Encouraging Participation in Tax Filing via Tax Credits and Social Safety Nets

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Introduction

- Non-filers ("ghosts") contribute to the tax gap.
- Non-filers are not in the "system", and so may be ineligible for social programs.
- Non-filers may stay out of the system even when their incomes increase, thereby contributing to a larger share of the tax gap.
- What can be done to encourage filing (as distinct from encouraging individuals already filing a return to report more income)?

Positive Inducements for Tax Filing

- Fiscal Exchange
- Amnesties
- Tax Credits
- Social Safety Net

$\Rightarrow$ In this paper we examine the effects of tax credits and social safety nets on the filing decision.

Our Methodology

- Laboratory Experiments
  - Compliance is difficult to observe in the field, and non-filing is even more so.
- In a controlled setting, we introduce filing inducements – tax credits and social safety nets.
- Our results suggest filing increases most with credits that are simple to obtain.

Empirical Assessment of Filing Inducements

- Field Studies
  - Alm, Bahl, and Murray (1991)
  - Crain and Nourzad (1993)
  - Erard and Ho (2001)
- Other work?

The Filing Decision and the Compliance Decision

- The *compliance* decision is typically analyzed as a gamble in which a filer balances the expected costs and the expected benefits of reporting another dollar.
- The *filing* decision adds another decision stage, but the issue is still the same: what is the expected utility of filing versus non-filing?

Experimental Design

- Experimental Steps:
  - Step 1. Earn income – Figure 1
  - Step 2. Choose to obtain tax form or not – Figure 2
  - Step 3. Pay taxes (Disclose Income) – Figure 3
- Timed stage – Failure to file results in a 10% penalty plus an automatic audit (with the full penalty applied)
  - Step 4. Undergo Audit
- A bingo cage appears on the screen if eligible for audit; an announcement of no audit is made if the subject is a non-filer
  - Step 5. Receive feedback information (as per treatment)
  - Step 6. Round ends
- Earnings range (depending on earnings task performance, compliance behavior, audits, …): $19 - $37.
- Experiments last approximately 90 minutes.

