INTERREGIONAL REDISTRIBUTION: CONCEPTS AND MEASUREMENT

JOE RUGGERI

UNIVERSITY OF NEW BRUNSWICK
EVERY NATION, BE IT A UNITARY STATE OR A FEDERATION, FACES THE PROBLEMS OF REGIONAL ECONOMIC DISPARITIES AND OF INCOME INEQUALITIES AMONG FAMILIES.

THESE DISPARITIES AND INEQUALITIES ARE AFFECTED BY THE FISCAL AND NON-FISCAL ACTIVITIES OF GOVERNMENTS.

IN UNITARY STATES, THESE EFFECTS ARE GENERATED BY THE ACTIVITIES OF THE CENTRAL GOVERNMENT.

- IN FEDERATIONS REGIONAL GOVERNMENTS CAN ALSO CONTRIBUTE.

FEDERATIONS MAY ALSO CREATE VERTICAL AND HORIZONTAL FISCAL IMBALANCES.
INTRODUCTION

- THESE TWO ISSUES ARE STUDIED BY DIFFERENT RESEARCHERS:
  1. REGIONAL ECONOMIC DISPARITIES: STUDIED BY ECONOMISTS THAT TRY TO EXPLAIN THE STRUCTURAL FACTORS THAT CAUSE THEM
  2. INCOME INEQUALITY: STUDIED BY PUBLIC FINANCE ECONOMISTS INTERESTED IN ISSUES OF INCOME DISTRIBUTION & EQUITY

- THE FOCUS ON INCOME INEQUALITY IS MORE APPROPRIATE IN A UNITARY STATE WHERE NATIONAL STANDARDS OF PUBLIC SERVICES & UNIFORMITY OF TAXATION IGNORE THE PLACE OF RESIDENCE

- THIS FOCUS IS NOT AS MEANINGFUL IN A FEDERATION WITH DIFFERENT LEVELS OF GOVERNMENT & DIFFERENT PREFERENCES FOR GOVERNMENT ACTIVITY

- FEDERATIONS: MORE MEANINGFUL TO ANALYZE THE FISCAL AND NON-FISCAL GOVERNMENT ACTIONS AS PART OF REGIONAL DISPARITIES
INTRODUCTION

- WITH THE EXPANSION OF STUDIES ON FEDERALISM, RESEARCH HAS INCREASED ON THE EFFECT OF FISCAL ACTIVITY ON THE ECONOMIC PERFORMANCE AND/OR LIVING STANDARDS IN DIFFERENT REGIONS

- MORE ATTENTION PLACED ON CALCULATIONS THAN ON METHODOLOGY

- IN MY VIEW, WE HAVE MANY EMPIRICAL STUDIES IN SEARCH OF A COMMON METHODOLOGY

- FOR THIS PAPER:
  - I OFFER MY OWN VIEWS FOR THE DEVELOPOMENT OF SUCH A COMMON METHODOLOGY, ACKNOWLEDGING THEIR LIMITATIONS
  - I WILL START WITH CONCEPTS AND DEFINITIONS
  - FOR MEASUREMENT, I WILL DISCUSS THE COMMON ISSUES, EVALUATE THREE DIFFERENT APPROACHES, OFFER AN EXAMPLE OF A SUITABLE CONCEPT OF INCOME FOR THIS ANALYSIS, AND PRESENT VARIOUS LOCAL AND GLOBAL INDICES OF INTERREGIONAL REDISTRIBUTION
CONCEPTS

- I WILL FOCUS ON THE FEDERAL GOVERNMENT, BUT THE ANALYSIS CAN BE APPLIED TO REGIONAL GOVERNMENT

- THE FEDERAL GOVERNMENT CAN AFFECT REGIONAL DISPARITIES IN ECONOMIC PERFORMANCE AND LIVING STANDARDS THROUGH BOTH FISCAL AND NON-FISCAL ACTIONS

- THE COMBINED EFFECT OF FISCAL AND NON-FISCAL ACTIVITY MAY BE CALLED INTERREGIONAL REDISTRIBUTION

- THE KEY NON-FISCAL ACTIONS WITH REGIONAL IMPACTS ARE:
  - INTERNATIONAL TRADE POLICY (NATIONAL PROGRAM OF LATE 1870s)
  - INTERREGIONAL BARRIERS TO TRADE (HUMAN CAPITAL)
  - MONETARY POLICY (SMALL VS LARGE REGIONS)
  - ENVIRONMENTAL POLICY (INDUSTRIAL STRUCTURE)
CONCEPTS

- When the analysis is confined to fiscal actions, the effects may be called *interregional fiscal redistribution*.

