Volatility of Major Washington State Taxes

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Introduction

- **Objective**
  - **To present results of volatility measures of major tax bases of Washington State**
- **Stability of Tax System**
  - **estimated for the Washington Tax Structure Study (December, 2002).**
- **Measure of stability**

Stability of Tax System

- A stable tax system provides sufficient revenues to meet state expenditure requirements notwithstanding fluctuations of the economy over the business cycle.
- Less sensitive to fluctuations of the economy over the business cycle.

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Measure of Stability

- Short-run elasticity (SRE)

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Washington General Revenues, FY2000 (State and Local)

- Taxes 56.1%
- Federal Grants 17.4%
- Charges for Services 17.4%
- Other 5.3%
- Interest 3.8%
  - Washington State and Local Taxes (56.1%)
  - General Sales Taxes 47.6%
  - Property Taxes 29.3%
  - Selective Sales Taxes 13.7%
  - Other 9.4%

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Data

- Constant base, constant rate
  - Retail sales and use tax base
  - Business and Occupation base
  - Public utility base
  - Personal property tax base
- Measure of the economy
  - Washington State personal income
- Data series 1970-2000
- Alternative tax system
  - Washington adjusted gross income (1980-2000)

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Data contd.

- **Stationarity of data series**
  - **Tendency to return to mean value over time - or not**
  - **Trend stationary or difference stationary?**

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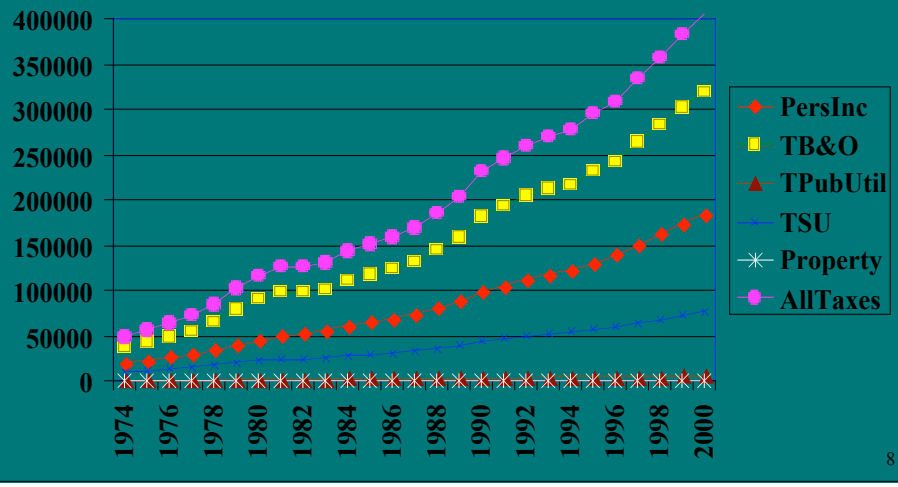
Non-stationary Data Series

Untransformed Data Series



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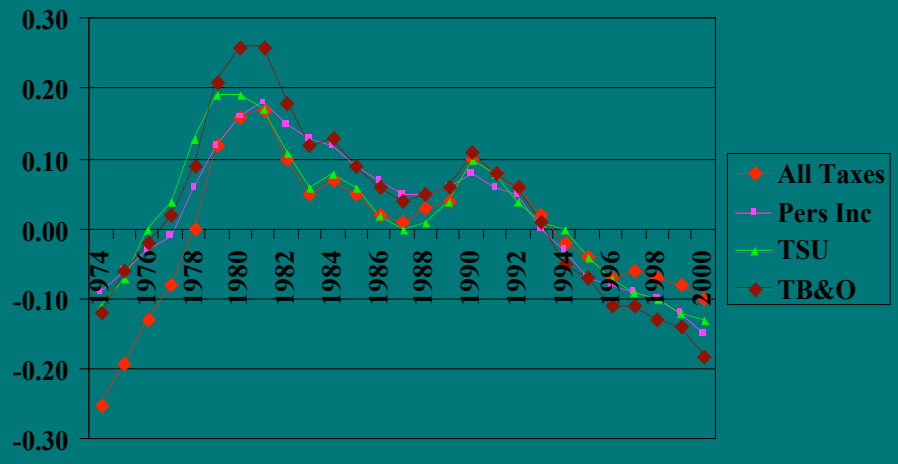
De-trended Data Series

Deviations from Regression Line



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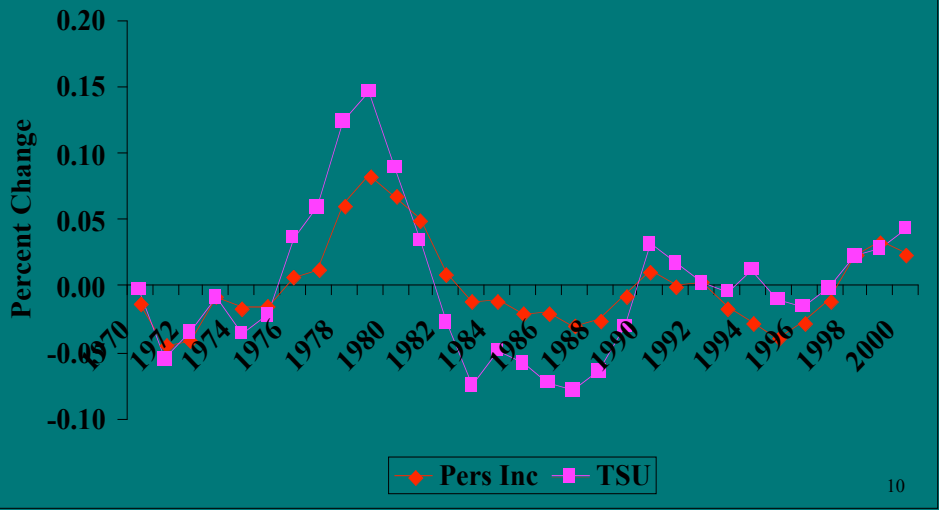
Year to Year Changes in Personal Income

Relative to Retail Sales and Use Tax Base



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The Econometric Model

- **Standard Model**
  - $\ln(B_t) = \_+\_\ln(Y_t) + \_t$
  - Where B_t = the level of the tax base in period t
  - Y_t = the level of personal income in period t
  - t = 1970…..2000
- **Model in change form or difference form:**
  - $\_\ln(B_t) = \_+\_\_\ln(Y_t) + \_t$

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Results

- **A tax system with normal stability has a SRE equal to one. It tracks the economy over the business cycle.**
- **A more stable tax system has a SRE that is less than one and is less susceptible to fiscal crises.**
- **A tax system with a SRE of greater than one has a volatile tax system, subject to fiscal crises. In periods of economic expansion tax revenues grow faster than the economy; in times of recession tax revenues shrink faster than the economy.**

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Short-Run Elasticity Estimates

Tax Base	Short-Run Elasticity
Sales and Use	1.4
B&O	1.4
Property	0.2
Public Utilities	-0.2
All Taxes	1.2

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Short-Run Elasticities for Simulated Personal Income Tax (1980-2002)

Tax Base	Short-Run Elasticity

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Conclusions

- **Overall SRE for major tax bases is 1.2. The current mix of major taxes for Washington State are volatile. With both the sales and use and B&O tax bases being relatively elastic short-run elasticities.**
- **While personal property and public utilities have inelastic measures of 0.2 and -0.2 and are therefore stable – that's not enough to offset volatile sales and use and B&O income elasticities.**
- **Alternative tax system does not mitigate the volatility problem**

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Questions

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