

Shorter Papers

The Trade and Welfare Consequences of U.S. Export-Enhancing Tax Provisions

DONALD J. ROUSSLANG and STEPHEN P. TOKARICK*

The U.S. tax code contains two provisions that encourage exports by reducing the U.S. corporate income tax on export profits. In this paper we use an applied general equilibrium model of the U.S. economy to estimate the trade and welfare consequences of eliminating these tax provisions. We find that the provisions ameliorate the trade-discouraging effects of U.S. tariffs, but that they also adversely affect the U.S. terms of trade to such an extent that eliminating the provisions is likely to improve U.S. domestic welfare. We also find that a tariff reduction that replicates the trade effects of removing the tax provisions would interact differently with other distortions in the model and would have different effects on welfare. [JEL C68, F13]

THE U.S. TAX CODE contains two provisions that encourage exports. One provision, the "sales source rules," determines how profits from U.S. exports are divided between domestic and foreign source income for the purpose of calculating the U.S. income tax liability of multinational corporations. The other provision governs the taxation of income earned from exports that are sold through foreign sales corporations (FSCs).

* Donald Rousslang is an Economist in the Office of Tax Analysis, with the U.S. Department of the Treasury. He received his Ph.D. in economics from the University of Oregon. Stephen Tokarick is an Economist in the IMF's Western-Hemisphere Department. He received his Ph.D. in economics from the University of Pittsburgh. The views expressed in this paper are those of the authors and do not reflect the views of the U.S. Department of the Treasury or the International Monetary Fund. The authors would like to thank Peter Clark, Harry Grubert, and Christopher Towe for helpful comments.

Both provisions give preferential tax treatment to corporate profits earned from exports. In this paper, we use an applied general equilibrium model to examine the trade and welfare consequences of these provisions.

Section I describes the export-enhancing tax provisions in greater detail. Section II describes the model and Section III contains our results. Section IV contains a summary and conclusions.

I. The Sales Source Rules and the Foreign Sales Corporation Provisions

The sales source rules allow a U.S. multinational corporation to treat part of the profit from the production of U.S. exports as though it were foreign source income.¹ Such treatment does not attract additional foreign income tax, but it allows the corporation to reduce the U.S. tax on its export profits. The tax saving arises as follows. In general, a U.S. multinational corporation is subject to U.S. federal tax on all of its income, whether the income is earned at home or abroad.² The corporation receives a credit (as opposed to a deduction) for income taxes paid to foreign governments, but the credit is limited to the U.S. tax liability on foreign source income. Thus, if the foreign tax rate exceeds the U.S. tax rate, the corporation will pay more in foreign taxes than it can credit against the U.S. tax liability on its foreign earnings. The sales source rules allow the corporation to credit some of the foreign tax payments against the U.S. tax on profits earned from domestic production of exports.

As an example, suppose a U.S. corporation has a single branch abroad that faces a foreign income tax rate of 38.5 percent, which is 10 percent higher than the U.S. corporate income tax rate of 35 percent. For this corporation, the foreign tax credit will eliminate the incipient U.S. tax liability on the branch's earnings and, for each \$100 of such earnings, the corporation will pay \$3.50 in foreign taxes that it cannot credit against the U.S. tax liability. The corporation is said to have "excess" foreign tax credits and, for each dollar of U.S. export profits that it can treat as foreign source income, it will save \$.35 in tax payments, until it has exhausted the excess foreign tax credits.³ The tax saving arises because the reallocation of U.S. export profits does not involve any change in the

¹ The sales source rules are found in section 862(a)(6) and sections 863(b)(2) and (3) of the Internal Revenue Code. Detailed explanations of the operation of the rules can be found in U.S. Department of the Treasury (1993b).

² Income earned abroad by foreign subsidiaries generally is not subject to U.S. tax until it is returned to the United States.

³ If the affiliate is a subsidiary (rather than a branch), the foreign income must be remitted to the U.S. parent before the foreign tax credits are available.

branch's earnings, in the income reported to the foreign host country, or in the global income of the corporation: it is merely an accounting change made on the books of the U.S. parent that allows the corporation to claim an additional \$.35 in foreign tax credits against the U.S. tax liability for each dollar of the U.S. export profits that it treats as foreign source income.

The sales source rules allow a corporation to treat up to 50 percent of U.S. export profits as foreign source income, so the tax saving amounts to \$.175 for each dollar of the export profits until the excess foreign tax credits are absorbed. In the above example, the tax saving can be realized on \$20 of export profits for each \$100 of income earned by the foreign branch. (With \$20 dollars of export profits, the U.S. parent can allocate \$10 to foreign source income, which would allow it to claim up to \$3.50 in additional foreign tax credits. This is exactly the amount of excess foreign tax credits that would be generated by \$100 of branch earnings.)

