Evaluating North Dakota's State-Level Tax Equity in 1986

James F. Baltezore, Jay A. Leitch and Norbert A. Dorow

North Dakota has been experiencing some financial uncertainty in both the private and public sectors due to fluctuating economic activity within the energy and agricultural sectors. The state government is experiencing financial difficulties as a result of falling tax revenues and rising cost of government services. Tax revenues had declined sharply as a result of recessions in energy and agriculture (Dorow et al., 1988). The economic slowdown in these basic industries has steadily reduced tax revenues (both real and nominal) since a peak in fiscal 1985 (Figure 1). Tax rates were increased by the 1987 legislature to enhance state revenue in fiscal 1988; however, tax revenues were projected downward for fiscal 1989.

State government revenues have become difficult to predict precisely and recently have become insufficient to meet expenditure commitments. The current tax system is not providing adequate revenue given the changing economic conditions within the state. This suggests that the state tax system needs to be evaluated so that modifications can be made that will stabilize revenues even during the times of economic fluctuations.

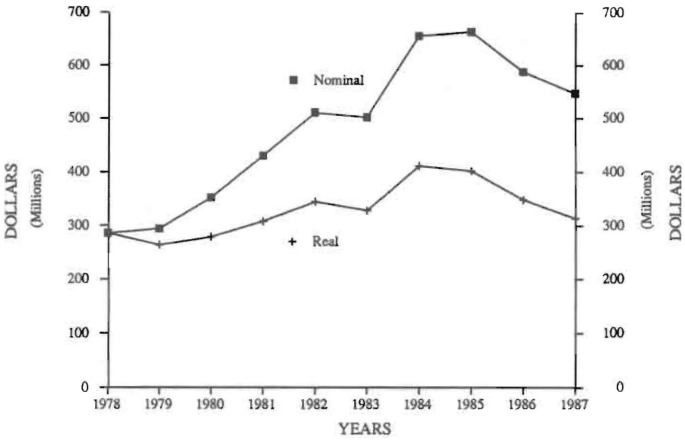

Figure 1. Total State Collected Taxes, Fiscal Years 1978-1987, North Dakota, Nominal and Real.

Baltezore is research assistant and Leitch is associate professor, Department of Agricultural Economics. Dorow is NDSU Extension Service economist.

TAX SYSTEM EVALUATION

There are several desirable characteristics of a good tax system that should be examined when changes are being considered. Individual taxes, but especially tax systems, are evaluated using the following criteria (Dorow et al. 1988):

Low administrative costs: Taxes should require only a small portion of the revenue collected to administer and collect the tax. Generally, administrative costs range from 1.5 percent to 2 percent for sales taxes to less than 1 percent for income taxes.

Reliable and adequate revenue: Tax systems should provide reliable and adequate revenue. Reliability depends on the state of the economy and the tax structure (mix of tax rates and bases). A highly variable or undependable tax or tax system makes it difficult to maintain a stable public service program.

Nonarbitary administration: Taxes should be based on reasonable criteria that correspond logically with the tax. Taxes should not be collected at random or by chance.

Understandable: Taxpayers should understand the tax structure and how changes in tax rates and bases affect them. Taxpayers should understand why they are taxed, what the tax is based on (wealth, income, or consumption), the amount of their tax liability, and how the tax revenue is used.

Low compliance costs: Taxpayers incur compliance costs when hiring accountants and tax lawyers to comply with tax laws. These types of costs should be low relative to the tax to minimize tax evasion.

Minimize tax shifting: Tax laws specify who is initially responsible for the tax. However, taxes may be shifted to other economic units depending on circumstances in the marketplace. Tax systems should minimize or be cognizant of tax burden shifting from one economic unit to another.

Be fair: Tax fairness or equity is based on two principles--ability to pay and benefits received. The **ability to pay principle** is that taxes should be distributed according to the ability of taxpayers to pay them (Davis et al., 1983). Those with more ability should contribute more. The best example is a progressive income tax. The **benefits received principle** relates the means of financing government goods and services to the benefits citizens receive (Buchanan et al., 1987). Those who benefit should pay. Examples include gasoline taxes for roads and streets, property taxes for police and fire protection, tuition for college, and entrance fees for using state parks.

Six of these seven criteria can be quantified and analyzed objectively to a certain degree. However, fairness is somewhat more difficult to evaluate. In view of this, the 1986 North Dakota state-level tax system was recently evaluated with regard to fairness (Baltezore et al., 1988).