- The difference between allocated expenditures and revenues (federal and regional) may be called *interregional fiscal flows*.

- *Federal fiscal flows*: difference between federal spending and federal revenues assigned to each region.

- They have two components:
  - *Balanced federal fiscal flows*: zero sum; interpreted as the transfer of resources among regions with the intermediation of the federal fisc.
  - *Regional distribution of surplus or deficit on allocations*.
PRECONDITIONS

- **LIMITS TO FEDERAL FISCAL ACTIVITY**: We must identify the programs that are part of federal fiscal activity.

- **MAIN EXAMPLES**: Non-budgetary pension funds and publicly controlled enterprises.

- **REGIONS**: In theory, a nation may be divided into regions under a different criteria.
  - Examples: Geographic borders or parameters of federal spending programs.

- In my view, it is preferable to focus on the official administrative jurisdictions (unitary state) or the constitutional jurisdictions (federation).
THE PERIOD OF ANALYSIS

- This choice depends largely on practical considerations.
- Budget data are based on fiscal year, while economic data are generally presented on a calendar year basis.
- If the focus is on regional economic disparities, it is preferable to use calendar years.
- It is also desirable to calculate federal fiscal flows annually to avoid the effect of cyclical factors and for non-recurrent federal expenditures.
- Averages of selected series of years should be used only for periods when there are no major tendencies towards an increase or decrease in the degree of interregional redistribution.
GENERAL ISSUES

- **NON-RESIDENTS**: Interregional fiscal redistribution is a relationship between fiscal flows & regional economic disparities
  - Only fiscal flows involving the residents of the various regions should be included
  - Fiscal relations with non-residents should be excluded

- **CONSUMPTION AND PUBLIC INVESTMENT**: National income accounts make a distinction between public consumption & public investment in fixed capital

- Estimates of fiscal flows treat public spending as consumption

- In this area we need to solve two problems:
  A. The allocation of capital spending in the year it is made
  B. Its effects in the future

- The solution to these two issues also affects the treatment of the interest on the public debt
TYPES OF INVESTMENT

- FIVE TYPES OF CAPITAL: (1) PHYSICAL, (2) NATURAL, (3) HUMAN, (4) CIVIC, AND (5) SOCIAL

- EXISTENCE OF LARGE EXTERNALITIES
  - HOW CAN WE MEASURE THE REGIONAL DIMENSIONS OF THESE EXTERNALITIES?

- EXAMPLE OF CANADA:
  - INTERNATIONAL COMPETITION AND SEARCH FOR PRODUCTIVITY GROWTH FAVOURS FEDERAL INTERVENTION
  - FEDERAL INVESTMENT IN HUMAN CAPITAL FAVOURS THE RICHEST REGIONS
  - INTERACTIONS WITH REGIONAL FISCAL CAPACITY BECAUSE OF INTERREGIONAL LABOUR MIGRATION, IN PART FISCALLY INDUCED

- UNEQUAL EFFECTS OF CURRENT SPENDING:
  - ESTIMATES OF FISCAL FLOWS DO NOT DISTINGUISH AMONG CATEGORIES OF PUBLIC SPENDING, YET A DOLLAR OF TRANSFER TO PERSONS MAY NOT HAVE THE SAME ECONOMIC EFFECT AS A DOLLAR SPENT ON WAGES (CONSUMPTION VERSUS PRODUCTIVE ACTIVITY)

- HOW CAN WE ACCOUNT FOR THIS DIFFERENCE?
MARGINAL COST OF PUBLIC FUNDS

- TWO QUESTIONS IN THE CONTEXT OF INTERREGIONAL REDISTRIBUTION:

  1. IS THE OVERALL LEVEL OF TAXATION HIGHER BECAUSE OF INTERREGIONAL REDISTRIBUTION?

  2. HOW IS THIS DIFFERENCE DISTRIBUTED AMONG REGIONS?

- SINCE FEDERAL TAX RATES ARE APPLIED UNIFORMLY ACROSS THE COUNTRY, THE DISTORTIONS GENERATED BY FEDERAL TAXATION SHOULD HAVE LITTLE EFFECT ON INTERREGIONAL REDISTRIBUTION

- INTERACTIONS BETWEEN FEDERAL AND REGIONAL FISCAL SYSTEMS:
  - EXAMPLE OF REGIONAL TAXES THAT ARE DEDUCTIBLE FROM FEDERAL TAXES
EXPORTATION OF REGIONAL TAXES

- This exportation may occur only when there are regional taxes that can be shifted.
- This effect can be captured only when the measurement of interregional redistribution also includes the direct component among regions.
- Spillovers from regional expenditures:
  - These have both a federal and a regional component.
- For the federal component, they may occur only for regional expenditures partly financed by the federal government.
- Two main channels of the latter:
  1. Highways
  2. Migration of human capital
INTEREST ON THE DEBT

- PAYMENTS ARE NEITHER TRANSFER PAYMENTS
  NOT PURCHASES OF GOODS AND SERVICES
  - FUNDS TO PAY FOR THIS ITEM ARE PART OF
    GOVERNMENT REVENUES

- OPTION 1: DEDUCT PAYMENTS TO NON-
  RESIDENTS AND ALLOCATE THE NET BASED ON
  THE DISTRIBUTION OF:
  1. INTEREST INCOME,
  2. DIRECT SPENDING, OR
  3. TAX REVENUES
  • UNDER (1) & (2), THERE WILL BE SOME
    METHODOLOGICALLY-DRIVEN INTERREGIONAL
    REDISTRIBUTION
OPTION 2:

- NEUTRALIZE INTERREGIONAL REDISTRIBUTION
  - EXCLUDE INTEREST PAYMENTS FROM FISCAL FLOWS AND DEDUCT THE AMOUNT PAID TO RESIDENTS FROM REVENUES BASED ON THE ALLOCATION THAT WOULD HAVE BEEN USED IN ALLOCATING INTEREST PAYMENTS
SURPLUS OR DEFICIT

- To measure only the transfer of resources from the more prosperous to less prosperous regions via federal intermediation, we must neutralize surpluses or deficits.

- Surpluses are usually small and generally unplanned:
  - This unplanned excess of revenues is not part of federal fiscal balances.
  - It must be excluded from these balances.
  - It must be deducted from the private income or consumption of all regions, preferably in proportion to allocated tax revenues.

- Deficits are planned; they must also be neutralized.

- Addition to regional income or consumption, allocated according to distribution of federal tax revenues or direct spending.
1. METHODOLOGY FOR CALCULATING FEDERAL FISCAL FLOWS
   - SELECTION OF APPROACHES
   - ALLOCATION OF FEDERAL REVENUES AND EXPENDITURES
2. ECONOMIC CONCEPT TO MEASURE THE EFFECT OF FEDERAL FISCAL BALANCES ON INTERREGIONAL REDISTRIBUTION
3. EVALUATION OF INDICES OF INTERREGIONAL REDISTRIBUTION
4. CALCULATION AND INTERPRETATION OF THE SELECTED INDICES
THREE APPROACHES TO THE MEASUREMENT OF FISCAL FLOWS

1. BENEFIT APPROACH

2. CASH-FLOW APPROACH

3. ECONOMIC GAIN APPROACH
BENEFIT APPROACH

- This approach is a direct extension of fiscal incidence analysis.
  - Focuses on the residence of the individuals who receive the benefits of government spending and contribute to its financing.

- For revenues, it is based on tax incidence analysis.

- On the spending side, it distinguishes between transfer payments, private goods financed by government and public goods.