The tax saving is limited either by the amount of the corporation's exports or by the amount of its excess foreign tax credits. If the corporation earns more than enough export profits to absorb all of its excess foreign tax credits, the rules provide it with a tax saving but no incentive to expand exports, because its profits from the last units of export sales do not benefit from the tax break. If the corporation has insufficient export profits to absorb all of its excess foreign tax credits, the rules provide it with an incentive to expand exports, because the rules would reduce the effective rate of tax on its profits from additional exports. If the corporation has no foreign operations, or if it pays foreign income taxes at rates insufficient to generate excess foreign tax credits, it receives neither a tax saving nor an export incentive from the rules. Most large U.S. corporations that use the sales source rules have insufficient export profits to absorb all of their excess foreign tax credits, so the rules have potentially important effects on trade flows.⁴ Yet, the rules have received virtually no attention in the trade literature.

The FSC legislation, which was enacted in 1984, exempts up to 30 percent of eligible export profits from U.S. income tax, but in the great majority of cases the exemption is limited to 15 percent.⁵ Thus, the tax saving is typically about \$.05 for each dollar of export profits. To be eligible for the exemption, exports must be sold through a FSC, but this requirement usually can be met at little cost to the exporter. If exports are sold through a FSC, only 25 percent of the export profits can be treated as foreign source income under the sales source rules. Hence, a corporation with excess foreign tax credits often will realize a greater tax

⁴ See Rousslang (1994).

⁵ The FSC program is described in U.S. Department of the Treasury (1993a).

saving by forgoing the FSC benefit in order to absorb more of its excess foreign tax credits with the sales source rules.

II. The Model

The model has been presented in earlier papers (Rousslang and Tokarick, 1994 and forthcoming), so it is only summarized here. It contains four goods: an imported good; a domestically produced traded good consisting of output from agriculture, mining, and manufacturing; a nontraded good consisting mainly of construction and services; and leisure. The imported good is an imperfect substitute in demand for the domestically produced traded good. Some of the domestic traded good is consumed at home and the remainder is exported. Leisure and the nontraded good are net (Hicksian) complements for each other in demand; all other pairs of goods are net substitutes.⁶

Two factors of production, capital and labor, are combined to produce the domestic traded good and the nontraded good. Both factors are fully mobile between the two industries, but neither factor is internationally mobile.⁷ The capital endowment is fixed. The total time available for work or leisure is fixed, but the amount of time spent working is determined endogenously as the consumer derives utility from the consumption of leisure. Taxes consist of an import tariff, a general sales tax, taxes on labor and capital income, and factor taxes on labor and capital. There is a single household and the government returns all tax revenues to the representative consumer in lump-sum fashion.⁸

The tax breaks on export profits are modeled as a *reduction* in the ad valorem tax rate applied to capital used in the production of the traded good. Thus, the export tax breaks distort the allocation of capital across sectors of the economy.

III. Applying the Model

We perform two experiments. In experiment 1, we eliminate the tax breaks for corporate export profits and examine the effects on U.S. exports, imports, employment, wages, output of the domestic traded

⁶This substitution pattern is suggested by the empirical evidence (see Abbot and Ashenfelter, 1976).

⁷The pattern of capital mobility was chosen on the basis of empirical findings by Reitzes and Rousslang (1988).

⁸This assumption is traditional in the public finance literature. It is discussed further below.

good, output of the nontraded good, consumption, and economic welfare. In experiment 2, we eliminate the tax breaks and simultaneously adjust the import tariff so that exports and imports remain constant at their initial values. The purpose of this experiment is to compare the effects of the tax breaks with those of an equivalent tariff reduction. From Lerner's (1936) symmetry theorem, one might expect the tax breaks and the equivalent tariff reduction to have similar effects on relative prices and welfare, but in our model the welfare effects of the two measures can differ because the measures interact differently with other distortions in the model.

Because all tax revenue is returned to the consumer in lump-sum fashion in the model, both experiments are balanced budget experiments (the fiscal budget balance remains unchanged) and they are also equivalent to differential incidence experiments (in which a lump-sum tax is varied to keep real government revenue unchanged). Hence, the results of the experiments do not confound the effects of eliminating the export tax breaks (whether or not there is an accompanying tariff reduction) with the effects of a change in the fiscal budget balance, or with the effects of an overall reduction in taxes.

