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Tax structures in developing countries: Many puzzles and a possible explanation

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ABSTRACT

Tax policies seen in developing countries are puzzling on many dimensions, given the sharp contrast between these policies and both those seen in developed countries and those forecast in the optimal tax literature. In this paper, we explore how forecasted policies change if firms can successfully evade taxes by conducting all business in cash, thereby avoiding any use of the financial sector. The forecasted policies are now much closer to those observed.

Observed tax structures vary substantially across countries and over time. Why?

To some extent, these differences may simply reflect differences in social preferences for public vs. private goods. Countries differ substantially, for example, in the amount spent on the military, on infrastructure investments, on publicly provided education, or on social insurance. Higher spending levels require higher revenue, leading to higher tax rates.

To some extent, these differences may also reflect differences in the political support for redistribution. More redistribution naturally requires higher tax rates on the rich in order to finance lower tax rates or transfers to the poor. Governments with a stronger preference for redistribution would rely more on progressive personal income taxes, whereas other governments may choose less progressive personal taxes and make more use of proportional taxes such as a value-added tax or a payroll tax.

Other differences, though, are more puzzling based on conventional models of optimal tax structure. Regardless of a country's tastes for public vs. private goods or for more or less redistribution, Diamond and Mirrlees (1971) forecast that the optimal tax structure will preserve production efficiency under plausible assumptions.[2] This rules out tariffs in any country that lacks market power in international markets. It rules out differential taxes on goods produced domestically in one industry vs. another. Atkinson and Stiglitz (1976) go further and argue that as long as a country can flexibly choose the rate structure under the personal income tax, then it has no reason to choose differential tax rates on the consumption of different goods.[3] Not only does this rule out differential excise tax rates by good but it also rules out taxes on income from savings, which implicitly impose higher tax rates on goods consumed further into the future. Regarding possible revenue from seignorage, Friedman (1969) argues that a country would optimally choose a deflation rate sufficient to generate a nominal interest rate close to zero, so as to avoid any real costs of liquidity.

While these forecasts of no tariffs, no taxes on capital income, uniform taxes on consumption, and deflation, are not consistent with any existing tax structures, they are not sharply inconsistent with observed tax policies among the most developed countries. With

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[2] In particular, this conclusion requires access to separate tax rates on expenditures on different goods and on income from the supply of different factors.
[3] This conclusion follows if the utility function is weakly separable between leisure and consumption.

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GATT and now the WTO, tariffs are indeed very low among developed countries. At this point, nominal interest rates are very low among most developed countries, even if deflation is rare. While capital income is still subject to tax in various ways, Gordon, Kalambokidis, and Slemrod (2004a,b) report evidence that the U.S. collects little or no net revenue from taxes on capital income, and imposes relatively low distortions on investment and savings.[4] While even the richest countries maintain some important excise taxes, e.g. on gasoline, cigarettes, and liquor, an argument can easily be made that these specific taxes help internalize various consumption externalities.

Tax policies in developing countries are much more puzzling, however, in light of these forecasts from the optimal tax models. These differences are laid out in more detail in Section 1. The corporate income tax is a much more important source of tax revenue among developing vs. developed countries, as are tariffs and seignorage.[5] Poorer countries collect much less revenue from personal income taxes, yet it seems puzzling that distributional preferences should systematically be so much weaker among poorer countries. On net, poorer countries collect on average only two-thirds or less of the amount of tax revenue that richer countries do, as a fraction of GDP. Yet, given the severe needs for investments in say infrastructure and education in these countries, is it plausible that the lack of revenue simply represents differing tastes for public vs. private goods in poor vs. rich countries?

One natural response to these differences between forecasted policies and those observed in developing countries is to conclude that the policies in developing countries should be changed. Newbery and Stern (1987), for example, set out the standard forecasts from optimal tax models as an ideal tax structure that developing countries should emulate. This is also the basis for recommendations, e.g. from the World Bank and IMF, that developing countries should reduce their tariff and inflation rates, and rely more on value-added taxes with a uniform rate across industries, rather than on excise taxes or corporate income taxes.[6] Poorer countries have indeed shifted towards more use of the value-added tax in recent years with more uniform rates by industry than had existed under the prior tax structures. But otherwise the puzzling differences remain.

This leaves unanswered why poorer countries so systematically choose the wrong policies, and why these wrong policies have remained so stable over time. Perhaps political economy problems are more severe among developing countries, and some important domestic constituency gains from the policies that standard models find perverse. Yet these puzzling policies are found under many different types of governments, drawing their support from many different constituencies.[7]

Perhaps poorer countries lack the best enforcement methods, e.g. based on modern information technology. Certainly computer technology helps pool information from different sources. Bird (1989) argues, however, that the key problem is acquiring reliable information, not processing it.

