II Taxes on Commodities

A Survey

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This chapter investigates the main economic issues relating to harmonization and coordination of commodity taxation. A review of theoretical considerations is followed by a discussion of past trends and current proposals for harmonizing the VAT and excises in the EC. Next, sales taxation at the local level is discussed in the context of the federal governments of the United States and Canada. The chapter concludes with a survey of estimates of the likely effects of the EC Commission's proposals on resource allocation, income distribution, government revenue, macroeconomic aggregates, and the rest of the world.

Theoretical Background

The criterion that production should be located according to comparative advantage has guided, for the most part, the process of harmonizing indirect taxation. From this perspective, an efficient allocation of resources requires that commodity taxes should leave the relative costs of home- and foreign-made goods unaffected.

Origin Principle Versus Destination Principle

The destination principle ensures that indirect taxes do not discriminate between foreign and domestic producers. According to this principle, commodities are taxed in the country of destination (that is, where they are consumed), regardless of where they are produced. Border adjustments are required so that imported commodities attract the same tax rate as comparable domestic goods in the importing country. Exports are typically exempt from domestic tax, and imports are subject to the tax collected on domestically produced goods. The destination principle is consistent with the provisions of the GATT.

An alternative to the destination principle is the origin principle, which holds that commodities should be taxed on the basis of their place of production, regardless of where they are consumed. Accordingly, imports are not taxed, and no rebate is given with respect to exports. Under the destination principle, the tax rate in the country where the consumption takes place determines the final tax burden on the consumer. Under the origin principle, in contrast, the final tax burden at consumption is a weighted average of the effective tax rates in the countries where production occurs.

Economic theory provides efficiency arguments in favor of the origin principle, albeit under restrictive assumptions. Shibata (1967) demonstrated that replacing the destination principle by the restricted origin principle would not affect production efficiency.[1] Tax rates could differ across countries without violating locational neutrality because changes in exchange rates and market prices would leave relative prices unaffected. However, the assumptions underlying this theorem, such as the absence of international factor mobility and the flexibility of either factor prices or nominal exchange rates, are too restrictive to be met in practice.[2] The theorem also requires a truly comprehensive tax and a completely uniform tax rate within each country, yet most countries apply differentiated commodity tax rates and exempt certain goods and services. Whereas differential tax rates across goods and services tend to distort mainly consumption patterns under the destination principle, they would distort primarily production patterns under the origin principle—the actual distortion being determined by price elasticities of substitution in consumption and production, respectively.[3]

[1] Under the restricted origin principle, the origin principle applies only to trade among the members of a customs union. For trade with nonmember countries, the destination principle would apply.

[2] Cnossen and Shoup (1987) have examined these assumptions in more detail. Berglas (1981) demonstrated that replacing the destination principle with the restricted origin principle would transfer income among member countries if trade with the rest of the world is not balanced.

[3] Hence, under the origin principle, a differentiated commodity tax could become a tool of selective industrial policy—much like industry-specific investment tax incentives in a number of countries. Laux-Meiselbach (1988) has argued that this may cause new distortions in international trade because domestic producers may demand lower tax rates for protection purposes.

The restricted origin principle is difficult to administer under a credit-type VAT,[4] although the origin principle has been regarded as superior to the destination principle because it can be applied without border controls.[5] Under the origin principle, underinvoiced exports save tax paid to the country of origin, whereas overinvoiced imports save tax paid to the country of destination by raising the notional tax credit available upon further processing. This encourages firms to manipulate prices if tax rates differ between countries (Cnossen (1986) and Laux-Meiselbach (1988)). Moreover, valuation would be a highly contentious matter under the origin principle because it would affect the intercountry distribution of tax revenue. An administrative advantage of the destination principle is that the valuation of exports and imports does not affect the tax liability. Because exports are zero rated, they do not bear tax, regardless of valuation; underinvoiced imports, although reducing the tax paid at the border, also reduce the tax credit that the importing firm can claim.

Benefit considerations may also affect the choice between the origin and destination principles. According to the benefit criterion, the incidence of the benefits from public expenditures should determine whether consumption or production should constitute the basis for taxation.[6] In particular, under the destination principle, consumers should bear the tax burden if consumers rather than producers are the main beneficiaries of government services financed by the tax.[7]

Application of the Destination Principle

The border tax adjustments required by the destination principle are difficult to implement under a turnover tax, which typically applies to all stages of production and distribution, with no rebate for tax paid at earlier stages. Consequently, exact border tax adjustments depend on the number of production stages and the value added at each stage. Because these factors cannot be reliably ascertained, tax authorities can only approximate national border tax adjustments. Moreover, countries may be tempted to use border tax adjustments for the purposes of protecting domestic producers of import substitutes and of providing incentives to exporters.

In contrast to the turnover tax, the VAT provides a precise method for eliminating the tax on exports and for levying an equivalent compensatory tax on imports because the tax is levied on the incremental value added at each stage in the production of goods. If the tax is levied according to the credit method—as is the case in EC member countries—invoices explicitly state the total tax paid at previous stages. As a result, tax authorities can exactly measure the tax incorporated in exports, and rebate it by applying a zero rate, while imposing an equivalent compensatory tax on imports. Even if import values are under- or overstated, the credit mechanism corrects inappropriate valuation at the first inland stage.

Although more neutral, and thus efficient, than the turnover tax it replaced, the VAT levied by EC member countries still leads to distortions in production, consumption—besides the distortion of the labor-leisure choice, associated with any consumption tax—and international trade. Several types of distortions arise in connection with the VAT, as discussed below: distortions induced by exemptions, differences in tax rates within and across countries, and border adjustments.

Several sectors are usually exempt from the VAT, including small businesses, financial institutions, and public and nonprofit institutions. In addition, production in the household and informal sectors is exempt either because of statutory provisions or because of enforcement difficulties.[8] Exempting activities differs from zero rating in that exempt traders are not entitled to claim credit for the VAT imposed on their inputs. Exempt items, therefore, incorporate the VAT imposed on goods and services bought by the tax-exempt producers. The larger is the value of taxed inputs relative to the value of output, the higher is the tax burden on an exempt enterprise. Depending on elasticities and market structure, part of this tax burden may ultimately be passed on to consumers through prices of final goods and services. Through this

[4]Tait (1988) examined the various ways of levying the VAT and concluded that the credit or invoice method is the only practical method. This method applies the tax rate to outputs and determines the net liability by allowing sellers to claim full credit for taxes invoiced by suppliers. Laux-Meiselbach (1988) argued that the direct subtractive method is the best way to implement the origin principle. Under the direct subtractive method, the tax is applied directly to the difference between total sales and purchases from other firms.

[5]This latter aspect was recognized in EEC Commission (1963).

[6]Efficiency considerations support the benefit principle because locational distortions from differential tax burdens on mobile factors depend on *net* tax burdens (that is, tax burdens net of benefits from public expenditures).

[7]Terra (1988, Chapter 10) used these benefit arguments when arguing in favor of the destination principle for the VAT. Cnossen and Shoup (1987), in contrast, maintained that the VAT does not closely match the benefits from public expenditures.

[8]Nonpayment of VAT because of tax evasion is formally equivalent to nonpayment of VAT on account of an exemption. In some EC countries a substantial part of the VAT is evaded; see, for example, Pedone (1981).

channel, exemptions may distort consumption decisions.

Exemptions distort the pattern of production for two reasons. First, the tax paid by exempt traders is not refunded if domestic taxable producers buy exempt inputs.[9] Hence, just as under a turnover tax, some cascading may arise under a VAT. Second, input decisions of exempt institutions are typically distorted. In particular, these institutions are encouraged to have services performed by their own employees instead of buying them on the market. Exemptions may also induce trade distortions—especially if tax rates differ across countries. When exempt businesses or businesses buying exempt inputs in high-tax countries sell abroad, they are likely to be undercompensated at the border because they do not obtain refunds for taxes on inputs.[10]

Differences in intracountry tax rates typically distort consumption patterns and the input decisions of exempt entities.[11] Nonuniform intracountry rates can also be used for protective purposes by imposing higher rates on importables and lower rates on exportables and nontradables.[12] This may affect the intercountry pattern of production and consumption, as well as the international distribution of welfare, by changing the terms of trade.[13]

International differences in commodity tax rates reduce the efficiency in exchange because they drive a wedge between the marginal rates of substitution faced by consumers residing in different countries. Accordingly, welfare could be enhanced if households were to engage in international trade by increasing their demand for goods that are relatively heavily taxed in their own country relative to other countries and by reducing the demand for those goods that are relatively lightly taxed by international standards. Cross-border shopping, although mitigating these consumption (or exchange) distortions, causes international differences in consumption tax rates to distort trade and production.[14]

Border controls help to enforce VAT on cross-border shopping and play an important role in administering the border tax adjustments under the destination principle. However, the compliance burden associated with border procedures and associated paperwork imposes transaction costs and, therefore, at the margin, border controls discourage trade.[15]

Trade is also discouraged by the way the current system of border tax adjustments imposes a compensatory VAT on imports. On domestic transactions between taxable persons, the supplier pays and the purchaser deducts the VAT at about the same time. On international transactions, in contrast, as the payment of the import VAT usually precedes the right to deduct, the importer provides an interest-free loan to the government by forgoing the interest on the prepaid tax.[16]

[9]In the case of taxes that represent user charges for services provided by the government, taxes correspond to the price paid for production costs that would otherwise have been incurred. Neither tax-exempt nor taxable producers should be allowed to credit these taxes.

[10]To illustrate, Davis and Kay (1985) observed that new construction in the United Kingdom gives resident financial institutions, which are tax exempt, a competitive advantage over continental competitors because the latter cannot claim refunds for the VAT they pay on new construction. Exemptions also violate the principle that tax revenue should accrue to the country of destination. Similar distortions occur if countries differ in the type of expenditure that qualifies as business expense and, therefore, can be credited as input VAT.

[11]Differential rates are sometimes justified on the externalities and differences in demand elasticities. Kay and Keen (1987), however, used efficiency arguments when they argued in favor of uniform taxation. Nonuniform taxes may also encourage unproductive activities ("rent seeking") by interested parties who seek preferential treatment. Uniform taxes, in contrast, may signal that the government will not yield to such pressures for preferential treatment.