The results of the experiments are shown in Table 1. In experiment 1, removing the tax breaks for export profits reduces the volume of exports and imports, causes output of the domestic traded good to fall, and causes output of the nontraded good to rise. If the terms of trade remain unchanged (which will occur in the model if the foreign demand for U.S. exports is perfectly elastic) welfare falls, primarily because the tax breaks reduce the trade-inhibiting effect of the import tariff and the tariff reduces U.S. welfare in this case, but also because the tax breaks reduce the distortions imposed by domestic labor taxes and the sales tax. The labor taxes impose a welfare cost by discouraging work effort and the sales tax imposes a welfare cost by discouraging the consumption of imports. As shown in Table 1, removing the tax breaks for exports exacerbates the welfare cost of both distortions, because it further reduces hours worked and the consumption of imports.

If the terms of trade improve (the foreign demand for U.S. exports is less than perfectly elastic), removing the export tax breaks reduces exports, imports, hours worked, and domestic consumption of traded goods by a smaller amount than when the terms of trade are held fixed. The terms of trade tend to improve when the export tax breaks are eliminated, because the United States is sufficiently large in world markets that the attendant reduction in U.S. export supply causes the price of the exports to rise. If the terms of trade improve sufficiently, domestic welfare can

Table 1. *Effects of Eliminating the Export-Enhancing Tax Provisions*
(Percentage change from the base values unless otherwise specified)

	Experiment 1 Terms of Trade:		Experiment 2 ^a
	Fixed	Variable	
Export volume	-4.67	-2.43	0.00
Import volume	-2.85	-0.99	0.00
Terms of trade	0.00	0.83	0.00
Hours worked	-0.17	-0.11	-0.05
Real wage ^b	-0.01	0.02	0.03
Real output of the traded good	-0.47	-0.31	-0.15
Real output of the nontraded good	0.18	0.13	0.06
Consumption of the domestic traded good	0.15	0.00	-0.17
Consumption of the nontraded good	0.18	0.13	0.06
Consumption of leisure	0.37	0.24	-0.17
Economic welfare:			
In billions of 1987 dollars ^c	-2.58	0.66	-0.68
Percent of full income ^d	-0.05	0.01	-0.01

^aThe terms of trade (and trade flows) remain unchanged in this experiment, so there is no difference between the fixed and variable terms-of-trade cases.

^bThe nominal wage is deflated by an index of consumer prices.

^cWe measure the change in welfare by the Hicksian equivalent variation. The equivalent variation is defined as follows: $EV = E(P^0, U^1) - E(P^0, U^0)$, where $E(P, U)$ is the expenditure function, P^0 is the vector of initial prices, U^0 is utility in the base year, and U^1 is the utility level after the policy change.

^dWe express the equivalent variation as a percent of full income.

rise when the tax breaks are removed. For our central value of the elasticity of demand for U.S. exports (-3.0), we estimate that existing U.S. tariffs supply such large terms-of-trade gains that effectively reducing them with the export tax breaks reduces domestic welfare.

Because terms-of-trade effects turn out to be so crucial to the welfare estimates, and because estimates of the elasticity of foreign demand for U.S. exports are subject to substantial error, we repeated experiment 1 using different elasticity values. We found that -4.5 is the critical value for the elasticity, at which the terms-of-trade gain from removing the tax breaks just offsets the detrimental effect of reducing foreign trade. If export demand is more elastic than the critical value, U.S. tariffs reduce domestic welfare and the export tax breaks provide a domestic welfare gain; if it is less elastic than the critical value, U.S. tariffs improve domestic welfare and the tax breaks impose a domestic welfare cost. The consensus in the economics literature is that the foreign demand for U.S.

exports is less elastic than our critical value,⁹ so we conclude that the tax breaks probably reduce domestic welfare.¹⁰

The results from experiment 2 indicate that the tax breaks have the same effect on trade as reducing the import tariff by 36 percent.¹¹ The net trade distortion in the economy (the trade-discouraging effect of the tariff minus the trade-enhancing effect of the export tax breaks) is the same, but domestic welfare falls when the tax breaks are replaced with the equivalent tariff reduction. This result occurs because replacing the tax breaks with the tariff reduction causes hours worked and domestic consumption of the domestic traded good to fall while consumption of imports does not change. Thus, the distortions imposed by domestic labor taxes and the sales tax are both exacerbated.