- Question addressed:
  - Are the benefits of federal spending received by the residents of a region equal, greater or less than the burden of federal taxation borne by them?
CASH-FLOW APPROACH

- THE CASH-FLOW APPROACH FOCUSES ON THE LOCATION WHERE REVENUES ARE COLLECTED AND DISBURSEMENTS ARE MADE
  - IMPORTANCE OF ACCOUNTING PROCEDURES FOR RECORD KEEPING

- NO REFERENCE TO TAX INCIDENCE

- NO DIFFERENCE BETWEEN THE DIFFERENT CATEGORIES OF PUBLIC SPENDING

- QUESTION ADDRESSED:
  - ARE THE FEDERAL PAYMENTS TO THE RESIDENTS OF A REGION, AS OFFICIALLY RECORDED, EQUAL GREATER OR LESS THAN THE REVENUES COLLECTED IN THAT REGION?
ECONOMIC GAIN APPROACH

- The Economic Gain Approach is my suggestion and is a compromise between the other two approaches.
- Focus on the jurisdiction.
- It assigns federal revenues collectively to the region where its burden is born, according to tax incidence.
- It assigns federal spending to the region where the gain is received, measured by the increase in factor income.
- No distinction among categories of public spending.
- Question addressed:
  - Is what a region gains from federal contributions to the income of its residents equal, greater or less than the contribution that these residents make collectively to the federal fisc?
SELECTION OF APPROACH

- The results of the *BENEFIT* approach are interpreted in the context of individual welfare
  - More suitable for unitary states where all public spending is based on national standards

- The *ECONOMIC GAIN* approach is more suitable for the analysis of regional disparities in a federation

- No specific interpretation of the *CASH-FLOW* approach, but closer to the *ECONOMIC GAIN* approach
ALLOCATION OF FEDERAL REVENUES

A. REVENUES THAT ARE NOT SHIFTED: COMMON ALLOCATION:
   - PERSONAL INCOME TAXES
   - DIRECT TAXES ON CONSUMERS
   - PAYROLL TAXES ON EMPLOYEES

B. PROPERTY TAXES ON OWNER-OCUPIED STRUCTURES

C. TAXES SUBJECT TO SHIFTING: DIFFERENT ALLOCATION:
   - CORPORATE INCOME AND CAPITAL TAXES
   - INDIRECT SALES TAXES
   - ROYALTIES
   - REMITTANCES FROM GOVERNMENT ENTERPRISES
   - CASH-FLOW APPROACH: PLACE OF COLLECTION
   - BENEFIT APPROACH: WHERE BURDEN IS BORNE INDIVIDUALLY
   - ECONOMIC GAIN APPROACH: WHERE CONTRIBUTION IS MADE REGIONALLY
ALLOCATIONS OF FEDERAL
EXPENDITURES

A. **COMMON ALLOCATION:**
   - TRANSFERS TO PERSONS
   - TRANSFERS TO REGIONAL AND LOCAL GOVERNMENTS

B. **DIFFERENT ALLOCATION:**
   - CURRENT PURCHASES OF GOODS AND SERVICES
   - FIXED INVESTMENT
   - CASH-FLOW APPROACH: WHERE MONEY IS SPENT BASED ON RECORD KEEPING CONVENTIONS
   - BENEFIT APPROACH: RESIDENCE OF INDIVIDUALS RECEIVING THE BENEFITS
   - ECONOMIC GAIN APPROACH: THE REGION WHERE FACTOR INCOME IS GENERATED
Further Details on the Allocation

- **WAGES OF PUBLIC EMPLOYEES:**
  - Benefit Approach: Residence of those receiving the benefits
  - Cash-flow and Economic Gain Approaches: Residence of those who receive the wages and salaries

- **FIXED INVESTMENT AND FINANCING OF PUBLIC SERVICES:**
  - Benefit Approach: Residence of those who receive the benefits of those expenditures
  - Cash-flow Approach: Regions to which these expenditures are assigned according to administrative conventions
  - Economic Gain Approach: The region where factor income is generated

- **CORPORATE INCOME TAXES:**
  - Cash-flow Approach: Region to which revenues are assigned according to administrative formulas
  - Benefit and Economic Gain Approaches: According to Incidence Theory; Closed Economy (Capital Income) versus Small Open Economy (Labor Income)
MEASURES OF REGIONAL DISPARITIES

- Fiscal flows must be related to a measure of regional economic disparities to measure the degree of interregional redistribution.