[12]Feldstein and Krugman (1990) have argued that exemptions from VAT usually fall on nontradable rather than tradable goods and services. Hence, VAT exemptions discourage trade and raise the consumption and production of nontradables. Gordon and Levinsohn (1990) have suggested that industrial countries distort and discourage trade not only through nontariff barriers but also through a combination of production subsidies and nonuniform consumer tax rates.

[13]Rose (1987) showed that countries with market power in world markets can improve their terms of trade at the expense of their trading partners—even if they apply the destination principle—by levying the highest commodity tax rates on importables and the lowest tax rates on exportables and nontradables.

[14]In order to limit this trade, individuals are at present required to pay VAT above a free allowance of ECU 350. Some EC member countries (Denmark and Ireland) also require individuals to stay a minimum period abroad before they can benefit from these allowances. Of the EC countries, Denmark and Ireland, which levy relatively high VAT rates, face some of the most serious adverse effects from tax-induced cross-border shopping along the borders with, respectively, Germany and the United Kingdom. As a consequence, Ireland has been obliged to reduce tax rates on several consumer durables and on petrol. In addition, it is conceivable that, unless reflected in public services enjoyed by mobile types of labor, commodity tax rate differentials may encourage labor migration from high-tax to low-tax countries.

[15]Cecchini (1988) estimated that the removal of border controls would reduce costs to the private sector by ECU 7.9 billion to ECU 8.3 billion (at 1988 prices), which amounts to about 1.7 percent of the value of intra-EC trade. In addition, the public sector would save between ECU 0.5 billion and ECU 1.0 billion in administrative costs. According to United Kingdom (1988), fiscal controls account for less than half of the costs of border controls.

[16]In several EC countries, the tax on imports is not due until four to six weeks after importation. Hence, the difference between the tax treatment of inter- and intracountry transactions may be quite small in some cases.

According to the destination principle, excises are collected only once in the production and distribution process—in most cases at the manufacturer's or importer's level—in the country of sale. The only major exception is the duty on fuel oil used by industry. In this case, producers use an excised good as an input, and cascading may occur because the duty is nonrefundable. This effect is similar to that experienced by the VAT-exempt producers that buy inputs on which VAT has been levied. Consequently, international differences in excise rates on fuel typically distort the international pattern of production and competitiveness.[17] Just as in the case of VAT, excise rate differentials within and across countries may give rise to distortions in consumption and exchange and to cross-border shopping.

Harmonization of the Value-Added Tax

After eliminating tariffs on international trade as of July 1968, the EC proceeded first with harmonizing the types of domestic commodity taxes and then with harmonizing the definition of tax bases. In 1967 the EC Council of Ministers decided that all member countries should substitute the VAT for turnover taxes, in part to prevent member countries from using indirect taxation to favor domestic producers over foreign producers through the manipulation of border tax adjustments (EC Commission (1967)). By 1973 nine member countries had introduced the VAT. After becoming members, Portugal and Spain followed in 1986, and Greece in 1987 (Table 1).

The sixth VAT directive, adopted in 1977 and implemented by all member countries in 1979, represented a major step toward a uniform basis of assessment.[18] This directive defined taxable transactions, persons, and amounts. It permitted special schemes for small businesses and farmers and specified a list of the activities that could be exempted, including insurance, banking, and other financial transactions, as well as services in the public interest such as postal services, medical care, educational and cultural activities, and noncommercial radio and television broadcasting. In addition, it included special arrangements that allowed countries to deviate from the common tax base in several areas, with the understanding that these deviations should eventually be eliminated.

Despite the broad harmonization of the base, VAT rates still vary widely among member countries (Table 1). As of 1990, the standard rate ranged from 12 percent in Spain and Luxembourg to 23 percent in Ireland. Denmark is the only country that imposes a single tax rate on almost all taxable goods and services.[19] All other member countries apply one or two reduced rates on items broadly regarded as necessities, such as food, books, newspapers, utilities, and public transport. Belgium, France, Greece, Italy, Portugal, and Spain collect increased tax rates on various luxury goods, such as cars, jewelry, cosmetics, and electrical equipment. Whereas the coverage of the increased rates is small, a sizable portion of the tax base is subject to reduced rates. A zero rate applies to a large basket of goods in Ireland, Portugal, and the United Kingdom. In Ireland and the United Kingdom, about 30 percent of private consumption of goods and services is zero rated.

Proposals for Administration

The envisaged removal of border controls used for implementing border tax adjustments has important administrative implications. The EC has examined alternative ways to abolish border controls. One is the simple elimination of border tax adjustments, as provided for under Article 4 of the first VAT directive (EC Commission (1967)). This alternative would prevent the VAT claim from being interrupted at intra-EC borders while allowing goods to reach the final consumer bearing the VAT rate of the country of consumption. To protect the revenue claim of the latter country, the EC Commission proposed the establishment of a CHS (clearinghouse system), which is still under review and is discussed below.

Under another alternative, the Community could eliminate border controls while maintaining the zero rating of exports by computing border tax adjustments on the basis of books of accounts and verifying them through written records. The PAS (postponed accounting system; also known as the deferred payment scheme) was proposed as part of this approach.[20] The sixth directive suggested that

[17]If tax differentials reflect intercountry differences in the quality of public services or in the costs of supplying these services, however, they do not distort resource allocation.

[18]See EC Commission (1977a). The decision of the Council to compute part of each member's contribution to the EC budget as a proportion of a common VAT base gave some impetus to base harmonization. EC budget resources comprise mainly agricultural levies, import and customs duties, and a 1.4 percent levy on a uniform VAT base.

[19]Unlike most other EC member countries, however, Denmark levies a large number of environmental excise duties in addition to excises on some luxury products, such as major household appliances and cosmetics.

[20]Van der Zanden and Terra (1987) and Terra (1988) have argued in favor of a third alternative closely related to a PAS:

Table 1. Value-Added Tax (VAT) Rates, 1990
(In percent)

Country	Year of Introduction	Statutory Rates: Standard rate	Increased rate	Reduced rate	Coverage of Zero Rate	VAT as Percent of Tax Revenue[1]	VAT as Percent of GDP[1]
Belgium	1971	19	25, 33	1, 6, 17	Newspapers	16.4	7.1
Denmark	1967	22	—	—	Newspapers, large ships, and aircraft	19.5	9.7
France[2]	1968	18.6	25	5.5	—	20.1	8.3
Germany	1968	14	—	7	—	14.8	5.9
Greece[3]	1987	16	36	3, 6	—	24.4	8.1
Ireland	1972	23	—	0, 5, 10	Wide range of items	21.6	8.0
Italy	1973	19	38	4, 9	Newspapers and some minor items	14.1	5.4
Luxembourg	1970	12	—	3, 6	—	13.9	6.7
Netherlands	1969	18.5	—	6	—	16.5	7.5
Portugal[4]	1986	17	30	8	Basic foods, newspapers, medicines, and agricultural inputs	20.0	7.0
Spain	1986	12	33	6	—	16.4	5.6
United Kingdom	1973	15	—	0	Wide range of items	17.2	6.2

Sources: International Bureau of Fiscal Documentation; IMF (1991a,b); and OECD (1991).
[1]Data are for 1989.
[2]France applies VAT rates of 2.1 percent to daily newspapers and some medicines and 13 percent to sales and transfers of building land. Different VAT rates apply in Corsica.
[3]Different rates apply in Dodecanese.
[4]Different rates apply in the Azores and Madeira.

a PAS should be developed as a means to eliminate border controls (EC Commission (1977a)). In 1982, the draft fourteenth directive proposed a version of the PAS.[21] The Benelux countries (Belgium, the Netherlands, and Luxembourg) have been operating a PAS for most cross-border transactions since 1969. Ireland and the United Kingdom applied similar arrangements until November 1, 1984. The PAS shifts or defers the collection of import VAT to the first taxable entity in the importing country.[22] Hence, customs no longer needs to check imports physically at the border and collect the compensating import tax.[23] As regards exports, instead of physical clearance at the border, documentary evidence establishes entitlement to export rebates.

Whereas the PAS envisages a substantial reduction of border formalities, it would be rather susceptible to fraud, especially if applied to all intra-EC trade between taxable persons. Zero rating of exports threatens the self-policing character of VAT because it implies that the tax chain between consumer and producer is broken. Registered traders may obtain zero-rated imports and conceal their business from revenue authorities; likewise, exempt traders may also be able to acquire zero-rated imports. To avoid such tax fraud, EC tax authorities would most likely want to maintain some forms of border control for certain transactions (EC Commission (1985c)). Alternatively, tight control might avoid serious fraud, while imposing cum-

making exports of registered businesses liable to tax at the rate prevailing in the country of the purchaser. Although this alternative may be attractive for direct mail-order sales, it does not seem to be appropriate for other sales because it is difficult to police and rather complicated. See Cnossen and Shoup (1987, p. 80).

[21]See EC Commission (1982). In the 1985 White Paper (EC Commission (1985c)), the Commission suggested that this approach should be introduced, awaiting the introduction of a common CHS. The proposal was withdrawn in 1987 when the Commission proposed implementing the clearinghouse mechanism by 1992 (EC Commission (1987d)). In October 1989 (EC Commission (1989h)), however, ministers of finance of the EC countries suggested that this approach could still be adopted as a transition measure after border controls are abolished at the end of 1992.

[22]This procedure implies that the VAT on imports is paid when the importing taxable entity sells the imported goods.

[23]Removing these barriers to trade involves a one-time loss in budgetary revenues at the time the system is introduced because of the loss of the float arising from the interest-free credit extended to governments by importers.

bersome procedures on firms and discouraging intra-EC trade.[24]

The disadvantages of the PAS led the Commission to propose, in 1987, adoption of the CHS combined with the elimination of export rebates (EC Commission (1987d)). This system would treat sales across intra-EC borders in the same way as those within EC countries. Exports would no longer receive a rebate, but would instead bear the exporting country's VAT rate. The importer would be allowed to credit this tax, even though it was paid to the exporting country. Hence, importation would no longer be a taxable event, and the importer would need to report taxes paid abroad.

