The Social Network of Firms: Can Social Incentives and Taxpayer Recognition Improve Tax Compliance?

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PRELIMINARY: PLEASE DO NOT CITE OR CIRCULATE

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I. Policy Motivation for Research
Improving tax revenue collection is an important priority for developing economies throughout the world (Figure 1). Developed countries predominantly use audit-based enforcement coupled with penalties to ensure compliance. However, enforcement through audits is difficult for developing countries to achieve for three principal reasons. First, audits are often very costly in practice. Second, for audits to be effective, officials must have incentives to put forth monitoring effort and behave honestly, but there are often failures on both fronts (e.g., Mookherjee 1997, Purohit 2007). Improving these incentives may be both costly and difficult (Olken and Pande, 2011). Finally, even if audits are implemented and carried out faithfully, many firms do not keep comprehensive sales records, complicating verification of firms true tax liability. A number of developing countries, including Bangladesh, have explored using social pressure to induce compliance, but this approach has yet to be rigorously evaluated. Social pressure has the advantage of being inexpensive and available even in environments without the regulatory and institutional frameworks to conduct an audit-based enforcement regime. Our project evaluates a peer recognition program for businesses in the urban environment of Dhaka, Bangladesh.

II. Policy Impact
This project will help sharpen the range of options available to tax authorities in developing countries by determining if social recognition is effective at increasing tax compliance. The recognition approach, which is best suited to small- and medium-size businesses that are difficult or costly to audit, offers the potential to diversify the tax base away from import/export taxes and taxes on the largest firms.

III. Audience
Most directly, this research will be of interest to government officials and tax administrators in developing countries seeking policy tools to raise tax compliance and tax revenues. More broadly, social recognition-based enforcement strategies could be considered by policymakers implementing other regulations for which direct enforcement is costly, but information on violations can publicized by the government. Possible applications include the enforcement of other business regulations like air quality or employee safety. At the individual level, publication of the names of litterers and drunk drivers could deter anti-social behavior.

IV. Policy Implications
As the intervention is currently underway, we focus here on results from our survey of all firms in our study area. We have matched this data to records from the Bangladesh National Bureau of Revenue (NBR). The resulting database provides us with an unprecedented insight into current patterns of tax compliance.

- **Tax compliance is very low.** In our study area, only 8.2% of permanent firms are paying any tax. By law, all firms should be paying some tax: firms below a certain revenue threshold pay a small lump sum (the “package” VAT) and the rest pay at the regular VAT rate. In our survey, respondents estimate that only 10.6% of all firms have low enough revenue to pay the package rate (Table 1). We find that 32.9% of current taxpayers are paying the package VAT. Thus, few businesses pay any taxes at all, and those that do are disproportionately paying the package VAT.

- **Firms think of paying taxes as a civic duty.** If firms know that evasion is widespread but do not consider paying taxes to be a social good, the social pressure-based intervention may not be effective. While it is important to keep in mind that these are self-reported survey results, we do find that 84% of firms strongly agree that paying tax is a civic duty, and 98% agree or strongly
agree (Table 2). This is true in spite of the fact that the majority of firms (70%) feel that the
government does not use tax revenue appropriately.

- **Firm perceptions about their neighbors do have true informational content.** Social recognition
  interventions rely on the idea that firms have fairly good information on their neighbors’
  characteristics, in this case so that they can accurately assess how much these neighbors should
  be paying in taxes. We survey firms for information on up to five other firms with whom they
  have the most contact, and ask them to describe a number of their characteristics. When
  compared to those neighbors’ own self reports, we find that firm perceptions of their neighbors’
  number of employees and turnover levels are remarkably accurate. However, firm perceptions
  of registration and tax payment of other firms in their area are not as accurate. Firms over-
  report their neighbors’ tax compliance substantially relative to true compliance (Table 1). This
  may be partly driven by reporting (firms deliberately over-report compliance in their area,
  although they have no clear incentive to do so), but it also provides strong suggestive evidence
  that firms know a lot about the business activities of their neighbors but do not know as much
  about their taxpaying behavior. In this case, our intervention is likely to provide new and
  relevant information to firms and their neighbors.