- Measure of regional economic disparities must be consistent with the approach used to measure federal fiscal balances.

- Benefit approach: Residents of a region viewed as consumers; consumption-based measure.

- Economic gain approach: Residents of a region viewed as generators of factor income; income-based measure.

- Cash-flow approach: No clear direction; closer to economic gain approach than to benefit approach.

- Comparison: Actual income or consumption compared to the corresponding neutral-Fisc values, calculated by allocating federal revenues and expenditures in proportion to private income shares in each region.
## BASE INCOME AND NEUTRAL-FISC BASE INCOME IN CANADA IN 2004 ($MILLIONS)

<table>
<thead>
<tr>
<th>Component</th>
<th>NB</th>
<th>AB</th>
<th>CANADA</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAGES (MINUS FEDERAL COMPONENT)</td>
<td>11,597</td>
<td>80,274</td>
<td>630,704</td>
</tr>
<tr>
<td>NET INCOME FROM AGRICULTURE, AND UNINCORPRATED BUSINESS</td>
<td>1,464</td>
<td>10,210</td>
<td>83,785</td>
</tr>
<tr>
<td>INTEREST AND INVESTMENT INCOME</td>
<td>1,205</td>
<td>15,198</td>
<td>66,578</td>
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<tr>
<td>DIVIDENDS AND PROFITS RETAINED IN CANADA</td>
<td>1,340</td>
<td>19,292</td>
<td>114,112</td>
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<tr>
<td>INCOME FROM PRODUCTION</td>
<td>15,606</td>
<td>124,974</td>
<td>895,179</td>
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<tr>
<td>ADJUSTMENTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENSIONS (MINUS FEDERAL COMPONENT)</td>
<td>856</td>
<td>2,535</td>
<td>37,839</td>
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<tr>
<td>CAPITAL GAINS TAX-FREE SAVINGS</td>
<td>380</td>
<td>5,078</td>
<td>33,249</td>
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<tr>
<td>TAXES SHIFTED BACKWARD</td>
<td>731</td>
<td>4,828</td>
<td>34,239</td>
</tr>
<tr>
<td>PRIVATE INCOME</td>
<td>17,573</td>
<td>137,415</td>
<td>1,000,506</td>
</tr>
<tr>
<td>BALANCED FEDERAL FISCAL FLOWS</td>
<td>2,590</td>
<td>-6,086</td>
<td>0</td>
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<td>MINUS: FEDERAL SURPLUS ON ALLOCATIONS</td>
<td>177</td>
<td>1,212</td>
<td>9,063</td>
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<tr>
<td>BASE INCOME</td>
<td>19,986</td>
<td>130,117</td>
<td>991,443</td>
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<tr>
<td>PER CAPITA</td>
<td>26,574</td>
<td>40,558</td>
<td>31,107</td>
</tr>
<tr>
<td>NEUTRAL-FISC BASE INCOME</td>
<td>17,573</td>
<td>137,415</td>
<td>1,000,506</td>
</tr>
<tr>
<td>PER CAPITA, $000</td>
<td>23,366</td>
<td>42,833</td>
<td>31,391</td>
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</table>
INDICES OF INTERREGIONAL REDISTRIBUTION

A. INDICES BASED ON FEDERAL FISCAL FLOWS

1. LOCAL INDICES:
   • PER CAPITA VALUES OF POSITIVE AND NEGATIVE BALANCES GRAPHED AGAINST PER CAPITA VALUES OF A GENERAL ECONOMIC INDICATOR, SUCH AS GROSS DOMESTIC PRODUCT, IN ASCENDING ORDER
   • NO REDISTRIBUTION: ZERO BALANCES FOR ALL REGIONS
   • REDISTRIBUTION: FALLING POSITIVE PER CAPITA BALANCES (GAINERS) AND RISING NEGATIVE PER CAPITA BALANCES