Figure 1 – Income Earning Task

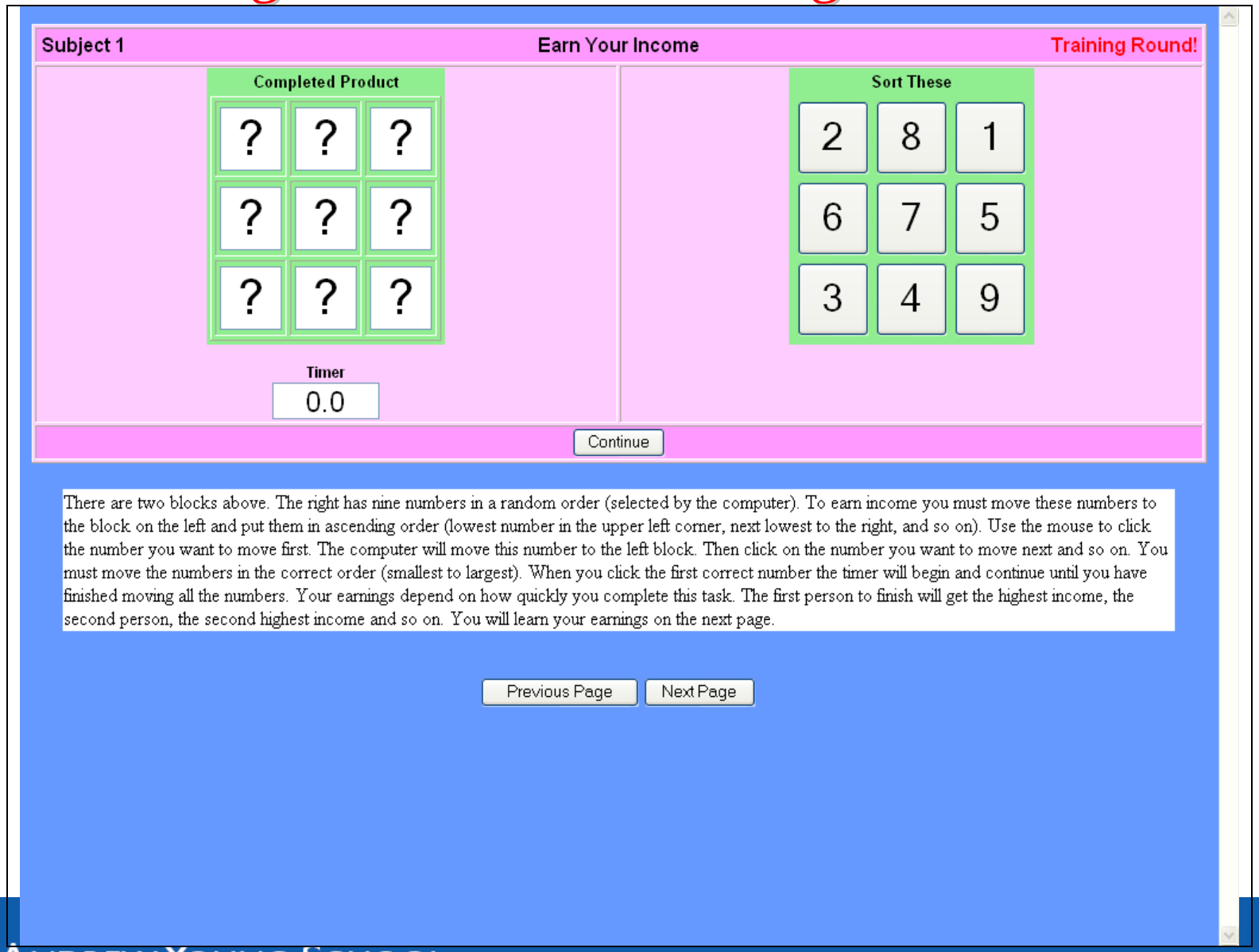


Figure 2 – Income and Tax Policy Screen

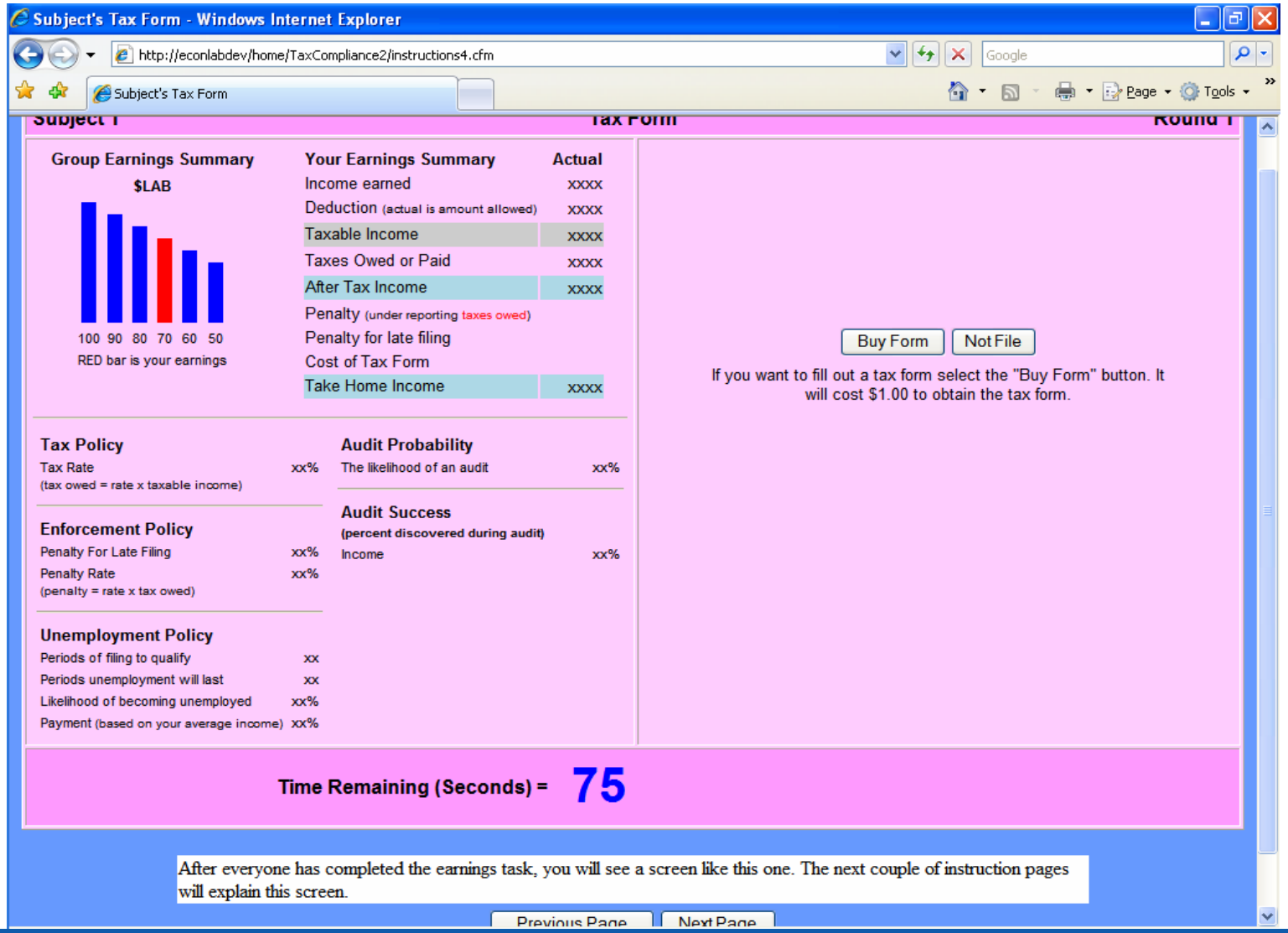
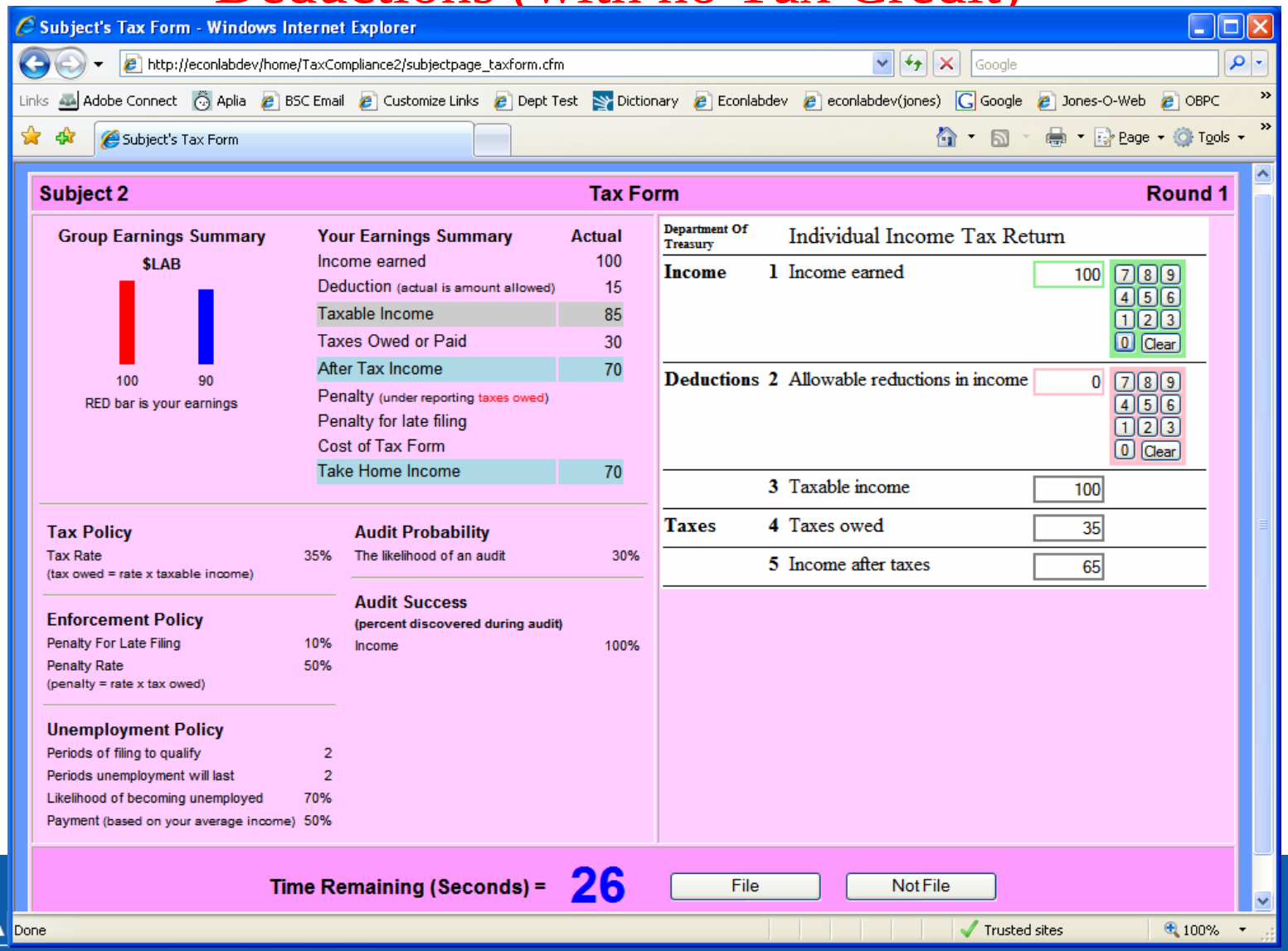


Figure 3 – Tax Form – Two Player Example with Deductions (with no Tax Credit)



Experimental Design – Treatments

- Two Inducements to File (Treatments)
  - Tax Credit
  - Social Safety Net
- Tax Credit
  - Low Income Target: CR = 30 – 0.6*I
  - Moderate Income Target: CR = 20 – 0.2*I
- Social Safety Net
  - Benefits paid if unemployed
  - Benefits paid as a function of past filing