The pattern of VAT receipts among member countries would not necessarily correspond to the pattern of consumption if the exporting country were to collect taxes on exports. Compared with the existing system, net importers from other member countries with relatively low rates would tend to lose revenue, whereas net exporters and high-tax countries would gain (Table 2). The CHS would prevent such a redistribution of revenue by requiring exporting countries to reimburse input refunds on their exports to importing countries.

Under earlier proposals of the CHS, importers were to submit a breakdown of the value of goods obtained from each member country and the amount of tax paid thereon, enabling tax administrations to reconcile their revenue flows bilaterally. A drawback of this proposal was the likelihood of costly bilateral disputes. Moreover, the system would impose significant compliance requirements on traders and a heavy administrative burden on tax authorities. Under a revised proposal (EC Commission (1987d)), registered traders would only have to report the export and import VAT on intra-EC trade as a whole,[25] and the CHS would no longer operate on the basis of bilateral flows, but each member country would calculate its net position vis-à-vis the Community as a whole and rely on its own administrative procedures. According to the Commission, the proposed central clearinghouse (in charge of netting excess tax positions of member countries) would be expected to run a small surplus (to be returned to member countries) because some exports would be sold to tax-exempt traders and private individuals who cannot claim refunds.[26]

Table 2. Estimated Revenue from Operation of the Clearinghouse System (CHS), 1986

Country	Net Payment into CHS: In European Currency Units (ECU)	Net Payment into CHS: In percent of GDP
Belgium/Luxembourg	747	0.6
Denmark	-680	-0.8
France	-2,421	-0.3
Germany	3,534	0.4
Greece	-437	-1.1
Ireland	-52	-0.2
Italy	-147	-0.0
Netherlands	1,509	0.9
Portugal	-77	-0.3
Spain	-132	-0.1
United Kingdom	-1,845	-0.3

Source: EC Commission (1987d).
Note: VAT rates of 16.5 percent (standard rate) and 6.5 percent (reduced rate) are assumed.

In view of the large revenue at stake, control measures must ensure that the tax yield is safeguarded not only for each member country but also for the Community budget. In this connection, the elimination of the zero rating of exports, which is susceptible to fraud, would strengthen the self-policing character of the VAT. Moreover, changes in the surplus accumulated by the clearinghouse could be used as an indicator of fraud. The Commission also proposed standardized audit trails and information requirements, improved control and cooperation between tax administrations, and central supervision at the Community level (EC Commission (1987d)).

The CHS requires trust among member governments in each other's VAT administration. Pearson and Smith (1988a) expressed concern that the CHS would incorrectly allocate the incentives and responsibilities for enforcing VAT on intra-EC trade. In particular, effective enforcement requires that

[24] Tielemans (1987) argued that, instead of using border checks, the tax authorities can alleviate the potential for tax fraud by providing mutual assistance and by taking advantage of possibilities for automation. However, this so-called zero-rate notification system requires extensive administrative controls to combat fraud; see EC European Parliament (1987).

[25] This requirement may involve only a small additional cost for intra-EC trade compared with domestic sales. Traders would have to retain records of each transaction, including the exchange rates used, because the Commission's proposals require that each member state should be able to itemize each VAT return.

[26] Mail-order sales would comprise the bulk of the exports to private individuals that would give rise to the surplus because over-the-counter retail sales would be excluded from the clearing operations. Hence, VAT on retail sales to final consumers would accrue to the source country.

the tax authorities carefully check the claims for refunds on imports.[27] The CHS, however, dilutes the incentives for tax authorities to identify dubious claims for input refunds on imported goods because they can recover the cost of such claims from the central clearinghouse. Moreover, other countries do not face incentives to detect fraud because the gains from doing so are distributed over all EC countries. Van der Zanden and Terra (1987) have suggested that mistrust among member countries and attempts to combat fraud may lead to additional onerous obligations on business, such as the separate declaration of creditable input taxes paid to different member countries. This would also raise the public costs of administering the system.[28]

The clearing account would operate exclusively in terms of European Currency Units (ECU). Van der Zanden and Terra (1987) have argued that the need to convert mutual flows in various currencies adds yet another burden on traders and tax administrations. Moreover, fluctuations in exchange rates may cause the CHS to distort trade and to change the allocation of revenues across countries (van Thiel (1988)). By contrast, Timmermans (1988) has maintained that the exchange rate problem is not a serious one.

The obligation of exporters to collect VAT raises the exporters' exchange rate risk. Payment risk is also increased because exporters would be liable to VAT even if the importer defaults on payment.[29] The clearinghouse may also redistribute the discounted value of revenues across countries by changing the timing of tax receipts. Without special arrangements, net importing countries would provide an interest-free loan to net exporting countries.

In May 1989, the Commission suggested amendments to the CHS proposal to further simplify the procedures for both tax authorities and taxpayers (EC Commission (1989c)). Instead of VAT returns, trade statistics would constitute the basis for the clearing operation to calculate member countries' debits and credits.[30] This approach, which does not require a central clearing fund, would involve only an accounting exercise and is not expected to yield a net surplus (Table 2). Moreover, tax authorities might have a stronger incentive to discover fraudulent VAT input claims on imported goods because they would no longer be able to pass claims for input tax refunds on to other member countries.

Depending on the coverage of other special arrangements, the application of either this modified CHS or the PAS could be reduced to less than half of intra-EC trade. The bulk of intra-EC trade may be governed by special regimes. According to the most important special arrangement, the VAT liability on intra-EC trade between firms within an approved group of related enterprises would be suspended until the commodities are sold to an unrelated buyer.[31] Under another special arrangement, mail-order sales by large specialized firms would be taxed at the VAT rate of the country of destination. On the sales of motor vehicles, VAT would be charged in the buyer's country of residence, determined by the place of registration. Purchases by certain exempt or nontaxable public and private institutions would be taxed at the VAT rate in the country of establishment (EC Commission (1989c)).

Following the guidelines set by the EC Council of Economic and Finance Ministers (ECOFIN) at the end of 1989, the EC Commission proposed in May 1990 to maintain the present destination principle for the administration of the VAT over a transitional period of four years following the elimination of fiscal frontiers on January 1, 1993. Adoption of the definitive system based on the origin principle (whether in the form of a CHS or an alternative approach) would be postponed until 1997, but the details of the new system would have to be settled by member countries by December 31, 1995. Under this revised proposal, tax-related border for-

[27]The proposed elimination of zero rating of exports may well enhance the security aspect of the VAT. The proposed system collects tax in advance from the exporter rather than afterward from the first inland trader. In contrast to the PAS, imports bear at least the tax of the exporting country even if imports are not reported.

[28]The Union des Confédérations de l'Industrie et des Employeurs d'Europe (UNICE (1988)) has asked for guarantees that the clearinghouse would not eventually result in an added administrative burden on business. Others have expressed concern that the central clearinghouse may shift excessive authority from sovereign EC countries and their tax administrations into the hands of the EC bureaucracy (see, for example, Culp (1989)).

[29]Cnossen and Shoup (1987) have suggested that in some cases a zero-rate notification procedure, which would be very similar to the procedures under the PAS, could be used to avoid this problem. Payment risk on international trade may well exceed that on domestic transactions; traders may have less legal recourse in case of nonpayment while they may have less information regarding the creditworthiness of their trading partners. The Centre for European Policy Studies has argued in favor of providing relief for bad debts in order to prevent the tax system from discouraging intra-EC trade (CEPS (1989)).

[30]A major problem with this proposal is that trade statistics are rather imprecise. Removing the border controls may make these statistics even less reliable. Moreover, countries would face incentives to understate their exports and to overstate their imports.

[31]The CEPS (1989) has proposed that tax-free trade be extended to include trade between "authorized" traders who would need to satisfy tax authorities regarding the quality and honesty of their accounts.

malities would be eliminated, as planned, on January 1, 1993, and border tax adjustments would be administered through the inland controls used for domestic transactions, in a way akin to the PAS already in practice in the Benelux countries, but without the need for border declarations—whereby the purchase of the imported good rather than physical importation would become the taxable event.

Several countries have expressed concern over the risk of fraud inherent in such a system. To address these concerns, the proposal also sought to increase administrative cooperation by strengthening existing bilateral controls and by instituting a regular exchange of information among member countries. Small VAT-exempt traders would have the option of paying the VAT rate applicable in the country of origin, for expenses up to a specified annual threshold of ECU 35,000 (to be raised to ECU 70,000 as of January 1, 1995), or of being taxed at the rate applicable in the country of destination—this being mandatory beyond the established threshold. New passenger vehicles would be taxed at the rate applicable in the country of registration, and mail-order goods would be taxed at the rate applicable in the country of destination. The ECOFIN agreed on the elimination of travelers' restrictions on January 1, 1993, subject to a sufficient alignment of VAT and excise rates, although Denmark maintained its reservation on this point.

In March and June 1991, the Council (EC Council of Ministers, ECOFIN (1991a,b)) formulated further guidelines concerning the administration of the transitional system and the principal modalities for the VAT mechanism, effective January 1, 1993. The Council confirmed that the transitional arrangement for the VAT be replaced, as of January 1997, by a definitive tax system based on the origin principle.

Proposals for Rate Approximation

In principle, VAT rate differentials do not distort production location decisions as long as the destination principle is upheld. The Commission has argued, however, that the elimination of border controls requires convergence of tax rates because of the difficulty of enforcing the destination principle without border controls (EC Commission (1987a)).

International tax rate differentials may distort trade through various channels. Certain tax-exempt entities (such as financial institutions and small traders) face an incentive to import commodities from countries with the lowest tax rates because they are unable to reclaim VAT. This may encourage corporations to move their distribution centers to countries with low tax rates in order to benefit from demand by tax-exempt entities.[32] Another source of distortion is cross-border shopping by individuals, which would become unrestricted after border controls are abolished. These transactions would be taxed on the basis of the origin principle and therefore would be affected by VAT differentials. Countries with the higher rates would suffer from cross-border shopping because of the loss of revenue and retail business.[33] The Commission has stressed that tax-induced cross-border shopping is a serious issue in heavily populated border areas within the EC. In its view, the importance of this issue is illustrated by the current modest travelers' allowances and the difficulties in obtaining the agreement of member countries to raise these allowances (EC Commission (1985c)).