2. GLOBAL INDICES
   • TOTAL GAINS BY RECEIVING REGIONS DIVIDED BY POPULATION OF CONTRIBUTING REGIONS (PER CAPITA CONTRIBUTION)
   • MEASURES THE BURDEN OF REGIONAL REDISTRIBUTION BORNE ON AVERAGE BY THE RESIDENTS OF THE CONTRIBUTING REGIONS
INDICES OF INTERREGIONAL REDISTRIBUTION

B. INDICES BASED ON INCOME MEASURES

1. LOCAL INDICES

• COMPARISON OF PER CAPITA BASE INCOME WITH PER CAPITA INCOME WITH NEUTRAL FEDERAL BALANCES (EQUAL TO PER CAPITA PRIVATE INCOME UNDER FEDERAL BALANCED BUDGETS AND EXCLUSION OF REGIONAL/LOCAL BALANCES); BASED ON REGRESSIONS BY BAYOUMI AND MASSON [1995]
  
  \[ l_{di} = \frac{y_{bi}/y_{bi}}{y_{ni}/y_{ni}} \]

• UNDER BALANCED FEDERAL BUDGET:
  
  \[ l_{di} = \frac{Y_{bi}/Y_{ni}}{1 + B_{i}/Y_{ni}} \]
  
  WHERE \( B_{i} \) = FEDERAL FISCAL BALANCE IN REGION \( i \)
INDICES OF INTERREGIONAL REDISTRIBUTION

B. INDICES BASED ON INCOME MEASURES

1. LOCAL INDICES

- MANSELL AND SCHLENCKER [1995]: RELATIVE SHARE (RS) OF FEDERAL BALANCES:
  
  \[ RS_i = \left( \frac{r_i}{r/e_i/e} \right) \frac{y_n/y_n}{y_n/y_n} \]

- WHERE \( r \) AND \( e \) ARE PER CAPITA FEDERAL REVENUES AND EXPENDITURES

  \[ RS_i = \left( \frac{R_i - E_i}{E/R} \right) \frac{y_n/y_n}{y_n/y_n} \]

  - GRAPHIC EVALUATION
INDICES OF INTERREGIONAL REDISTRIBUTION

- Ruggeri and Yu [2003] transformed the above into indices of interregional redistribution called relative share indices (RS\(_i\))
  - Calculated four relative shares
  - RS\(_i\)(A) = Actual relative shares
  - RS\(_i\)(N) = Neutral-Fisc relative shares
  - RS\(_i\)(S) = Shares for standard redistribution where federal revenues are distributionally neutral and federal expenditures are allocated equally per capita
  - RS\(_i\)(M) = Shares under maximum redistribution
STANDARD REDISTRIBUTION

- \( RSI_i(S) = \frac{[RS_i(A) - RS_i(N)]}{[RS_i(S) - RS_i(N)]} \)
- \( RSI_i(S) = \frac{(R_i - E_i)/E_i}{(y_i - y)/y} \)

- \( RSI_i(S) = 0 \)
  - NO INTERREGIONAL REDISTRIBUTION

- \( RSI_i(S) = 1 \)
  - REDISTRIBUTION EQUAL TO STANDARD CASE

- \( RSI_i(S) > 1 \)
  - REDISTRIBUTION GREATER THAN STANDARD
MAXIMUM REDISTRIBUTION

- $RS_i(M) = \frac{[RS_i(A) - RS_i(N)]}{[RS_i(M) - RS_i(N)]}$
- LOWER LIMIT = 0
  - NO REDISTRIBUTION
- UPPER LIMIT = 1
  - COMPLETE REDISTRIBUTION
- OTHER VALUES: PROPORTION OF MAXIMUM REDISTRIBUTION GENERATED BY EXISTING FEDERAL FISCAL SYSTEM
INDICES OF INTERREGIONAL REDISTRIBUTION