Table 1 – General Treatment Design for Investigation of Inducements to File

Treatment	**Sample Parameters**		
No Positive Inducement	Cost of Tax Form and Probability of Audit		
Refundable Tax Credit	Conditional on Low Income	Available to Low and Medium Income	Available to All Income Levels
Income (Employment) Risk	Support: Moderate Percentage of Previous Income	Support: High Percentage of Previous Income	

Table 2 – No Inducement Conditions

Treatment	Tax Rate	Audit Probabilities	Penalty Rate	Deduction	Income Range	Form Cost
NI1	35%	0.4, 0.3, 0.4	150%	15%	10 to 100 1 per level	2, 1, 0

Table 3 – Tax Credit Settings

Treatmen	Income Range	Penalty Rate	Audit Probability	Credit Equation
CT1	10 – 100 1 per level	150%	0.3, 0.4, 0.3	CR = 20 – 0.2*I (Moderate income credit)
CT2	10 – 100 1 per level	150%	0.3, 0.4, 0.3	CR = 30 – 0.6*I (Low income credit)

Table 4 – Income Support Settings

Treatment	Probability of Unemployment	Percentage Benefits	Filing Periods Required	Audit Probabilities	Form Cost
UT1	0.4 and 0.2	0.5	2	0.3, 0.4, 0.3	2, 1, 0
UT2	0.4	0.6	2	0.3, .04, 0.3	2, 1, 0

Results and Discussion

- Decisions: Obtain Form and File Form
- General Results – Table 7

Table 7 – Aggregate Filing Behavior

Treatment	Frequency of Filing	Frequency of Obtaining Form	Cost of Specific Program
No Inducement	0.445	0.460	N/A
Credit (All)	0.624	0.660	N/A
Credit (Low Income)	0.610	0.665	60
Credit (Moderate Income)	0.630	0.655	90
Social Safety Net	0.561	0.579	90 (expected)

Econometric Estimations

- Panel Dataset – 106 subjects and 18 or 20 decision rounds
- Random effects probit model:

$$T_{i,t} = \beta_1 + \beta_2 P_i + \beta_3 I_i + \beta_4 p(A)_{i,t} + \beta_5 C_i + \beta_6 U_i + \beta_7 LB_{i,t-2} + \beta_8 (I*C)_i + \psi_t + u_i + \varepsilon_{i,t},$$

- where (suppressing subscripts):
  - T denotes the decision to buy or file a tax form in period
  - P is the price to obtain a tax form
  - I is the subject's earned income in the round
  - $p(A)$ is the audit probability
  - C and U are indicator variables that signifies the presence of a tax credit and unemployment benefits
  - LB is an indicator variable that signifies the subject received unemployment benefits two periods prior
  - $I*C$ is an interaction term between income and credit
  - ψ is a set of T-1 dummies that capture potential non-linear period effects
  - u are random effects that control for unobserved individual characteristics

Table 6 – Econometric Results:
Dependent Variable is Form Filed or Form Bought

Independent Variable	Filed 1W	Filed 2W	Bought 1W	Bought 2W
Constant	-0.779* (0.416)	-0.541 (0.452)	-0.295 (0.539)	-0 .235 (0.532)
Cost of Form			-0.309* (0.182)	-0.303* (0.160)
Income Earned	0.004*** (0.002)	0.004*** (0.002)	0.006*** (0.002)	0.005*** (0.002)
Audit Probability	0.589 (0.722)	-0.036 (0.813)	0.895 (0.725)	0.540 (0.821)
Credit (Yes=1)	1.406*** (0.401)	1.414*** (0.406)	1.111*** (0.443)	1.123*** (0.447)
Income Earned * Credit	-0.012*** (0.003)	-0.012*** (0.003)	-0.011*** (0.003)	-0.011*** (0.003)
Unemployment Possible	0.788** (0.397)	0.735* (0.403)	0.419 (0.463)	0.395 (0.467)
Lag 2 Period Unemployment	0.269** (0.139)	0.338*** (0.142)	0.273** (0.140)	0.324** (0.143)
Wald Chi-square	31.14***	50.73***	35.21***	46.44***
Log likelihood	-921.61	-911.10	-913.11	-907.03

Discussion of Results

- A targeted tax credit gives the highest return for its program cost.
- The social safety net (e.g., unemployment insurance) is less effective.
- For the tax credit taken up by low income participants, the coefficient on the I*C interaction term is negative.

Conclusions

- Positive inducements can increase filing.
- Future work?
  - The cost of filing reduces form acquisition but the effect is weakly significant – further work is required.
  - There may be an interaction of inducement instruments – further work is required.
  - There may also be an interaction of inducements and complexity/information – again further work is required.