The existence of tax-exempt traders and public and private institutions provides another argument for the harmonization of tax rates, even if the EC would succeed in enforcing methods requiring some exempt traders to pay the domestic VAT rate on inputs purchased abroad. The reason is that the output of exempt sectors is not relieved from VAT. Consequently, intercountry tax rate differentials distort competition between tradable goods sectors that use the goods of tax-exempt producers as inputs, as well as between exempt sectors that produce tradable goods. Financial institutions and some small businesses and farms are the most important examples of exempt enterprises that export directly.

Another reason for the harmonization of tax rates is that, in the absence of border controls, a wide divergence of rates may cause fraud and evasion (EC, European Parliament (1987)). In particular, traders in a country levying a high rate are encouraged to import goods from a low-rate country and to hide the transaction from the tax authorities, so as to earn not only the tax on domestic value added but also the differential between the domestic and foreign input tax rates. These practices would both discourage production and reduce tax revenue in high-rate countries. Harmonization of tax rates is also likely to enhance the efficiency in exchange by reducing intercountry differences in rates of substitution between goods.[34]

[32]Casey, King, and Watson (1988) describe how VAT differentials distort input decisions of exempt businesses.

[33]Selected sectors in countries with lower tax rates that do not benefit from cross-border shopping may also suffer because general equilibrium adjustments in the exchange rate and domestic costs may crowd out these sectors.

[34]Keen (1987) has shown that harmonizing tax rates toward an appropriately weighted average of EC rates indeed enhances welfare.

Whereas the Commission has argued that the process of market integration requires some approximation of tax rates, some observers maintain that member countries may still be able to impose rates that diverge substantially from those in other member countries. Cnossen (1986) and Bos and Nelson (1988) have argued that taxing cross-border shoppers on the basis of the origin principle would merely legalize the existing situation because border controls are currently not effective in policing these transactions. Furthermore, the view that intercountry differences in VAT rates explain only a small fraction of intercountry price differentials (United Kingdom (1988)) suggests that nontax barriers are more important in distorting trade and factor movements. Tax differentials may, however, become more important in determining price differentials upon removal of most nontax barriers to intra-EC trade.

There is scope for further reducing tax-motivated cross-border shopping for some large and expensive durable goods. In particular, registration requirements could be used to impose compensating user charges if the importing country levies a relatively high tax rate, along the lines of the recent EC proposal that the country of registration should charge commodity taxes on cars (EC Council of Ministers, ECOFIN (1991a)). As regards other commodities, some intercountry differentials could also be allowed, depending on the likely scale of tax-induced cross-border shopping, as determined by geographical factors and the nature of the goods.[35] Accordingly, the Commission suggested that member countries be permitted to regulate differences in tax rates bilaterally on the basis of mutual agreement among directly concerned countries, without requiring agreement among all member countries. The proposed special arrangements for mail-order companies and tax-exempt businesses, such as small traders, public authorities, and financial institutions, may further reduce the sensitivity of cross-border sales to tax rate differentials[36] by requiring nontaxable entities to declare their imports and pay tax at the domestic tax rate,[37] and mail-order firms to collect the tax at the rate of the destination country.

Several observers, as well as the Commission, have adopted the view that it is necessary only to specify minimum tax rates in order to limit the extent to which low-tax countries can impose negative externalities, consisting of revenue losses and reduced retail business, on neighboring high-tax countries.[38] A maximum tax rate would not be necessary because high-tax countries would themselves bear the costs associated with diverging rates. The U.K. government has argued that minimum tax rates would not be desirable either (United Kingdom (1988)). Competitive pressure would naturally lead to spontaneous tax harmonization and would offset pressures to raise inefficient public spending. Moreover, a tax structure requiring unanimous agreement to change tax rates would not be sufficiently flexible to respond to changes in the economic environment. It can be argued, however, that without imposed minimum and maximum rates, countries levying high rates will be tempted to take measures interfering with free intra-EC trade in order to protect their revenue base. Moreover, some sectors in low-tax countries that do not benefit from cross-border shopping may suffer from high tax rates in other countries on account of exchange rate and cost adjustments.

In 1987 the Commission proposed that member countries should adopt a dual rate structure, with a standard rate of between 14 percent and 20 percent and a reduced rate of between 4 percent and 9 percent, and that all increased rates should be abolished.[39] Most countries would be able to retain their standard rates; Luxembourg and Spain, however, would have to raise their standard rates, and Denmark and Ireland would be required to reduce them. The elimination of the increased rate band would affect a relatively small number of luxury goods.

In May 1989, however, the Commission suggested a more flexible approach, whereby the standard rate would be subject only to a minimum of not less than 14 percent (EC Commission (1989c)). At the same time, it continued to support the reduced rate band. Without a maximum standard rate, individual countries would have to assess the costs of maintaining high rates, by taking into account competitive pressures stemming from lower rates in neighboring member countries.

The Commission specified in the 1987 proposals that the reduced rate should apply to approx-

[35]Most of the items that the EC proposal subjects to reduced rates are unlikely to be traded across national borders on a large scale. See also EC Council of Ministers, Economic and Social Committee (1988a), Pearson and Smith (1988a), and CEPS (1989). Cnossen (1983) indicated that tax authorities might levy concessional tax rates in populous border areas.

[36]However, in the case of small traders, enforcement of the destination principle would be difficult. Bringing tax-exempt institutions in the tax net also helps to alleviate the trade distortions induced by intercountry rate differentials.

[37]See Cnossen (1983); Bos and Nelson (1988); Timmermans (1988); and EC Council of Ministers, Economic and Social Committee (1988a).

[38]See, for example, Pearson and Smith (1988a), Timmermans (1988), and Van der Zanden and Terra (1987).

[39]EC Commission (1987a). In addition, France would have to terminate the ceilings that currently apply to the deductibility of VAT on certain business expenses, such as fuel and cars.

imately one third of the aggregate tax base, comprising the following commodities: foodstuffs, with the exception of alcoholic beverages; energy products for heating and lighting; water supply; pharmaceutical products; books, newspapers, and periodicals; and passenger transport. This list was designed to conform closely to existing tax practices in the various EC member countries.[40]

The proposals represented a compromise between the objective of realizing an internal market without trade distortions, on the one hand, and avoiding disruptive budgetary consequences for outlying member countries, on the other. It was argued that, compared with a single rate system, a dual rate system would allow more fiscal discretion and could be designed to impose fewer budgetary adjustments for most countries. Relative to a triple rate system, a dual rate system would be simpler and less costly to administer. Moreover, the classification of products would cause fewer difficulties of interpretation.

In the 1987 proposals, the Commission opposed zero rating for certain income-inelastic products, as currently practiced by Ireland, Portugal, and the United Kingdom, since previous directives had allowed for zero rating as a temporary measure to be eliminated upon completion of the internal market. Moreover, it noted that zero rating was a less efficient way to protect low-income groups than granting targeted subsidies. The EC Commission (1989h) relaxed its position in May 1989 and suggested that, as part of an overall compromise, it could accept zero rates on a limited number of goods in countries currently practicing zero rating.

In June 1991 (EC Council of Ministers, ECOFIN (1991b)), the Council agreed on a minimum standard VAT rate equal to 15 percent and one or two reduced VAT rates equal to or greater than 5 percent, effective January 1, 1993. The scope for application of the reduced rate is broadly consistent with the Commission's 1987 proposals (as qualified in 1989) with the exception of the classification of energy products for heat and lighting, which awaits further decision with respect to excise duties. Because competitive pressures would intensify after elimination of fiscal frontiers, member countries would feel induced to align their tax rates during the four-year transitional phase. By the same token, rate approximation during the transition would alleviate potential disruptions after the abolition of border controls in January 1993.

[40]Van Thiel (1988) has suggested that most member states will be forced to make substantial changes in order to comply with the proposals because their existing reduced and zero rates have a much wider application than that proposed by the Commission. The United Kingdom, for example, applies zero rates to some items, such as children's clothing and the construction of buildings, that are not included in the reduced rate band proposed by the Commission.

Harmonization of Excise Duties

The EC has attempted to harmonize excises in order to prevent them from segmenting the internal market. However, the progress has been slow. The Commission first put forward a framework for harmonizing excises in 1972 (EC Commission (1972)). It identified the excises on manufactured tobacco, alcoholic beverages, and hydrocarbon oils as the excises to be retained and harmonized. All other excises affecting tradable commodities were to be eliminated. The EC has established a limited degree of harmonization for excises on tobacco by agreeing on common definitions of manufactured tobacco products (EC Commission (1987f,g)) and establishing a range of relationships between the specific and ad valorem components. As regards alcoholic beverages and hydrocarbon oils, however, little progress has been made (EC Commission (1987h,i)).

The Court of Justice of the European Communities (Cnossen (1987, p. 32)) has eliminated the most obvious forms of discrimination against foreign products by enforcing Article 95 of the Treaty of Rome, which prohibits imposing taxes that discriminate between foreign and domestic products. The Court has ruled, for example, that France and Italy, which imposed substantially higher excises on mostly imported cereal distillates than on mostly domestically produced spirits distilled from grapes, should remove this form of implicit discrimination against foreign goods. Similarly, the Court prohibited such practices by Denmark (42 percent lower tax rate on akvavit than on other spirits) and the United Kingdom (excise rate on wine five times higher than that on beer).

