

not taxes, determine pharmaceuticals' site choices in Europe; but if prices are harmonized, these choices will more closely resemble those in the semiconductor industry.

A sequel to this paper will examine how firms coordinate tax and treasury planning. In particular, it will examine how the sample firms used in this study move cash and finance new foreign facilities.

## References

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## Comment R. Glenn Hubbard

Peter Wilson's paper differs from the standard offering in the literature on international aspects of taxation. It offers descriptive evidence from careful case studies, as opposed to econometric analysis of existing firm-level data or aggregate time-series data. The goal of the research agenda begun in this paper is to identify and characterize *nontax* benefits and costs in order to formulate better economic models of location, investment, transfer pricing, and financial policy decisions.

An analogy to studies of corporate debt by specialists in public finance or corporate finance is instructive. We know a great deal about tax incentives for alternative financial structures. We know much less about nontax benefits and cost of leverage. Understanding the latter is nonetheless important for understanding connections between tax factors and capital structure. Financial economists can use case studies to improve modeling of nontax benefits and costs of corporate debt.

Wilson's paper is offered in this spirit. There is an immediate problem confronting such an approach, however. If tax factors in international decisions are often complicated and confusing, nontax factors can be even more so. It is certainly possible to list nontax considerations. Field studies such as Wilson's

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are definitely useful for identifying tax and nontax considerations in various corporate decisions. The more difficult and interesting task is to organize these considerations in such a way as to guide the development of economic models. It is this more ambitious agenda that he has in mind.

Building on the approach in Scholes and Wolfson (1991), he categorizes nontax factors as "restrictions" (government rules) or "frictions" (costs associated with meeting other business purposes. I think it is simplest to think of these as "institutional factors" or "nontax benefits and costs." Straightforward industrial organization considerations suggest that plausible subcategories include product- or industry-specific characteristics (e.g., production process, importance of distance to market, economies of scale or entry strategies), country-specific characteristics (e.g., regulation or presence of particular infrastructure), and firm-specific characteristics (e.g., intrafirm coordination issues and information and incentive problems).

The usefulness of field interviews depends in part, of course, on the sample. Wilson conducted detailed on-site interviews with chief financial officers and their staffs in nine U.S. multinational corporations. The industrial mix is three pharmaceutical firms, three semiconductor firms, one chemical firm, one materials firm, and one software firm. The overrepresentation of pharmaceuticals and semiconductors reflects the perceived importance of international tax planning in those industries.

The interviews gathered information on sixty-eight location decisions in twenty-five countries; the decisions spanned the decades of the 1960s, 1970s, and 1980s. Wilson was also able to obtain some information on transfer pricing and compensation policy. The primary focus of the study is an examination of tax and nontax factors in location (capacity expansion) and sourcing (capacity utilization) decisions.

Wilson's conclusions are intuitive but nonetheless important, given the paucity of information about the role of tax planning in multinationals' decisions. First, for manufacturing location decisions, nontax considerations are very important. In particular, part of the apparent insensitivity to tax considerations could reflect the link between taxes paid and the provision of important infrastructure (e.g., in education and transportation support). Second, where nontax considerations are not particularly important (e.g., for administrative or distribution centers), tax considerations are paramount. Third, the effectiveness of transfer pricing in reducing multinationals' worldwide tax burdens is limited by nontax factors. Interestingly, government restrictions dominate problems in intrafirm coordination in this respect. In principle, firms' use of transfer pricing for tax planning could be reduced by the need to evaluate managers for compensation or other purposes. Wilson finds that firms can effectively use information from multiple accounts to guide tax planning on the one hand and managerial evaluation and compensation on the other.

Perhaps the most useful information in this stage of the research is the analysis of differences across industries and stages of production within an indus-

try in the importance of tax. One would expect to find that firms would more forwardly think of the tax implications of their location decisions in firm-specific terms.

One would expect to find that firms with high fixed costs for research and development (e.g., high fixed costs for research and development in high-tech industries) would be more likely to use transfer pricing. For those industries, the value of intangible assets is high, and the location-specific nontax benefits are high. On the other hand, for those industries where the value of intangible assets is low and the location-specific nontax benefits are low (e.g., semiconductor production), the value of intangible assets is low, and the location-specific nontax benefits are low. In these industries, the value of intangible assets is low, and the location-specific nontax benefits are low. In these industries, the value of intangible assets is low, and the location-specific nontax benefits are low.

Where infrastructure is important, one would expect tax considerations to be more important. Software manufacturing is an example of an industry where the value of intangible assets is high, and the location-specific nontax benefits are low. In these industries, the value of intangible assets is high, and the location-specific nontax benefits are low. In these industries, the value of intangible assets is high, and the location-specific nontax benefits are low.

In the case of the pharmaceutical industry, research and development is a significant factor in location decisions. Because chemical and pharmaceutical research and development are very important, nontax benefits and costs are very important. As a result, tax considerations are less important in these industries than in greenfield investments.

Similarly, industry-specific factors are important for firms in the materials industry. For these firms, customer needs place a high value on location decisions. In these industries, the value of intangible assets is low, and the location-specific nontax benefits are high.