B. INDICES BASED ON INCOME MEASURES

2. GLOBAL INDICES

a) WEIGHTED SUM OF $RSI_1(S)$ AND $RSI_1(M)$, WHERE THE WEIGHTS ARE THE REGIONAL SHARES OF NEUTRAL-FISC INCOME

b) REGRESSING PER CAPITA BASE INCOME BY REGION RELATIVE TO THE NATIONAL AVERAGE AGAINST PER CAPITA NEUTRAL-FISC INCOME RELATIVE TO THE NATIONAL AVERAGE

$$y_{bi}/y_b = a + m(y_{ni}/y_n) + u$$

- WHERE $(1 - m)$ MEASURES THE AVERAGE PROPORTION OF THE REGIONAL DEVIATION IN PER CAPITA NEUTRAL-FISC INCOME THAT IS OFFSET BY THE FEDERAL FISCAL SYSTEM
INDICES OF INTERREGIONAL REDISTRIBUTION

B. INDICES BASED ON INCOME MEASURES

2. GLOBAL INDICES

C. DIFFERENCE IN GINI COEFFICIENTS FOR BASE INCOME ($G_B$) AND NEUTRAL-FISC INCOME

$$I_a = G_n - G_b$$

D. PROPORTIONAL DIFFERENCES IN GINI COEFFICIENTS

$$I_a^* = \frac{(G_n - G_b)}{G_n}$$

- WHEN COMPARING INTERREGIONAL REDISTRIBUTION AMONG COUNTRIES, IT IS USEFUL TO USE BOTH GINI-BASED INDICES BECAUSE $I_a^*$ IS AFFECTED BY THE VALUE OF $G_n$.
PRESENTATION AND INTERPRETATION OF RESULTS

1. SOMETIMES STUDIES ON FISCAL FEDERALISM FOCUS EXCLUSIVELY ON FEDERAL FISCAL FLOWS
   - THESE FLOWS HAVE LIMITED MEANING OUTSIDE THE CONTEXT OF INTERREGIONAL REDISTRIBUTION

2. FEDERAL FISCAL FLOWS SHOULD BE MEASURED BY NEUTRALIZING SURPLUSES OR DEFICITS ON ALLOCATION
   - THIS WAY, THE TRANSFER OF RESOURCES FROM RICHER TO POORER PROVINCES THROUGH FEDERAL INTERMEDIATION IS SEPARATED FROM THE EFFECT OF FEDERAL SURPLUSES OR DEFICITS

3. SOMETIMES INTERREGIONAL REDISTRIBUTION IS MEASURED WITH A SINGLE GLOBAL INDEX
   - IN MY VIEW, WE LEARN MORE BY SHOWING BOTH GLOBAL AND LOCAL INDICES

4. IT ALSO IMPORTANT TO PRESENT THESE INDICES FOR THE MAJOR COMPONENTS OF THE FISCAL SYSTEM
## Estimated Gini Coefficients

<table>
<thead>
<tr>
<th>Year</th>
<th>$G_n$</th>
<th>$G_b$</th>
<th>$G_n - G_b$</th>
<th>$\frac{(G_n - G_b)}{G_n} \times 100$</th>
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<tbody>
<tr>
<td>1992*</td>
<td>0.072</td>
<td>0.040</td>
<td>0.032</td>
<td>44</td>
</tr>
<tr>
<td>1997*</td>
<td>0.073</td>
<td>0.042</td>
<td>0.031</td>
<td>42</td>
</tr>
<tr>
<td>Change</td>
<td>0.001</td>
<td>0.002</td>
<td>-0.001</td>
<td>-2</td>
</tr>
<tr>
<td>1998</td>
<td>0.072</td>
<td>0.039</td>
<td>0.033</td>
<td>46</td>
</tr>
<tr>
<td>2004</td>
<td>0.077</td>
<td>0.052</td>
<td>0.025</td>
<td>32</td>
</tr>
<tr>
<td>Change</td>
<td>0.005</td>
<td>0.013</td>
<td>-0.008</td>
<td>-13</td>
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Provincial Comparison of Per Capita Base and Neutral-Fisc Income