Moreover, several EC member countries levy excises on commodities other than alcoholic beverages, tobacco, and mineral oils, including nonalcoholic beverages, sugar products, coffee, tea, electricity, and cars (Table 3). Denmark collects environmental duties as well as excises on a large number of luxury commodities. Indeed, harmonization of excise rates has proved to be a difficult and slow process. This can be explained in part by protectionist pressures, but also by differences in consumer tastes and cultural attitudes toward drinking and smoking, as well as by divergent social policies (regarding, for example, the distribution of

Table 3. Excise Duty Revenue Other Than from Alcoholic Beverages, Tobacco, and Mineral Oils, 1989
(As percent of excises, unless otherwise noted)

Country	Motor Vehicles	Heating and/or Electricity	Coffee	Cotton	Other	Total Revenue: Percent of excises	Total Revenue: Percent of tax revenue	Total Revenue: Percent of GDP
Belgium	—	—	0.6	—	3.7	4.3	0.2	0.1
Denmark	18.4	10.4	0.6	—	12.7	42.1	4.4	2.2
France	—	4.8	—	—	6.1	10.9	0.7	0.3
Germany	—	—	3.2	—	0.7	3.9	0.3	0.1
Greece	—	—	—	33.6	—	33.6	4.0	1.3
Ireland	15.1	—	—	—	2.1	17.2	3.0	1.1
Italy	—	7.1	0.3	—	8.5	15.9	1.4	0.5
Netherlands	20.7	—	—	—	6.8	27.5	1.5	0.7
Portugal	15.3	—	0.8	—	1.6	17.7	2.5	0.9
Spain	—	—	—	—	—	—	—	—
United Kingdom	7.8	—	—	—	1.7	9.5	1.0	0.4

Source: OECD (1991).

income), and policies relating to the environment, energy conservation, and health.[41]

Proposals for Administration

The planned removal of border controls affects the administration of excise duties because EC member countries use border controls to police the movements of some dutiable goods under the bonded warehouse system. This system involves suspension of the duty; goods are liable to excise duty only when they leave the warehouse to be sold on the domestic market. Duty on exported goods is canceled after proof of export, which typically involves a check at the border. As regards imports, border controls establish the tax liability at the point of entry.

The Commission has proposed a linked bonded warehouse system in the various member countries to control the movement of dutiable goods after border controls have been abolished.[42] Under such a common system, dutiable goods would cross intra-EC borders under seal while the payment of duty would be suspended. The tax authorities in the country of destination would tax the goods only when the commodities would leave warehouses for delivery to traders. No clearinghouse mechanism would be required because the country of destination would collect the revenue.

Lee, Pearson, and Smith (1988) have argued that the EC proposal does not ensure that tax revenue accrues to the country where the goods are consumed because an integrated European market will encourage international producers to centralize their warehouse and distribution facilities. Hence the location of distribution facilities, rather than the pattern of consumption, would determine the interjurisdictional distribution of excise revenues. A legal prohibition on the movement of goods once duty had been paid would be difficult to enforce unless some type of frontier control would remain, which would be inconsistent with the mandate to remove such controls.[43] The European Parliament (EC, European Parliament (1987)) observed that a linked warehouse system would not be consistent with a genuine internal market because the movement of dutiable commodities would still be rather restricted.

[41]Shoup (1983) has argued that excises can be unified only after increased intra-EC mobility of persons and goods has resulted in more uniform social attitudes toward dutiable commodities.

[42]See EC Commission (1987a). The Commission has not yet put forward detailed rules and regulations regarding the linked warehouses. Several observers, including the EC Council of Ministers' Economic and Social Committee (1988b,c), regret this and have stated that they cannot express a definite view on the excise proposals until the Commission provides more details of the proposed warehouse systems.

[43]Lee, Pearson, and Smith (1988) have suggested that frontier controls might still be required to combat drug trafficking. Accordingly, tax authorities could use these border controls to police large imports of alcohol and tobacco.

The bonded warehouse system could be supplemented with physical marking to enforce a prohibition on the intercountry movement of duty-paid goods.[44] This would prevent goods with duty paid to a particular member country from being sold in another country. Moreover, physical marking may be a less costly alternative to the warehouse system in markets with many small-scale producers.[45] Another advantage of marking duty-paid goods is that it may allow member countries to retain differences in duty rates for some products; retailers could only sell goods shown to have been taxed at the appropriate rate. Indeed, in its 1989 amendments to the 1987 proposals, the Commission suggested that tax stamps could be used to prevent fraud stemming from differences in duties between member countries (EC Commission (1989c)).

On the negative side, however, separate physical marks for each country may be rather inflexible and raise compliance costs.[46] Hence, physical marking may inhibit the formation of a truly integrated market for dutiable commodities.[47] Furthermore, in the absence of border controls, it cannot deter cross-border shopping by households, which is likely to grow substantially if sizable excise differentials persist.

Proposals for Rate Approximation

In putting forward its 1987 proposals, the EC Commission (1987e–i) argued that, in contrast to VAT, excise rates on alcoholic beverages, tobacco products, and mineral oils would need to be completely harmonized across the EC because intercountry differences in VAT, imposed on top of the duty-inclusive price, would compound differences in excises and would result in tax-induced price differentials well in excess of 6 percentage points.[48] Hence, small excise differentials would magnify retail price differentials, thereby exacerbating the incentive for cross-border shopping and fraud, especially for dutiable goods that are easily transported. In fact, excise rates on these products still differ significantly across EC member countries (Tables 4–6).

Other arguments also make excise rate unification even more urgent than harmonizing VAT rates.[49] First, in contrast to VAT, excises involve the one-time payment of nonrefundable taxes. This gives traders a powerful incentive to buy their supplies in a low-tax country after duty has been paid and to sell the commodities in a high-tax country without paying the higher domestic duty. Thus, retailers as well as final consumers may be induced to exploit tax differentials if border controls are eliminated, especially if separate physical markings for each country are not applied. Second, if excisable goods enter the production process as inputs, unification would reduce the intercountry distortions from tax-induced differences in cost structures.[50] Third, harmonization would prevent countries from using excises as protectionist devices. Fourth, it may substantially reduce the cost of administering and complying with excises because it may make close supervision of the movements of goods no longer necessary.[51] Fifth, excises represent a large part of the prices of dutiable goods. Accordingly, as regards excises, tax base flight through cross-border shopping and fraud generates more serious revenue losses for high-tax countries than in the case of VAT.

In sum, the Commission initially proposed a set of uniform excise rates, near the arithmetic mean

[44] See Cnossen (1983) and Lee, Pearson, and Smith (1988). Several EC countries, including Belgium, Denmark, Germany, Italy, and the Netherlands, use physical marking in controlling excises on cigarettes. Some countries apply stamps to alcohol. Physical marking allows tax authorities to tax similar goods differently depending on the end use.

[45] EC Council of Ministers, Economic and Social Committee (1988b) has argued that a system of warehouses, which requires close supervision of the movements of goods until they reach the retail stage, would be wholly impractical for some dutiable commodities, such as wine.

[46] The system would be inflexible if producers would have to keep a supply of stamps for each country in which they sell their products. Such a method would also adversely affect the cash-flow position of producers. These disadvantages could be mitigated, however, by applying the physical marks late in the production chain. Goods could receive a distinguishing mark on leaving the warehouse by stamping individual packs and bottles or by making a revenue meter impression.

[47] However, by allowing border controls to be removed, physical marking would contribute to the creation of a single market for nondutiable commodities. In the United States, interstate differences in excises have resulted in interstate restrictions on movements of dutiable commodities.

[48] See EC Commission (1987a). All other excises involving border tax adjustments would need to be phased out.

[49] As with reducing intercountry differences in VAT rates, harmonizing excises across countries improves the efficiency of exchange.

[50] Timmermans (1988) has observed that, given the existence of other distortions, the unification of just one cost component may not necessarily improve efficiency. In this connection he argued for complementing the harmonization of excise duties on fuel with that of other transport policies. More generally, other nontax policies, such as product regulations and standards for health, safety, and environmental and consumer protection, may distort competition as well.

[51] If excise rates were uniform across the EC, Van der Zanden and Terra (1987) and Terra (1988) favor allocating tax revenue to the member states on the basis of data concerning the national consumption of the dutiable goods. This would not require a supervisory system based on bonded warehouses, thereby reducing administrative and compliance costs. Duties could be collected at the manufacturing stage or when the goods enter the EC. Timmermans (1988) also has maintained that, given the unification of excise duties, linking bonded warehouses, which may well be costly, is not strictly necessary.

Table 4. Excise Duty Rates on Alcoholic Beverages, 1990

Country	In ECU per Hectoliter (hl): Pure alcohol	In ECU per Hectoliter (hl): Average wine	In ECU per Hectoliter (hl): Average beer	As Percent of EC Average: Pure alcohol	As Percent of EC Average: Average wine	As Percent of EC Average: Average beer	Revenue from Alcohol Excises[1]: Percent of excises	Revenue from Alcohol Excises[1]: Percent of tax revenue	Revenue from Alcohol Excises[1]: Percent of GDP
Belgium	1,489.82	34.51	10.46	127.8	63.6	37.4	13.3	0.6	0.3
Denmark	1,814.52[2]	159.88	76.41	155.7	294.5	273.9	16.2	1.7	0.8
France	1,127.90	3.17	2.82	96.8	5.8	10.1	7.9	0.5	0.2
Germany	1,258.86	—	6.57	108.0	—	23.5	10.6	0.7	0.3
Greece	139.89	—	7.52	12.0	—	26.9	2.8	0.3	0.1
Ireland	2,612.07	265.30	112.62	224.1	488.6	403.7	26.5	4.6	1.7
Italy	291.05	—	20.81	25.0	—	74.6	1.7	0.1	—
Luxembourg	891.55	14.00	4.93	76.5	25.8	17.7	6.7	0.6	0.3
Netherlands	1,388.97	36.17	19.58	119.2	66.6	70.2	13.7	0.8	0.3
Portugal	281.00	—	8.37	24.1	—	30.0	3.6	0.5	0.2
Spain	555.54	—	3.83	47.7	—	13.7	...	...	...
United Kingdom	2,133.39	138.53	60.88	183.0	255.1	218.2	22.4	2.4	0.9
Unweighted average	1,165.38	54.30	27.90	100.0	100.0	100.0	...	...	...
EC proposal									
Minimum	1,118.50	9.35[3]	9.35	...	...	...	...	...	...
Target	1,398.10	18.70[3]	18.70	...	...	...	...	...	...

Sources: EEC Excise Duty Tables and OECD (1991).
[1]Data are for 1989.
[2]Plus 37.5 percent of the wholesale price exclusive of VAT.
[3]Sparkling wines: ECU 16.5 per hl (minimum) and ECU 33.00 per hl (target).

of existing rates, for member countries. However, in May 1989 the Commission proposed some amendments to the 1987 proposals by suggesting that, in the case of duties on alcoholic beverages and tobacco, the EC would have to impose only minimum rates (EC Commission (1989c)). The Commission did not consider it necessary to harmonize excise on the registration of vehicles because the country of registration could enforce its own tax rate through registration requirements. In October 1989 (EC Commission (1989i)), the Commission presented a new proposal for the harmonization of excises, replacing the earlier uniform rates by a system of minimum rates and target rates—that is, rates toward which convergence would be expected over the medium term (Tables 4–6). Subsequently, in June 1991 (EC Council of Ministers, ECOFIN (1991b)), the Council agreed on a further set of minimum rates for excises (Table 7) effective January 1, 1993, and subject to review every two years.