PROCEDURE

Counties were used as surrogate taxpaying and benefit receiving units since data are not available for individual taxpaying households or businesses. Counties were assumed to be sufficiently internally homogenous to treat them as taxpaying units, and people living in the county pay taxes and receive the benefits. In order to make first approximations about fairness and to generalize about the North Dakota system, counties were placed into several groups based on

- per capita county total personal income,
- percentage of county total personal income from farming, and
- location.[1]

All major state-level taxes were allocated to counties to estimate their tax liability (Figure 2). Sales and use taxes were attributed to counties based on a five-year average of county total personal income because there are no data to allocate sales taxes to taxpaying units by county. This makes the sales tax proportional to income by design, although North Dakota sales and use taxes are thought to be regressive to some degree (Dorow et al., 1988a). County shares of income tax collections were provided by the State Tax Department. Motor vehicle and special fuel taxes were attributed to counties using county vehicles miles of travel. Vehicle registrations were used to attribute registration fees, motor vehicle excise tax, and motor vehicle use tax to counties. Tobacco products taxes were allocated to counties based on county population.

[1] *Baltezore et al. (1988) contains additional county groups including total personal income, federal adjusted gross income, state planning regions, and county population.*

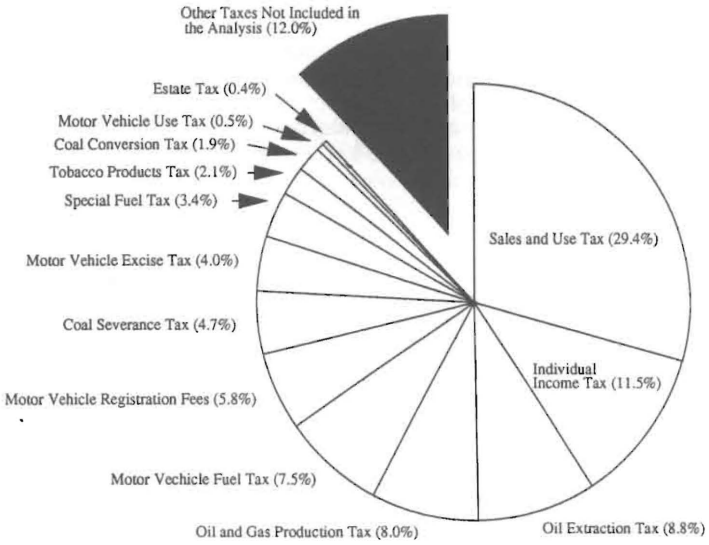

Figure 2. State-Level Collections, North Dakota, 1986.

Energy taxes, corporate income taxes, insurance premium tax, and various miscellaneous taxes and fees were not included. Energy taxes are paid primarily by out-of-state corporations and not by citizens within the county. Corporate income taxes are also paid mainly by corporations located outside of North Dakota. Over two-thirds of the corporate income taxes collected during 1986 were paid by out-of-state corporations. Insurance premium tax is paid primarily by insurance companies due to the competitive nature of the insurance industry.

Total state taxes were divided by county total personal income (Figure 3) to estimate the relationship between tax collections and income (tax burden). Estimating the percentage