V. Implementation

- **Find out which information is already public.** We find that firms have a considerable amount of
  information about neighboring firms’ revenue and staff size. However, our data suggest that
  firms have relatively poor information about other firms’ tax compliance. This was not
  necessarily intuitive, and we expect that programs that present previously unknown information
  will be the more successful ones.

- **Beware of perverse incentives.** Disclosure of formerly-private information can potentially have
  negative effects. In Bangladesh, many of our clusters of firms have either one or zero taxpayers.
  Spreading this information could potentially decrease the likelihood of compliance, by reducing
  firms’ perception of the cost of nonpayment.

- **Provide varied and obtainable goals.** Tax regulations cover a diverse set of firms which vary
  greatly in size and sophistication, and to engage a maximum number of firms in the social
  recognition intervention, it is important to provide targets which are relevant and achievable to
  different groups. For example, in our taxpayer recognition program we offer different levels of
  awards. The bronze level, which recognizes merely registering with the tax bureau, may be
  achievable and valuable for firms in a “slum” area, while in a formal shopping center the bronze
  level would not carry much status, and firms may care about showing that they are gold level
  taxpayers.

VI. Dissemination

We would like to hold off on wide public dissemination until the second phase of the project – the field
experiment – is completed. At that point, we would be very pleased to disseminate the findings to
policymaking offices and tax authorities throughout developing countries.

VII. Further Readings

Mookherjee, Dilip. *Incentive reforms in developing country bureaucracies: lessons from tax

Figure 1

Tax Revenue vs. GDP per capita in 2008

Bangladesh
India
Table 1: Firm Reported Perceptions of Compliance in Their Area

<table>
<thead>
<tr>
<th>Perception</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of firms under sales tax</td>
<td>49.47</td>
<td>50</td>
<td>27.14</td>
<td>17659</td>
</tr>
<tr>
<td>% of firms registered</td>
<td>70.24</td>
<td>80</td>
<td>29.20</td>
<td>18789</td>
</tr>
<tr>
<td>% of firms with low turnover</td>
<td>10.57</td>
<td>5</td>
<td>17.51</td>
<td>19625</td>
</tr>
<tr>
<td>% of firms meeting their tax related duties</td>
<td>45.31</td>
<td>40</td>
<td>28.92</td>
<td>18364</td>
</tr>
<tr>
<td>Total Observations</td>
<td></td>
<td></td>
<td></td>
<td>20002</td>
</tr>
</tbody>
</table>

Table 2: Firm Attitudes

<table>
<thead>
<tr>
<th>Attitude</th>
<th>% Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most firms know their own turnover</td>
<td>43.7</td>
</tr>
<tr>
<td>Most firms know what is exempt</td>
<td>38.4</td>
</tr>
<tr>
<td>Most firms truthful about taxes</td>
<td>24.3</td>
</tr>
<tr>
<td>Government interferes too much</td>
<td>37.8</td>
</tr>
<tr>
<td>Paying tax is a duty</td>
<td>97.6</td>
</tr>
<tr>
<td>Tax revenue is used for good</td>
<td>29.6</td>
</tr>
</tbody>
</table>

Table 3: Relationship between perceptions and actual number of employees and turnover

<table>
<thead>
<tr>
<th></th>
<th>(1) Employees</th>
<th>(2) Employees</th>
<th>(3) Turnover</th>
<th>(4) Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual employees</td>
<td>0.703***</td>
<td>0.805***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00396)</td>
<td>(0.00517)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual employees, squared</td>
<td>-0.00479***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000164)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual turnover</td>
<td>0.807***</td>
<td>1.439***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00627)</td>
<td>(0.0132)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual turnover, squared</td>
<td></td>
<td>-0.0121***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.000228)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>10326</td>
<td>10326</td>
<td>10326</td>
<td>10326</td>
</tr>
</tbody>
</table>

Notes: * p<0.10  ** p<0.05  *** p<0.01. Standard errors reported in parentheses. Turnover measured in lakh. Sample restricted to all firms that reported both turnover and employees and had at least one other firm estimate their turnover and employees.