Alcoholic Beverages

The negative externalities arising from the consumption of alcoholic beverages and the addictive properties of alcohol are typically used as arguments for excises on alcoholic drinks. In several EC countries, however, the structure of alcohol taxation reflects the interests of domestic producers: instead of taxing beverages on the basis of alcoholic strength, these countries levy higher excises on alcohol products that are mostly imported than those on alcohol products that are produced domestically.[52] To illustrate, several countries producing wine, such as Italy, Germany, Greece, Portugal, and Spain, do not levy any excise on still wine (Table 4). Countries protect national viniculture also by using rate structures that distinguish between still and sparkling wine and between ordinary and fortified wines. Table 4 shows that the excise duty per unit of alcohol is generally highest for spirits. Denmark, Ireland, and the United Kingdom impose the heaviest tax burden on alcoholic drinks; the Mediterranean countries levy the lowest excises.

The relative tax rates on spirits, wine, and beer are a contentious issue in view of the interests of

[52]The Court of Justice has eliminated the most flagrant forms of discrimination against foreign producers (see Cnossen (1987)).

Table 5. Excise Duty Rates on Cigarettes, 1990

Country	Specific Excise per 1,000 (in ECU)	Ad Valorem Excise (in percent)[1]	Total Tax per 1,000 (in ECU)	Retail Price per 1,000 (in ECU)	Tax as Percent of Price	Tax Exclusive Rate (in percent)	Revenue from Tobacco Excises[2] As percent of excises	As percent of tax revenue	As percent of GDP
Belgium	4.55	66.19	56.73	78.83	72.0	256.7	27.1	1.3	0.6
Denmark	77.00	39.25	141.75	164.96	85.9	610.7	16.0	1.7	0.8
France	2.67	68.17	53.37	74.38	71.8	254.0	12.9	0.8	0.3
Germany	30.51	43.78	76.01	103.93	73.1	272.2	27.3	1.8	0.7
Greece	1.03	67.45	25.13	35.73	70.3	237.1	26.1	3.1	1.0
Ireland	52.93	33.56	96.14	128.75	74.7	294.8	20.4	3.6	1.3
Italy	2.26	60.63	40.19	62.56	64.2	179.7	15.5	1.3	0.5
Luxembourg	1.95	63.55	38.93	58.19	66.9	202.1	2.6	0.2	0.1
Netherlands	26.57	34.67	52.36	74.38	70.4	237.8	17.0	0.9	0.4
Portugal[3]	2.52	55.03	14.04	20.94	67.0	203.5	17.7	2.5	0.9
Spain	1.14	52.71	12.80	22.12	57.9	137.3	...	...	...
United Kingdom	42.94	34.04	78.40	104.17	75.3	304.2	25.6	2.8	1.0
EC proposal									
Minimum	15.00	45.00	...	...	...	...	...	...	...
Target	21.50	54.00	...	...	...	...	...	...	...

Sources: EEC Excise Duty Tables and OECD (1991).
[1]As a proportion of retail price; includes VAT.
[2]Data are for 1989.
[3]Portugal operates a two-tier system. The ad valorem rate of 55.03 percent applies only to the "Kentucky" brand; a rate of 68.53 percent applies to all other brands.

the producers in different countries.[53] In formulating its 1987 proposals, the Commission concluded that taxing these three types of beverages by reference to a common criterion, such as alcoholic strength, volume, or value, would not be feasible (EC Commission (1987i)). Such a consistent system would excessively disrupt the distribution of revenue and change the tax burdens on various beverages. As an alternative, the Commission proposed that spirits should be taxed on the basis of alcohol content, wine on the basis of volume, and beer according to original gravity. Originally, the common tax rate on spirits was to be determined as the arithmetic mean of member countries' existing duty rates (that is, ECU 1,271 per hectoliter of pure alcohol). In the case of wine and beer, however, both the arithmetic average and the average weighted by consumption produced results that would yield excessively large changes in consumer prices and revenues in several member countries. Therefore, the Commission proposed that beer of average strength and wine should bear equal taxes per volume of product while, assuming unchanged consumption patterns, jointly producing the same revenue as at present.[54] Under these proposals Denmark, Ireland, and the United Kingdom would experience sharp reductions in duty rates. Five EC countries would have to introduce a duty on still wine.

Some member countries are likely to reject the EC proposal to harmonize completely excises on alcohol in view of the dramatic implications for the prices of alcoholic beverages in these countries. According to Cnossen (1983), member countries could be allowed to retain some differences in excise rates by harmonizing excises only at the manufacturing stage and allowing differential rates at the retail stage. Stringent licensing requirements for retail outlets may enable high-excise countries to prevent retailers from evading taxes by buying their supplies in low-tax countries. Lee, Pearson,

[53]The taxation of alcoholic beverages is related to the Common Agricultural Policy (CAP) because CAP subsidizes the production of grapes.

[54]Accordingly, still wine and average beer would have been taxed at a rate of ECU 17 per hectoliter of product. The rate on sparkling wine was determined by increasing the rate for still wines by the average of the current proportional differentials in those member countries that currently tax both still and sparkling wines.

Table 6. Excise Duty Rates on Mineral Oils, 1990

	In ECU per Kiloliter (kl)						Revenue from Mineral Oil Excises[3]		
Country	Leaded petrol	Unleaded petrol	Road diesel	Heating gas oil	Heavy fuel oil[1]	LPG[2]	As percent of total excises	As percent of total tax revenue	As percent of GDP
Belgium	324.95	290.93	190.04	—	—	—	55.3	2.6	1.2
Denmark	413.66	342.60	223.33	223.33	251.24	157.34	25.7[4]	2.7[4]	1.3[4]
France	448.30	396.87	231.14	58.91	17.76	294.25	68.3[4]	4.2[4]	1.8[4]
Germany	448.80	201.39	218.20	27.94	14.81–27.15	175.35	58.1	3.9	1.5
Greece	197.91	151.97	3.67	0.21–3.46	3.46–27.90	14.30	37.5[5]	4.5[5]	1.5[5]
Ireland	394.70	372.86	290.14	48.51	9.88	224.57	35.9[6]	6.3[6]	2.4[6]
Italy	579.74	538.23	278.55	270.55	32.92	171.70	66.9	5.7	2.2
Luxembourg	233.68	139.03	100.89	—	2.35	21.12	3.7	0.3	0.1
Netherlands	346.24	341.07	157.60	44.04	14.97	—	41.7	2.3	1.1
Portugal	423.97	379.76	213.13	213.13	16.49	—[7]	61.0[4]	8.6[4]	3.0[4]
Spain	331.05	316.15	190.09	60.60	12.97	28.23	10.4	0.6	0.2
United Kingdom	276.52	239.72	233.90	14.00	10.42	138.26	42.5[8]	4.6[8]	1.7[8]
Unweighted average	334.60	289.24	174.73	. . .	. . .	98.81	42.3	3.9	1.5
EC proposal	337.00	287.00	195.00–205.00	47.00–53.00	16.00–18.00	84.50	. . .	. . .	. . .

Sources: EEC Excise Duty Tables and OECD (1991).
[1]In ECU per 1,000 kilograms (kg).
[2]Liquefied petroleum gas.
[3]Data are for 1989.
[4]Petroleum or petroleum products.
[5]Flammable liquids.
[6]Oils.
[7]Use as a motor fuel prohibited in Portugal.
[8]Hydrocarbon oil.

Table 7. Minimum Excise Duty Rates on Alcoholic Beverages, Manufactured Tobacco, and Mineral Oils as of January 1, 1993

Commodity	Amount or Rate (in ECU)
Alcoholic beverages	
Beer (per hl of finished product)[1]	0.748 per Plato degree[2]
Still wine (per hl)	0
Sparkling wine (per hl)	0
Manufactured tobacco	
Cigarettes (per 1,000)	67 percent of retail sale price[3]
Mineral oils	
Leaded petrol (per kl)	337
Unleaded petrol (per kl)	287
Truck diesel (per kl)	245
Diesel heating oil (per kl)	0
Heavy heating oil (per 1,000 kg)	13
Kerosene used for heating (per kl)	0

Source: EC Council of Ministers, ECOFIN (1991b).

Note: These rates supersede the proposed rates in Tables 4–6. Excise rates on pure alcohol and intermediary alcohol products, on manufactured tobacco products other than cigarettes, and on LPG, methane, and kerosene used as fuel are to be defined later. In the case of alcohol for oral consumption produced by small distilleries, the minimum rate is reduced by 50 percent.

[1]For beer produced by small, independent breweries, these minimum rates are reduced by 50 percent (that is, ECU 0.374 per Plato degree or ECU 0.935 per degree of alcohol content).

[2]Or 1.87 per degree of alcohol content.

[3]Rate consists of specific plus ad valorem rates, excluding VAT. Retail sale price includes all taxes and refers to cigarettes of the most popular price class.

and Smith (1988) have proposed a transitional arrangement involving three duty jurisdictions for spirits, each with harmonized rates.[55] Commercial movements of goods between those three areas would have to be restricted by some form of border control or physical marking or both.

In 1989 the EC Commission (1989c) acknowledged that its earlier proposals might not give the member countries sufficient flexibility in setting their excise rates. As an alternative, it suggested that the EC would impose only minimum rates, supplemented with target or reference rates for medium-term harmonization (Table 4). Assuming that some intra-EC differences may be permitted, Lee, Pearson, and Smith (1988) have argued that the EC should limit the country's discretion to vary the relative taxes on different alcoholic drinks in order to prevent countries from using the rate structure as an instrument to protect domestic producers. Kay and Keen (1987) have maintained that such a structure should be systematically designed on the basis of the alcohol content, in view of the medical arguments used to justify high taxes on alcoholic drinks.