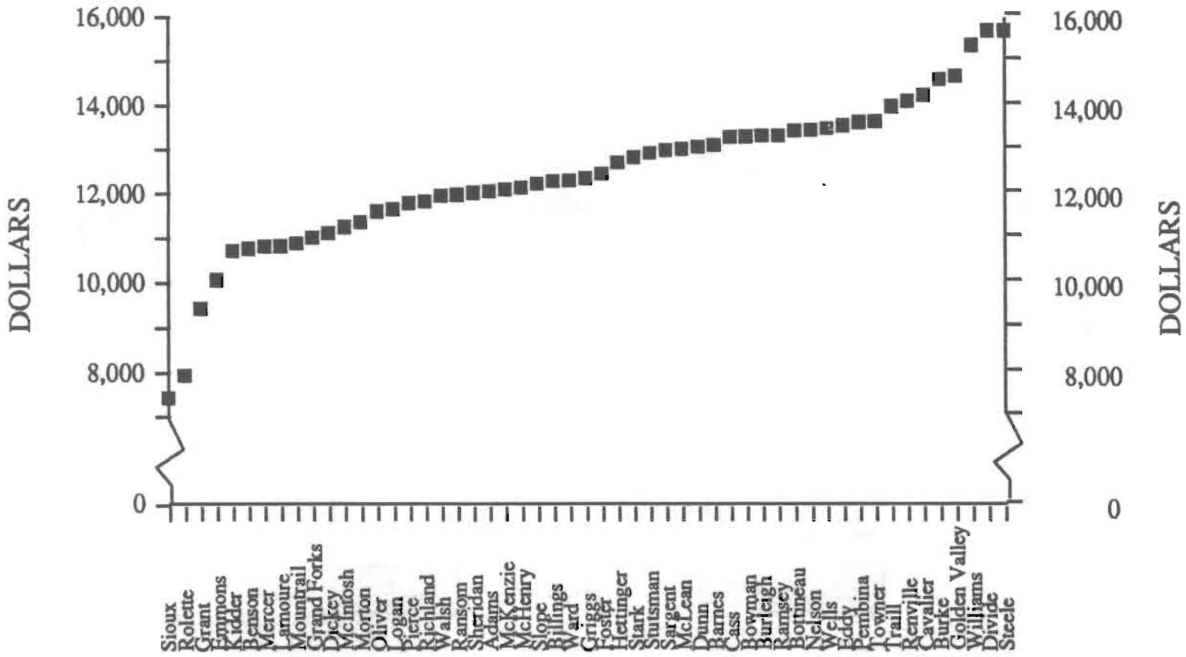

Figure 3. Per Capita County Total Personal Income, North Dakota, 1986.

of taxes paid relative to income will show if the tax system is progressive, proportional, or regressive and provides the basis for analyzing the state tax system according to the ability to pay principle of fairness.

RESULTS

Counties consistently paid about 4 percent of their total personal income in taxes in 1986, implying the state tax system is proportional (Table 1). Tax liability among farm income groups shows that counties in which net farm income accounts for a larger percentage of county personal income generally had a slightly higher tax burden as a percentage of total personal income. Tax liability by location (Figure 4) revealed that the west and west central areas of the state had slightly higher tax burdens than the east central and east.

Generally, the state tax system seems proportional and thus is not based on the ability to pay principle. Taxes paid as a percentage of total personal income show that counties with relatively low per capita total personal incomes paid nearly the same percentage of their income in taxes as counties with higher per capita income. Counties with high per capita income would have a greater tax burden than counties with low per capita income if the ability to pay tax equity principle were followed.

Table 1. State Taxes Paid and Average Per Capita Net Benefits Received, North Dakota, 1986.

County Group	State Taxes Paid as a Percentage of Total Personal Income	Average Per Capita Net Benefits Received
	---------- % ----------	-------- $ --------
Per Capita Income		
$14,000 or more	4.20	56
$13,000 - $13,999	4.30	178
$12,000 - $12,999	4.51	240
$11,000 - $11,999	4.25	405
Less than $11,000	4.48	223
Farm Income as a Percentage of County Total Personal Income		
25% or more	4.74	226
20% - 24%	4.24	55
15% - 19%	4.37	132
10% - 14%	4.40	423
Less than 10%	4.13	317
Location		
West	4.50	283
West Central	4.38	172
East Central	4.25	185
East	4.34	324