Wilson's analysis of the role of tax planning and firm-specific characteristics in location decisions is an important contribution. From a tax planning perspective, the effectiveness of transfer pricing is limited by nontax factors. In those industries where the value of intangible assets is high, and the location-specific nontax benefits are low, the value of intangible assets is high, and the location-specific nontax benefits are low. In these industries, the value of intangible assets is high, and the location-specific nontax benefits are low.

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are nevertheless important, given the paucity of information in multinationals' decisions. Nontax considerations are very sensitive to tax considerations (e.g., the provision of important infrastructure support). Second, where nontax factors are important (e.g., for administrative or financial reasons), tax considerations are paramount. Third, the effectiveness of multinationals' worldwide tax burdens is often limited by government restrictions dominate the decision. In principle, firms' use of tax incentives is reduced by the need to evaluate the benefits of tax incentives. Wilson finds that firms can use tax incentives to guide tax planning on the other.

One stage of the research is the analysis of production within an indus-

try in the importance of nontax considerations. Again, one can straightforwardly think of these as product- or industry-specific, country-specific, or firm-specific.

One would expect country-specific considerations (e.g., the availability of skilled workers) to be important in stages of production in which there are high fixed costs for research and development or regulatory approval. These fixed costs figure prominently in the pharmaceutical and semiconductor industries. For those industries, tax considerations are not as important as location-specific nontax benefits and costs in the early stages of product development. On the other hand, in the production stage, both pharmaceutical and semiconductor products have low marginal costs of production and can be manufactured in many places. Country-specific nontax factors are much less important, and tax considerations are correspondingly more important.

Where infrastructure and product regulation concerns are not significant, one would expect tax planning to be important in high-margin lines of business. Software manufacturing is a good example in which high margins reflect the value of intangible assets and the manufacturing process is simple. Aggressive use of transfer pricing should be important in the software business, subject to limitations arising from firm-specific concerns (e.g., intrafirm coordination problems) or government restrictions. Wilson finds that the latter, government restrictions, provide the principal discipline against aggressive transfer pricing. That is, firm-specific considerations do not appear to limit tax incentives to the same extent that country-specific considerations do.

In the case of the chemical industry, for which margins and the value of research and development intangibles are low, distance to market (a country-specific factor) is the principal consideration in location and sourcing decisions. Because chemical manufacturing facilities arguably generate fewer nontax benefits and more nontax costs for host countries than would, say, pharmaceutical or semiconductor facilities, fewer tax incentives are offered. As a result, tax considerations are more likely to be important in expansion decisions than in greenfield investment decisions.

Similarly, industry- and country-specific nontax factors are most important for firms in the materials industry. Product characteristics and individual customer needs place geographic limits on location. As a result, tax considerations are significant only among geographically close jurisdictions that offer the desired nontax benefits for the business.

Wilson's analysis of possible tensions between tax-motivated transfer pricing and firm-specific requirements for evaluation and control is very interesting. From a tax planning perspective, the principal factors governing the usefulness of transfer pricing include the dispersion of tax rates across countries in which the parent has operations, gross margins and the importance of intangibles, and government restrictions. Tax-motivated transfer pricing is most beneficial for firms with high gross margins as a result of intangible assets with few comparable unrelated-party prices (e.g., pharmaceutical manufac-

turers), as long as government restrictions are not too severe. Tax considerations are not the only motivation, however. Noting "multiple business purposes," Wilson's interviews document firm-specific plans to shift profits for nontax reasons to motivate managers.

A priori, one might imagine that the need to evaluate and motivate managers would reduce a corporate parent's willingness to "relocate" profits across its foreign subsidiaries to minimize its worldwide tax burden. According to Wilson, firms are generally able to reduce nontax costs that impede tax planning by designing measures for performance evaluation that do not depend on transfer prices. How do corporate managers ensure *after-tax* profit maximization when managers are evaluated on a *pretax* basis? Wilson notes that "informal adjustments are made." Interviews and case studies are useful for describing these adjustments. Much more detail here would be instructive.

I have a related concern with the paper's analysis of effects of tax planning on real resource allocation—a question critically important to economists. Wilson argues that "the amount and sophistication of real economic activity in low-tax countries seems to be commonly understated." Much more specific discussion would be useful. Returning to the discussion of country-specific factors, for example, to the extent that cross-country heterogeneity in tax rates reflects differences in infrastructure or other benefits, there may be little distortion of real resource allocation.

Finally, three avenues for further research seem particularly promising. First, for the current sample, an analysis of shifts in firms' decisions before and after the Tax Reform Act of 1986 would be instructive. Second, multinationals' *financial policy* decisions (e.g., repatriation or capital structure decisions) offer a good laboratory for analysis. In contrast to the decisions studied in the present paper, country-specific and product- or industry-specific factors should be less important, and firm-specific factors should be more important. As a result, one could study trade-offs between tax factors and firm-related nontax factors. Finally, at the "extensive margin," detailed interviews and case studies for non-U.S. parents would facilitate our discrimination among alternative tax and nontax factors in affecting multinational firms' decisions.

These suggestions are more easily offered than executed. Wilson's paper is a difficult and important first step in our using case study evidence to shape economic models of multinational firm decisions.