[55]The high-duty jurisdiction would consist of Denmark, Ireland, and the United Kingdom. Greece, Italy, Spain, and Portugal would make up the low-duty jurisdiction. CEPS (1989) has suggested that the EC may also be divided into duty zones for cigarettes, wine, beer, and mineral oils. The zones could differ across dutiable goods.

Tobacco Products

Just as in the case of alcoholic drinks, health considerations justify the taxation of tobacco products (Shoup (1983, pp. 258–60)). Relative to the harmonization of excises on alcoholic drinks, the EC has made more progress in the process of harmonizing the various tobacco excises, in particular the excise on cigarettes. The excise on cigarettes (Table 5), which accounts for over 90 percent of the EC market for manufactured tobacco, is the main tobacco excise in the EC.

Cigarette tax harmonization has focused on the balance between the specific and ad valorem components of the excise tax. As a result of various directives, member countries have reduced the specific rate element in the cigarette excise to a range between 5 percent and 55 percent of the total tax. Whereas the overall level of cigarette taxation is quite uniform, the importance of the specific component still varies widely within the EC. In particular, Belgium, France, Italy, and Luxembourg rely predominantly on ad valorem taxation. Denmark, Ireland, and the United Kingdom, in contrast, apply a specific component close to the maximum permitted by the Commission. The countries levying low specific and high ad valorem components tend to use their excise structure to protect domestic producers who grow primarily low-quality tobacco, which commands a price advantage over imported tobacco.[56] Compared with specific taxation, ad valorem taxation benefits low-cost producers because it widens the absolute price differential in favor of these producers. Table 5 indicates that retail prices vary considerably among countries. These price differences are due mainly to differences in quality rather than to tax burdens.

The Commission proposed in 1987 that member countries harmonize cigarette taxes at the arithmetic mean of the rates of tax in each member country.[57] These tax rates are consistent with the Commission's health policy because they would increase the average tax burden by about 30 percent. The total tax burden would fall significantly only in Denmark, whereas nine countries would experience a higher tax burden on cigarettes. As in the case of excises on alcoholic drinks, in its 1989 amendments the Commission stated (EC Commission (1989c)) that countries could be left free to set their own rates above certain minimum rates, with, again, provision for harmonization in the medium term (Table 5). EC countries could maintain limited differences in duty rates by marking goods leaving bonded warehouses with a fiscal stamp or a meter impression.[58]

Ad valorem rates may be preferred over specific rates because inadequate inflation adjustment of harmonized specific rates could result in an unintended redistribution of the tax burdens across individuals and of tax revenues across countries. Several authors, however, favor specific rates in view of administrative and theoretical considerations.[59]

Mineral Oils

Taxes on motor fuel are levied mainly as user charges. The Commission has stated that fuel excises and motor vehicle taxes should bear some relation to the construction and maintenance costs of highways (EC Commission (1986b)). Fuel taxes are also used to conserve energy, protect the environment, and reduce imports. Furthermore, concern about international competitiveness dominates the structure of fuel taxation; countries tend to levy high tax rates on fuels used mainly by final consumers while collecting lower tax rates on fuels used largely as an input in industrial production. Some countries exempt fuels for selected industrial uses entirely.

Excise duties on motor fuel diverge significantly across EC countries (Table 6). Countries differ not only in their rate structures but also in their treatment of individual products and in the range of exemptions. Denmark, Greece, Portugal, and especially Italy, which has attempted to discourage petrol (gasoline) consumption for balance of payments reasons, collect the highest duties on petrol. Compared with other fuels, petrol (gasoline) is relatively heavily taxed because it is used mainly by private consumers.

The initial EC proposals on mineral oils were intended to minimize the disruptive effects on tax revenue and industrial cost patterns (EC Commission (1987h)). Petrol was to be taxed at the arithmetic mean of present rates (that is, ECU 340 per 1,000 liters). Unleaded petrol would have been taxed at a reduced rate because of environmental considerations. The Commission based its proposal for the duty on diesel fuel on the average weighted by consumption in each country rather than on the arithmetic mean because the arithmetic mean would result in a lower tax rate corresponding to a fall in EC-wide revenue. Such a low rate would not be desirable because it would encourage motorists to substitute diesel for higher-taxed petrol,[60] harm

[56]The CAP subsidizes tobacco grown in various EC countries, thereby further increasing the price advantage of domestically produced tobacco.

[57]EC Commission (1987f). This proposal yielded a specific excise of ECU 19.5 per 1,000 cigarettes. The ad valorem component, combined with the VAT, would be equivalent to 52 percent to 54 percent of the retail price inclusive of all taxes. As regards total taxes on manufactured tobacco other than cigarettes, the EC also uses the arithmetic average as the mid-point for harmonization. The specific component of the tax burden on these types of tobacco is to be eliminated (EC Commission (1987g)).

[58]See, for example, Lee, Pearson, and Smith (1988). In their view, the EC should remove the national discretion over the ad valorem component because this component can be used to segment the internal market by protecting domestic producers.

[59]If collected at the manufacturing stage, specific taxes are easier to administer because they do not require information about the ultimate selling price at the retail level (see Lee, Pearson, and Smith (1988)). Kay and Keen (1987) have argued that commodities should be taxed on the basis of the characteristics that justify excises rather than on their value—therefore, that tobacco excises should be levied according to tobacco content. Imposing ad valorem excises multiplies cost differences between products that are not related to health considerations and also promotes degradation of quality.

[60]The EC Commission (1987h) selected the weighted average over the arithmetic average in formulating its harmonization proposals for heating gas oil and heavy fuel oil because the

allocative efficiency, and erode the tax base. Lee, Pearson, and Smith (1988) have observed that the competitiveness arguments for a lower rate on diesel fuel disappear if the EC succeeds in harmonizing the tax structure across member countries. Moreover, a lower tax rate on diesel fuel is consistent neither with the transport policy of the EC, which aims at using motor fuel taxes as user charges for roads,[61] nor with its environmental policies.

The 1989 amendments suggest that, in contrast to duties on alcoholic beverages and tobacco, the Commission is more hesitant to allow countries to freely set their duty rates on mineral oils above certain minimum rates (Table 6); intercountry differences in duties on mineral oils may give rise to more serious competitive distortions because mineral oils are used as inputs in the production process.

Lessons from Federal Systems

In the United States 46 out of 50 states, and a large number of local governments, levy retail sales taxes (Table 8). These taxes differ from VATs in that the payment of tax is suspended until registered traders sell the taxed commodities to unregistered traders or consumers.[62] U.S. state sales tax rates are lower than commodity tax rates levied by EC countries and can differ significantly between bordering jurisdictions. For example, Washington (6.5 percent tax rate), Massachusetts (5 percent), and Pennsylvania (6 percent) share borders, respectively, with Oregon, New Hampshire, and Delaware—all states that do not levy sales taxes. Most states levy uniform rates, but some allow lower rates or exemptions for motor vehicles, foods, medicines, and producer goods. Whereas some states levy broadly based taxes and include services in the tax base, others allow many exemptions—including services. These differences in coverage contribute to interstate differences in the relative importance of sales tax revenue in total state revenue (Table 8).

In the United States, there has been considerable concern with coordinating state sales taxes and, in particular, with the tax treatment of interstate sales. Although, in principle, retail sales taxes are levied on a destination basis, in practice states cannot enforce taxes on over-the-counter retail purchases by its residents in other states.[63] Several studies that have tried to estimate the effects of interstate tax rate differentials on cross-border shopping suggest that consumers are responsive to tax-induced differences in the prices of high-value items but that cross-border shopping is fairly localized (Fox (1986) and Walsh and Jones (1988)). Hence, whereas cross-border shopping can hurt retailers located in the border areas of high-tax states, the overall efficiency losses appear limited—unless the size of the taxing jurisdiction is small.

Interstate purchases through mail-order firms have become the most serious problem in the interstate coordination of sales taxes. The U.S. Supreme Court ruled in 1967 that a firm does not have to charge sales taxes on sales to consumers residing in a state in which the firm does not have a nexus. As a result of this ruling, mail-order firms have become a channel for avoiding sales taxes altogether. Recent estimates put the average revenue loss as high as 4 percent of total sales tax revenue. Mail-order firms have resisted attempts to close this loophole; they argue that the cost of complying with the various tax laws of all state and local authorities would be excessive.

In Canada, all provinces except Alberta levy retail sales taxes,[64] and regional tax rates differences are wider and levels higher than in the United States (Table 9). Local sales taxes do not exist, however, and tax bases are somewhat more uniform than in the United States. Differential retail sales tax rates in Canada have not attracted much attention for two reasons. First, Canada is sparsely populated and has few urban border areas. Hence, over-the-counter cross-border shopping is not important. Second, provinces have reached agreements with out-of-province firms (including large mail-order firms) to collect taxes on sales to their residents (Thirsk (1980)).

The experiences of the United States and Canada suggest, for the EC context, that rate differentials do not necessarily lead to large distortions, especially if the EC succeeds in enforcing the destination principle for cross-border sales by mail-

weighted average would yield the lowest tax rate. A lower tax rate was preferred because it would discourage substitution to alternative heating fuels. In the case of heavy fuel oil, the Commission was also concerned about the adverse effect of a high tax rate on the international competitiveness of industries located in the EC.

[61]Timmermans (1988) and EC Council of Ministers EPC (1988) have argued that the EC should carefully coordinate its proposals for excises on motor fuels with other policies affecting road transport. For a discussion of fiscal policies distorting road transport, see EC Commission (1986b).

[62]OECD (1988, Chapter 6) evaluates the relative merits of retail sales taxes and VATs.

[63]However, states enforce sales taxes on goods that must be registered, such as cars, by collecting the tax at the time of registration.

[64]The federal goods and services tax (GST) was introduced on January 1, 1991, to replace the existing federal manufacturer's sales tax.