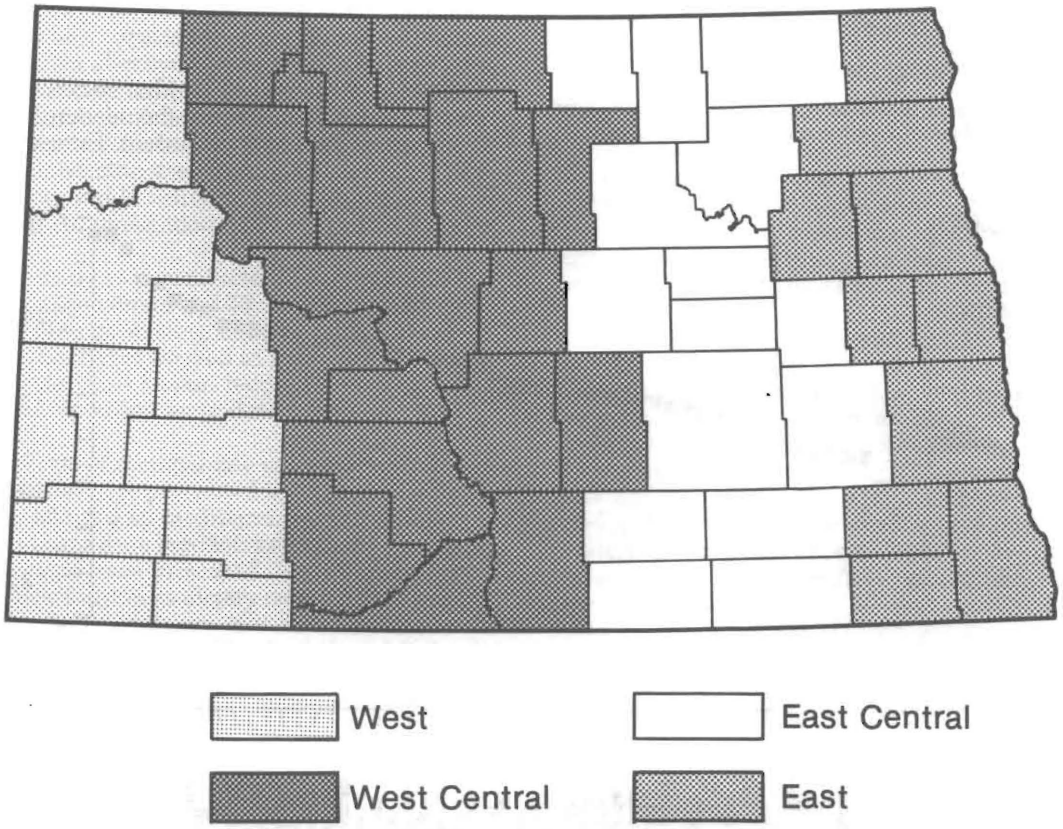

Figure 4. County Location Groups.

The other tax equity principle is benefits received. Benefits received are state appropriations or expenditures made in each county (Figure 5). State expenditures not included were general government, public safety, natural resources, and legislative and judicial expenditures.

Net benefits received is a measure of total state expenditures in a county less the state taxes paid by the county. Average per capita net benefits were positive among county groups (Table 1), implying counties received more benefits than they paid in taxes. Positive net benefits were expected since some taxes (energy, corporation, and insurance taxes) were not included in the analysis. Higher per capita income counties generally had lower net benefits than lower income counties. In essence, the state government is redistributing wealth from high per capita income counties to low per capita income counties. Counties with a high percentage of farm income generally received fewer net benefits than counties with a low percentage of farm income. The west and east received more per capita benefits than the rest of the state.

Comparing benefits received and taxes paid shows that they are similar (Figure 6). Counties are shown from the lowest per capita (Sioux) on the left of Figure 6 to the highest per capital income (Steele) on the right. Counties which appear to receive more than others contain either state health facilities, higher education institutions and/or receive energy tax distributions. State expenditures in these counties overestimate county benefits to a certain degree since some of the expenditures (education and health, for example) result in collective benefits for all citizens in the state. **Generally, the state tax system seems to conform to the benefits received principle, since those who are paying taxes are receiving proportionate levels of state services.** However, lower per capita income counties paid slightly less taxes and received somewhat more benefits than higher per capita income counties, implying some wealth redistribution among counties.

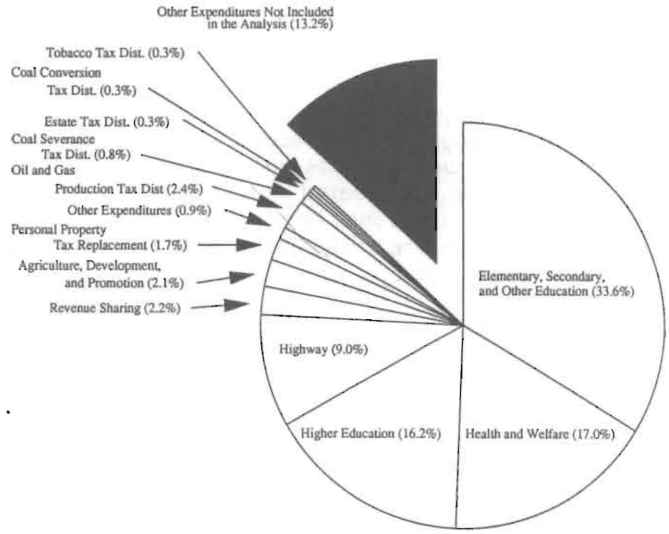

Figure 5. State-Level Expenditures, North Dakota, 1986.