IV. Summary and Conclusions

In this paper we described two provisions in the U.S. tax code that provide tax breaks for corporate export profits (the FSC program and the sales source rules), and we provided estimates of their effects on the U.S. economy and on domestic economic welfare. We found that the tax breaks have important effects on the volume of U.S. trade; together they cause the volume of imports and exports to expand by the same amount as would reducing U.S. tariffs by slightly more than one third.

We found that the tax breaks are likely to reduce domestic welfare, even though they act to offset the distortions imposed by U.S. import tariffs, because the tax breaks worsen the U.S. terms of trade. An implication of this result is that the tax breaks probably improve global

⁹ See Goldstein and Khan (1985).

¹⁰ In an earlier analysis of the welfare consequences of Domestic International Sales Corporations (DISCs—the precursors to FSCs), Mutti and Grubert (1984) came to a similar conclusion. They found that the DISCs caused a domestic welfare loss by adversely affecting the U.S. terms-of-trade. Our analysis of the likely effect on global welfare is very different from theirs, however. They argued that the DISC program probably lowered global welfare slightly by attracting capital to the United States from countries where, on average, the tax rates and hence the pretax rates of return were likely to be higher than in the United States. They ignored the role of the DISCs in reducing the domestic misallocation of capital induced by U.S. tariffs. In contrast, we ignore the modest effect of the export-enhancing tax provisions on global investment flows, but account for their more important role in reducing the tariff-induced misallocation of resources within the United States.

¹¹ This result was expected, because the ad valorem equivalent of the export subsidy provided by the tax breaks was about one-third as high as the trade-weighted average of the ad valorem U.S. tariff rates in the data used for the model.

welfare, because the domestic terms-of-trade losses would be matched by foreign terms-of-trade gains. Thus, since commercial policies tend to lean more heavily toward import restraint than export promotion (both in the United States and abroad), the tax breaks should promote global welfare by reducing the global antitrade bias.

Finally, we found that eliminating the tax breaks while at the same time reducing tariffs to keep the volume of U.S. exports and imports (and the U.S. terms of trade) unchanged reduces domestic economic welfare. This result is somewhat surprising, because it runs counter to the traditional view that the more direct way of reducing a distortion generally is also the more efficient way. The result occurs because the export tax breaks reduce the welfare cost of the nontrade distortions incorporated in the model (those imposed by labor taxes and sales taxes within the United States) by more than does the equivalent tariff reduction. Thus, exchanging the export tax breaks for the equivalent tariff reduction exacerbates the distortions imposed by the domestic labor and sales taxes.

REFERENCES

- Abbot, Michael, and Orley Ashenfelter, "Labour Supply, Commodity Demand and the Allocation of Time," *Review of Economic Studies*, Vol. 43 (October 1976), pp. 389-411.
- Goldstein, Morris, and Mohsin S. Khan, "Income and Price Effects in Foreign Trade," in *Handbook of International Economics*, Vol. II, ed. by Ronald W. Jones and Peter B. Kenen (Amsterdam: North-Holland, 1985), pp. 1041-1105.
- Lerner, Abba, "The Symmetry Between Import and Export Taxes," *Economica*, Vol. 3 (August 1936), pp. 306-313.
- Mutti, John, and Harry Grubert, "The Domestic International Sales Corporation and Its Effects," in *The Structure and Evolution of Recent U.S. Trade Policy*, ed. by Robert E. Baldwin and Anne O. Krueger (Chicago: University of Chicago Press, 1984), pp. 279-320.
- Reitzes, James D., and Donald J. Rousslang, "Domestic Versus International Capital Mobility: Some Empirical Evidence," *Canadian Journal of Economics*, Vol. 21 (May 1988), pp. 312-23.
- Rousslang, Donald J., "The Sales Source Rules for U.S. Exports: How Much Do They Cost?" *Tax Notes*, Vol. 62 (February 1994), pp. 1047-54. Reprinted in *Tax Notes International*, Vol. 8 (February 1994), pp. 527-35.
- Rousslang, Donald J., and Stephen P. Tokarick, "Estimating the Welfare Cost of Tariffs: The Role of the Work-Leisure Choice," *Oxford Economic Papers*, forthcoming 1995.

- , "The Trade and Welfare Consequences of U.S. Export-Enhancing Tax Provisions," IMF Working Paper 94/50 (Washington: International Monetary Fund, May 1994).
- U.S. Department of the Treasury (1993a), *Report to the Congress on the Sales Source Rules* (Washington: National Technical Information Service, 1993).
- U.S. Department of the Treasury (1993b), *The Operation and Effect of the Foreign Sales Corporation Legislation: July 1, 1981 to June 30, 1983* (Washington: National Technical Information Service, 1993).