U.S. IRS National Research Program:
Measurement of Tax Compliance
Analysis of the Tax Enforcement Process

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The NRP Project

NRP is for tax year 2001.

NRP is a sample of U.S. taxpayers. Each taxpayer goes through examination process.

NRP contains rich data that can be analyzed. Data available as of 2005.
Analysis of NRP Data: Uses

- Measurement of the “tax gap” due to individual taxpayers. Both for income tax and employment tax. Useful for policy and determining need for enforcement resources. Difficult because not all noncompliance detected during exams: Detection Controlled Estimation.

- Patterns of noncompliance can help guide enforcement process: audit selection, intensity of audit process, need for expansive audits or not.
Background to NRP

Tax Compliance Measurement Program (TCMP)

● The IRS began to develop systematic data bases in the 1960’s. Final TCMPs were 1982, 1985, and 1988.

● 50,000 taxpayers audited intensively.

● Analysis based on “multipliers” – recognizing much noncompliance not detected even on comprehensive audits.

● Multipliers developed for individual tax areas. Vary from 1.0 to large value – tips. Overall multiplier on items not subject to information reporting 3.28. Over entire return approximately 2.
Need For a New Approach

The TCMP imposed a heavy burden on taxpayers many of whom were fully compliant or intended to be. Perceived as intrusive.

With changing political winds, no longer viable.

Long gap…..

IRS seeking for new way, interfacing with Congress. NRP grew out of this: less intrusive, attempt to limit audits where possible.

JF’s involvement. Detection Controlled Estimation (DCE).
The NRP Design

Classification Approach. A Classifier looks at return and decides kind of audit and intensity:

- Accepted
- Correspondence
- Comprehensive in-person exam.

For comprehensive in-person exams (the vast majority), classifier classifies issues for examination.
NRP Design Continued

Protocol

Capture details of the examination process. Examiners have laptops, record as they go.

Record what items examine (even if no noncompliance detected). Even order of exam – see what spurs further examination. These details valuable for modeling.

Case-building

Supplemental information added, for example bank and credit card information. So far not used extensively.
NRP Data

NRP has information on approximately 45,000 taxpayers. Of these:

- 2,000 accepted (no audit).
- 3,000 subject to correspondence audit.
- 40,000 subject to in-person examination.
- Returns weighted to reflect US taxpayer population.
NRP Data Analysis

Brian Erard and I are engaged in econometric modeling and analysis of the NRP data.

We have developed a structured econometric model with 4 distinct processes, outlined on the next 3 slides.

Model is estimated separately for distinct classes – business (self-employed), high income, low income, etc.
Model

I. Tax Noncompliance.

Model of taxpayer’s level of noncompliance. Can be zero or some positive value. Tobit model, with lognormal distribution for noncompliance (data fit).

II. Classification process.

For each issue block, model classifier’s decision to either (i) classify issue for examination; or (ii) not. Basic probit model. Error terms for noncompliance and classification allowed to be correlated (classifier may no more than is in data).
III. Detection.

Examination of items classified for exam. Each issue block has its own equation. Heart of detection controlled estimation. A model of fractional detection: For the issue, if there is noncompliance, then either (i) no detection of any noncompliance, (ii) full detection, or (iii) partial detection of some fraction of the noncompliance. If there is no noncompliance, then none is detected (no false detection; can be relaxed).

Examiner dummies – for each examiner who does more than 15 cases. So estimates different detection rates for different examiners.

What the model does – the “composite best examiner”, all others scaled relative to this ideal. Generally find a lot of variation in detection rates, even after controlling for many return characteristics.
IV. Detection for non-classified items.

In data we find that examiners sometimes choose to examine items not classified for examination. They are following a lead, or their instinct. We thus build a model to allow for this. The examiner forms probability judgment of noncompliance, if high enough, chooses to spend the time examining it. Then, again, detection process. Correlate error in this “intuitive exam” model with error in noncompliance equation – positive correlation reflects examiner’s intuition.

Our model of classification, and detection/examination for classified and non-classified items, is new, developed for this project! Research with application.
Results

We have estimated the model for noncompliance for several item clusters, including wages/interest/pension/other income, and self-employed income.

FINDINGS:

1. Able to estimate by line items, such as wages, pensions, interest, dividends. Estimate for self-employed.

2. Information return for line-item key predictor of non-compliance (gap between IR value and reported value).


The TAX GAP

The Tax Gap in total is estimated to be $345 Billion.

Components:

● Individual Income Tax. Largest. $245 Billion. We estimate.

● Employment Tax. $59 Billion. We estimate self-employment piece.

● Corporate Income Tax. $32 Billion (other IRS studies).

● Estate & Gift Tax. $8 Billion (Ho and Feinstein).

● Excise Tax. $1 Billion (IRS studies).
Issues

▲ Distributional assumptions. Difficult to “fit” noncompliance, due to very large positive outliers (long, fat tail). We use log-normal distribution.

▲ Negative noncompliance.

▲ Corporate Noncompliance – Issues of Offshore banking and income generation.
Principles to Apply

1. Work with legislature to develop tax data collection program.

2. Classification process useful.

3. Data collection in real-time as examiner works; use laptops, capture flow of exam.

4. Role of outside consultants if needed for technical aspects.

5. Key areas in US -- what about Taiwan? -- are: individual taxes; offshore business.