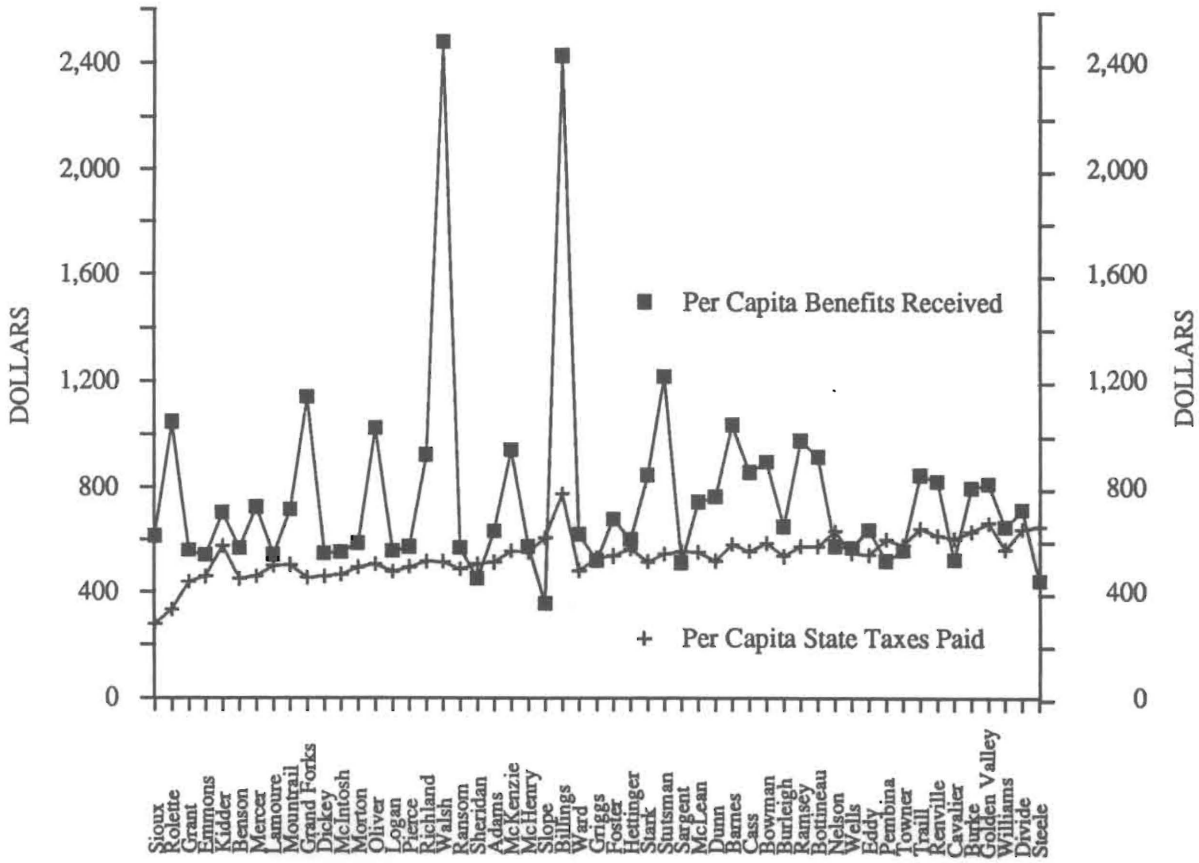

Figure 6. Per Capita Total State Taxes Paid and Total Benefits Received, by County, North Dakota, 1986.

CONCLUSION

At first approximation, the North Dakota tax system in 1986 seemed to be based on the benefits received principle. The taxes counties paid were similar to the benefits they received. Those (counties) who received state government goods and services were the ones who paid for them. Thus, the state tax system is fair based on the benefits received principle. However, there may be some untapped capacity for taxing according to the ability to pay principle, an equally compelling equity criteria.

REFERENCES

Baltezore, James F., Jay A. Leitch, Norbert A. Dorow, and Cole R. Gustafson. 1988. **State-Level Tax Equity in North Dakota in 1986.** Agr. Econ. Rpt. No. 242. North Dakota State University, Agr. Experiment Station, Fargo.

Buchanan, James M. and Marilyn R. Flowers. 1987. **The Public Finances.** 6th ed. Irwin, Inc., Homewood, Illinois.

Davis, J. Ronnie and Charles W. Meyer. 1983. **Principles of Public Finance.** Prentice Hall, Inc., Englewood Cliffs, New Jersey.

Dorow, Norbert A., Jay A. Leitch, and James F. Baltezore. 1988. **North Dakota's State and Local Tax System.** EB-53. North Dakota State University Extension Service, Fargo.

Dorow, Norbert A., Jay A. Leitch, and James F. Baltezore. 1988a. **North Dakota's State and Local Tax System - An Overview.** EC-963. North Dakota State University Extension Service, Fargo.