116093.8	2435828.5	109612.3	0.101	11070.8	236,776.9	1.43	338,591.0
2010	3,014,450	1,828,437	0.02383	115408.2	2421443.5	108965.0	0.101	11005.5	235,378.6	1.43	336,591.4
2011	2,996,648	1,817,639	0.02383	114726.6	2407143.5	108321.5	0.101	10940.5	233,988.5	1.43	334,603.6
2012	2,978,952	1,806,905	0.02383	114049.1	2392928.5	107681.8	0.101	10875.9	232,606.8	1.43	332,627.7
2013	2,961,359	1,796,234	0.02383	113375.6	2378796.5	107045.8	0.101	10811.6	231,233.0	1.43	330,663.3
2014	2,943,871	1,785,627	0.02383	112706.1	2364749.0	106413.7	0.101	10747.8	229,867.5	1.43	328,710.6
2015	2,355,097	1,428,501	0.02383	90154.8	1891799.0	85131.0	0.101	8598.2	183,894.0	1.43	262,968.4
2016	1,766,323	1,071,376	0.02383	67623.6	1418849.5	63848.2	0.101	6448.7	137,920.5	1.43	197,226.4
2017	1,177,548	714,251	0.02383	45082.4	945899.5	42565.5	0.101	4299.1	91,947.0	1.43	131,484.2
2018	588,774	357,125	0.02383	22541.2	472949.5	21282.7	0.101	2149.6	45,973.5	1.43	65,742.1
									3,558,346.8	1.43	5,088,436.0

## Appendix C

Table C.1 illustrates the determination of the costs of Medicaid to the state of Oklahoma for the in-migrants attracted by state tax policy favoring the elderly. When tax policy is fully effective, say in 2004, it will attract 223.08 in-migrants. We assume that most in the lowest income categories, or 28.7 percent, will be on Medicaid. Each Medicaid recipient cost the state \$4,558 in 2000, and Medicaid costs are expected to grow at 2% per year above inflation. Total program costs are determined, first, for the 11 most important states, and then adjusted upward for the remaining 38 states, to get the final total program costs for all that contribute in-migrants.

Table C  
Determination Of Medicaid Costs of In-Migrants Attracted By Tax Policy

Year	11 most important States										All States	
	InMigran Due to Death Tax Policy	InMigran Due to Income Policy	Total InMigrant Due to Policy	Proport of Total Medicaid Beneficia	Total InMigrant Receiv Medicaid	Amount Paid by Beneficia	Real Co: Factor (1.02) <sup>t</sup>	Real Cost Per Pers	Real Cost Program	Total Program Cost	All States Relative Total Selecte States	Total Program Cost
0	2000	27.09	17.53	44.62	0.287	12.80	4558.18	1.000	4558.18	58,324.2	1.43	83,403.55
1	2001	54.17	35.06	89.23	0.287	25.59	4558.18	1.020	4649.35	118,981.3	1.43	170,143.23
2	2002	81.26	52.59	133.85	0.287	38.39	4558.18	1.040	4742.33	182,041.4	1.43	260,319.15
3	2003	108.34	70.12	178.46	0.287	51.18	4558.18	1.061	4837.18	247,576.3	1.43	354,034.04
4	2004	135.43	87.65	223.08	0.287	63.98	4558.18	1.082	4933.92	315,659.7	1.43	451,393.40
5	2005	135.43	87.65	223.08	0.287	63.98	4558.18	1.104	5032.60	321,972.9	1.43	460,421.27
6	2006	135.43	87.65	223.08	0.287	63.98	4558.18	1.126	5133.25	328,412.4	1.43	469,629.69
7	2007	135.43	87.65	223.08	0.287	63.98	4558.18	1.149	5235.92	334,980.6	1.43	479,022.29
8	2008	135.43	87.65	223.08	0.287	63.98	4558.18	1.172	5340.64	341,680.2	1.43	488,602.73
9	2009	135.43	87.65	223.08	0.287	63.98	4558.18	1.195	5447.45	348,513.8	1.43	498,374.79
10	2010	135.43	87.65	223.08	0.287	63.98	4558.18	1.219	5556.40	355,484.1	1.43	508,342.28
11	2011	135.43	87.65	223.08	0.287	63.98	4558.18	1.243	5667.53	362,593.8	1.43	518,509.13
12	2012	135.43	87.65	223.08	0.287	63.98	4558.18	1.268	5780.88	369,845.7	1.43	528,879.31
13	2013	135.43	87.65	223.08	0.287	63.98	4558.18	1.294	5896.50	377,242.6	1.43	539,456.90
14	2014	135.43	87.65	223.08	0.287	63.98	4558.18	1.319	6014.43	384,787.4	1.43	550,246.04
15	2015	108.34	70.12	178.46	0.287	51.18	4558.18	1.346	6134.71	313,986.5	1.43	449,000.77
16	2016	81.26	52.59	133.85	0.287	38.39	4558.18	1.373	6257.41	240,199.7	1.43	343,485.59
17	2017	54.17	35.06	89.23	0.287	25.59	4558.18	1.400	6382.56	163,335.8	1.43	233,570.20
18	2018	27.09	17.53	44.62	0.287	12.80	4558.18	1.428	6510.21	83,301.3	1.43	119,120.80
										5,248,919.7	1.43	7,505,955.16

Amount paid by OK = \$2.3B/101,422 beneficiaries of assistance for the aged, blind and disabled X 0.67 X 0.3;  
 where 0.67 is proportion of \$2.3B that goes to aged, blind and disabled and 0.3 is OK's share of the total  
 (the other 0.7 is paid by the federal government)

The real cost adjustment factor reflects the assumption that Medicaid costs will grow 2% faster than the general inflation rate

## VITA 2

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Candidate for the Degree of

Doctor of Philosophy

Thesis: ESTATE AND INCOME TAX INCENTIVES FOR ELDERLY IN-MIGRANTS TO OKLAHOMA: A COST-BENEFIT ANALYSIS

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