In this paper, we explore whether the inconsistency between the forecasts from optimal tax models and the data reflects instead a problem with the models. The starting point for our approach is the observation of greater tax enforcement problems in poorer countries. According to the estimates reported in Schneider and Enste (2002), for example, the informal economy on average is only about 15% of GDP among OECD countries, and thus small enough that it should not be a driving factor in the choice of tax structure. However, among developing countries, the median size of the informal economy they report is 37% of GDP, ranging from 13% in Hong Kong and Singapore to 71% in Thailand and 76% in Nigeria.

With such a large informal sector, any effects of the tax structure, or of government policies more generally, on the size of the informal sector can be of first-order importance in the choice of these policies. Yet at this point, we know relatively little about how policies affect the size of the informal sector, or why the informal sector is so much larger in developing than in developed economies.[8]

One approach to examining the role of the informal sector explored in the past is to assume that only certain goods can be produced in the informal sector.[9] Taxes on the formal sector then lower demand for goods produced in the formal sector and expand production in the informal sector. This additional behavioral response lowers optimal tax rates, particularly on those goods where this potential response is greater. Piggott and Whalley (2001) use this reasoning to argue for lower taxes on services relative to manufacturing, since services can more readily be provided by informal firms. Emran and Stiglitz (2005) argue that the attraction of a VAT is undermined by this possible shift from the formal to the informal sectors, to the point that tariffs may provide a less distorting source of tax revenue.[10]

These papers, though, do not attempt to explain why the informal sector is larger in developing countries,[11] and provide little help in understanding why certain goods are more likely to be produced in the informal sector. In this paper, we explore the implications of a specific hypothesis about the factors affecting the choice by a firm whether to be part of the formal or the informal economy. We show that adding this hypothesis to an otherwise standard optimal tax model can easily explain many of the seemingly perverse policies seen in poorer countries, suggesting that these policies may be sensible ways to deal with the economic pressures the countries face.

The key assumption in the paper is that firms can avoid tax payments in any country by shifting entirely to cash transactions and not using the financial sector, thereby avoiding leaving any paper trail.[12] When firms make use of the financial sector, in contrast, the government can gain access to their bank records and use this information in enforcing the tax law.[13] Firms then have to choose whether the economic benefits from use of the financial sector are greater or less than the resulting tax liabilities. Poorer countries differ from richer countries under our hypothesis simply because the value firms receive from using the financial sector is much more modest.[14]

[4] Similar results have been found for a number of European countries.

[5] Similar polices in fact were observed in the past in the U.S. and other currently richer countries. As documented for example in Hinrichs (1966), until the 1930s the U.S. relied for revenue primarily on tariffs, selective excise taxes, seignorage, and eventually a corporate income tax.

[6] See Gillis (1989) for similar advice from tax academics who have advised developing countries on their tax policies. Here, the key focus is on establishing a uniform rate value-added tax, in order to eliminate tax-induced distortions to the composition of consumption.

[7] Gordon and Li (2007) explores a particular political economy model, based on Grossman and Helpman (1994), and is unable to explain any of the puzzling policies described above.

[8] See Lemieux, Fortin, and Frechette (1994), though, for some empirical evidence on the how taxes affect the size of the informal sector.

[9] Piggott and Whalley (2001) assume, for example, that one good (manufactured products) must be produced in the formal (taxed) sector, whereas a second (services) can be produced in either the formal or the informal sector. Emran and Stiglitz (2005) assume instead that the second good is only produced in the informal sector.

[10] Keen (2006), however, notes that a VAT includes a tax on imported goods, with a credit received only for firms that are part of the formal sector. Taking into account this aspect of a VAT, he shows that tariffs are not appropriate.

[11] Piggott and Whalley (2001) in fact focus on tax policy in Canada.

[12] Cash transactions are extremely hard to monitor even in the richest countries. Likely for this reason, illegal activity seems to rely heavily on cash transactions.

[13] Among the richest countries, governments rely on firms to provide information about individual wage and dividend incomes, and rely on accounting reports and tax audits both to double-check these reports by firms on individual earnings and to document each firm's own earnings. Accounting firms and tax audits, in turn, rely heavily on the records of a firm's transactions through the financial sector, making these records a key underlying source of information supporting most forms of taxes.

[14] The quality of services provided by the financial sector in poor countries may be worse. Alternatively, firms with lower productivity may have less need for the financial sector, perhaps because they rely less on long-distance payments and also perhaps because they are less capital intensive and have less need for bank loans.