Zero Redistribution

Complete Redistribution

Neutral-Fisc Per Capita Income

Actual Per Capita Income

2004

1998
### Components of Interregional Redistribution, 2004

<table>
<thead>
<tr>
<th>Category</th>
<th>$G_n - G_{bj}$</th>
<th>$[(G_n - G_{bj})/(G_n - G_{bj})]*100$</th>
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</thead>
<tbody>
<tr>
<td>Personal Income Taxes</td>
<td>0.003</td>
<td>13.8</td>
</tr>
<tr>
<td>Other Revenues*</td>
<td>-0.001</td>
<td>-4.4</td>
</tr>
<tr>
<td>Total Revenues*</td>
<td>0.002</td>
<td>9.4</td>
</tr>
<tr>
<td>Transfers to Persons*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Business</td>
<td>0.011</td>
<td>42.8</td>
</tr>
<tr>
<td>Transfers to Governments</td>
<td>0.008</td>
<td>32.2</td>
</tr>
<tr>
<td>Purchases</td>
<td>0.002</td>
<td>7.1</td>
</tr>
<tr>
<td>Total Expenditures*</td>
<td>0.021</td>
<td>82.1</td>
</tr>
</tbody>
</table>

* Excludes CPP Revenues and Expenditures
IT IS ALSO IMPORTANT TO ANALYZE THE FACTORS DETERMINING INTERREGIONAL REDISTRIBUTION.

FOR EXAMPLE, WITH RESPECT TO GOVERNMENT SPENDING WE CAN DISTINGUISH BETWEEN AUTOMATIC REDISTRIBUTION AND DISCRETIONARY REDISTRIBUTION, RESULTING FROM DELIBERATE POLICY ACTIONS.

WITH RESPECT TO THE FORMER WE MAY IN ADDITION DISTINGUISH BETWEEN DEMOGRAPHIC FACTORS, STRUCTURAL FACTORS (EXAMPLE, INCOME DISTRIBUTION), AND PARAMETERS OF SPENDING PROGRAMS.

IT IS ALSO IMPORTANT TO ACKNOWLEDGE THAT ESTIMATES OF FISCAL FLOWS AND INTERREGIONAL REDISTRIBUTION CANNOT BE USED TO DETERMINE WINNERS AND LOSERS IN A FEDERATION. THIS CONCLUSION CANNOT BE REACHED EVEN WHEN NON-FISCAL FACTORS ARE INCLUDED BECAUSE THE ECONOMIC AND FISCAL STRUCTURE OF A FEDERATION IS NOT NECESSARILY THE SAME FOR A UNITARY STATE OR A CONFEDERATION.
SUGGESTIONS FOR FUTURE RESEARCH

1. INTERREGIONAL REDISTRIBUTION IS GENERALLY ANALYZED WITHIN A STATIC CONTEXT. IT IS TIME TO MOVE TOWARDS A DYNAMIC APPROACH TO THIS ISSUE BY EMPHASIZING THE INTERACTIONS BETWEEN FISCAL AND NON-FISCAL ACTIONS ON THE EVOLUTION OF REGIONAL DISPARITIES. IMPORTANCE OF DEMOGRAPHIC DEVELOPMENTS.

2. THE EXISTING METHODOLOGY DOES NOT DISTINGUISH BETWEEN PUBLIC CONSUMPTION AND INVESTMENT AND DOES NOT DIFFERENTIATE BETWEEN THE ECONOMIC EFFECTS OF TRANSFER PAYMENTS AND LABOR INCOME. WE NEED TO FIND WAYS TO INCORPORATE THESE DIFFERENCES.

3. IT IS ESSENTIAL TO DEVELOP A SYSTEM OF ECONOMIC AND PUBLIC ACCOUNTS AT THE NATIONAL AND SUB-NATIONAL LEVEL THAT FACILITATE THE ANALYSIS OF INTERREGIONAL REDISTRIBUTION.

4. WE NEED TO DEVELOP A COMMON METHODOLOGY ACCEPTED BY BOTH ECONOMISTS AND POLICY MAKERS SO THAT THE DEBATE ON FISCAL FEDERALISM CAN FOCUS ON SUBSTANTIVE ISSUES OF POLICY AND NOT ON DIFFERENCES OF OPINION WITH RESPECT TO DATA AND METHODOLOGY.