Table 8. U.S. State Sales Taxes, 1988
(In percent)

Region and State	Share of Sales Tax Revenue in State Revenue	Statutory Tax Rate[1]
United States[2]	*19.0*	
New England	*16.7*	
Connecticut	25.5	7.5
Maine	18.8	5.0
Massachusetts	14.3	5.0
New Hampshire	—	—
Rhode Island	14.9	6.0
Vermont	9.4	4.0
Mid-Atlantic	*14.3*	
Delaware	—	—
Maryland	15.3	5.0
New Jersey	18.0	6.0
New York	11.6	4.0
Pennsylvania	18.1	6.0
Great Lakes	*19.8*	
Illinois	20.7	5.0
Indiana	28.4	5.0
Michigan	16.2	4.0
Ohio	20.0	5.0
Wisconsin	17.5	5.0
Plains	*18.6*	
Iowa	17.7	4.0
Kansas	17.3	4.0
Minnesota	16.8	6.0
Missouri	24.3	4.2
Nebraska	16.2	4.0
North Dakota	12.8	5.0
South Dakota	19.2	4.0

Region and State	Share of Sales Tax Revenue in State Revenue	Statutory Tax Rate[1]
Southeast	*22.4*	
Alabama	14.7	4.0
Arkansas	22.0	4.0
Florida	37.7	5.0
Georgia	20.4	3.0
Kentucky	15.4	5.0
Louisiana	16.1	4.0
Mississippi	28.7	6.0
North Carolina	15.5	3.0
South Carolina	22.6	5.0
Tennessee	31.7	5.5
Virginia	12.1	3.5
West Virginia	25.6	6.0
Southwest	*21.5*	
Arizona	31.7	5.0
New Mexico	18.5	4.75
Oklahoma	13.0	4.0
Texas	21.7	6.0
Rocky Mountain	*14.7*	
Colorado	16.2	3.0
Idaho	18.5	5.0
Montana	—	—
Utah	20.5	5.1
Wyoming	10.6	3.0
Far West[3]	*21.9*	
California	20.7	4.75
Nevada	32.2	5.75
Oregon	—	—
Washington	38.9	6.5
Alaska	—	—
Hawaii	30.7	4.0

Source: United States, Advisory Commission on Intergovernmental Relations (1989).
[1]Excluding local taxes.
[2]Excluding the District of Columbia.
[3]Excluding Alaska and Hawaii.

Table 9. Canadian Provincial Retail Sales Tax Rates, 1988
(In percent)

Province	Statutory Rate[1]
British Columbia	6
Alberta	—
Saskatchewan	7
Manitoba	7
Ontario	8
Quebec	9
New Brunswick	11
Prince Edward Island	10
Nova Scotia	10
Newfoundland	12
Yukon	—
Northwest Territories	—

Source: Chmara and James (1989).
[1]Effective June 1988, except Ontario, May 1988.

order firms. Such a solution may be easier to achieve in the EC than in the United States because the EC tax base is more uniform across member countries and the number of EC jurisdictions that levy a separate VAT is much smaller than the number of U.S. states and local authorities that levy their own sales taxes. The arrangements in Canada, which consist of about the same number of sales tax jurisdictions as in the EC, seem to offer an attractive option.

As regards cross-border shopping, taxes levied according to the destination principle can be enforced only on a few durable goods for which registration requirements exist. Therefore, the EC will have to treat most over-the-counter border sales according to the origin principle. Hence, tax rate differentials will create some locational distortions. The overall efficiency losses may be small, but the consequences for some retail businesses in border areas may be quite serious.

Effects of the Commission's Proposals

Allocative Effects

The Commission's proposals for commodity tax harmonization are likely to encourage intra-EC trade because the compliance costs associated with the new system of border tax adjustments are unlikely to exceed the costs of complying with the present system of border controls. Similarly, the proposed system is likely to reduce the cost of tax administration.[65] Table 10 presents estimates of the costs of current border formalities borne by firms on bilateral trade flows, only part of which are attributable to such formalities. Trade would rise also because the harmonization proposals would curtail the ability of countries to tailor their tax structures to the interest of domestic producers.

The proposals, and in particular the approximation of excise rates, have potentially important implications for competitive conditions in several markets. Although the associated restructuring of production would adversely affect some producers in the short run, the restructuring should be conducive to long-term efficiency gains. Moreover, the producers of tradable goods might experience only small effects because the proposals are designed to minimize the effects on the overall level of taxation in the EC and, therefore, on producer prices.

Meanwhile, convergence of VAT rates, the reclassification of goods in different VAT bands, and (especially) the harmonization of excise duties would generate significant effects on the structure of consumption in various member countries. Tables 11–15 present estimates, from national studies, of the effects of the Commission's 1987 proposals.[66] Table 11 contains estimates by Symons and Walker (1989) on the structure of household consumption in the United Kingdom. Lower excise rates on alcoholic beverages would boost alcohol consumption significantly, whereas higher excise rates on mineral oils would reduce household demand for fuel by about 12 percent. Food consumption would fall by about 3 percent, assuming the repeal of zero rating of food. Under the EC proposals, Ireland and Denmark would also have to lower excise rates on alcoholic beverages significantly, and, like the United Kingdom, are also likely to experience increased alcohol consumption.

Milana (1989) has provided some estimates of the expenditure response in Italy (Table 12). The main tax changes affecting consumption patterns are higher excise rates on alcoholic beverages and tobacco and lower rates on energy. Table 13 contains estimates for France by Darmon and L'Hardy

[65]Nevertheless, several commentators have suggested that the costs of complying with and administering the clearinghouse and linked bonded warehouse systems would be significant. In view of these concerns, the EC Council of Ministers' Economic and Social Committee (1988a) urged the Commission to estimate the costs and benefits of the proposed new systems of border tax adjustments.

[66]Although the May 1989 suggested amendments to these proposals (EC Commission (1989c)) would allow countries more flexibility in setting their tax rates, tax competition may well result in a tax structure close to the 1987 proposals—except for the allowance of the existing zero VAT rate on certain necessities.

Table 10. Share of the Cost of Border Formalities Borne by Firms in the Value of Bilateral Trade Flows, 1987
(In percent of costs)

	Importer							
Exporter	Belgium	Denmark	France	Italy	Netherlands	United Kingdom	Other EC member countries	Total EC
Belgium	—	0.84	1.21	1.42	0.94	0.84	1.01	1.02
Denmark	1.45	—	2.10	2.17	1.82	1.67	1.85	1.87
France	1.64	1.72	—	2.25	1.84	1.72	1.69	1.83
Italy	1.76	2.25	2.30	—	1.95	1.83	1.80	2.11
Netherlands	1.05	1.22	1.40	1.59	—	1.27	1.35	1.26
United Kingdom	1.87	1.20	1.55	1.91	1.33	—	1.76	1.54
Other EC member countries	1.49	2.02	2.10	2.14	1.73	1.79	1.82	1.93
Total EC	1.46	1.53	1.84	2.04	1.55	1.58	1.71	1.67

Source: Catinat, Donni, and Italianer (1988).

(1989). Changing excise rates and imposing reduced and standard VAT rates of, respectively, 9 percent and 19 percent (to conform to the Commission's 1987 proposals) would reduce the volume of household consumption of alcoholic beverages and tobacco by, respectively, 6 percent and 4 percent. The volume of car expenses, motor fuel, and home energy consumption would rise as a result of decreases in tax rates on mineral oils and abolition of the increased VAT rate on cars. The elimination of the increased rate would also stimulate the demand for electronic appliances. In Germany (Table 14), the consumption of petrol is expected to fall by 5 percent as consumers shift to diesel, and higher excises on tobacco would decrease cigarette consumption by 10 percent (Seidel (1988)). In Belgium, as estimated by Gouzee, Bossier, and Englert (1988), prices for petrol and diesel would increase substantially, which is estimated to reduce the volume of expenditures associated with car travel ("car services") by 7 percent (Table 15). At the same time, the elimination of increased VAT rates on cars, heating, and lighting would stimulate the consumption of these commodities.

To summarize, tobacco consumption would fall in most of the above EC member countries. As regards alcoholic beverages, consumption would tend to decline in Mediterranean countries and to rise in Ireland and the United Kingdom. Although demand for petrol would decline in Belgium, Germany, and the United Kingdom, other member countries—including Italy, France, Denmark, and Ireland—would experience a rise in demand for petrol and diesel. At the same time, demand for luxury goods would probably increase in most member countries (Belgium, Denmark, France, Greece, Ireland, Italy, Portugal, and Spain) that currently levy increased VAT rates or specific excises on such commodities. Food consumption would fall in Ireland, Portugal, and the United Kingdom—but only to the extent that they were to eliminate the zero VAT rate on such products.

As regards welfare effects, the Commission's proposals are likely to reduce inefficiencies in production and consumption. Comparative advantage rather than tax factors would increasingly determine the location of production within the EC. In particular, border controls would no longer inhibit intra-EC trade. Harmonization of excises would also help to prevent member countries from using excise duties, even indirectly, for protectionist purposes. In an integrated EC market, companies would face incentives to improve production efficiency and to innovate as competitive pressures intensify. Moreover, they would be encouraged to realize learning-by-doing effects and the economies of scale attainable within a larger internal market.

General equilibrium models (Jones and Whalley (1988)) suggest that efficiency gains from economies of scale can be quite large and typically exceed the gains from trade calculated on the assumption of constant returns to scale. It is difficult, however, to isolate the impact of commodity tax harmonization from the effects of reducing nontax barriers to intra-EC trade. Narrowing the dif-

Table 11. United Kingdom: Estimate of Expenditure Response to Commodity Tax Harmonization
(In percentage change)

Commodity Group	Price	Volume
Food	2.87	–2.89
Fuel	4.00	–11.70
Clothing	3.10	–4.43
Transport	3.50	–4.05
Services	—[1]	–0.46[1]
Beer	–16.30	23.14
Wine	–26.70	49.05
Spirits	–29.40	112.00
Other[2]	1.30	2.70

Source: Symons and Walker (1989).

Note: Relative to the actual tax system in 1987, assuming that after harmonization the standard VAT rate is 15 percent (same as the current standard rate) and the reduced VAT rate is 4 percent (at present, most goods in the reduced rate band are zero-rated).

[1]Because the model allows for income effects and cross-substitution effects, spending on services (for example) can change even though its tax rate is not affected.

[2]Excluding tobacco, housing, and durables. The demand for these commodities was assumed to remain constant.

ferences in VAT rates would contribute to production efficiency by mitigating the distortionary effect of these differentials on the cost structure of sectors that are exempt from VAT or buy inputs from exempt sectors. The unification of excise rates on fuel would generate similar beneficial effects.

Consumption efficiency would improve for two reasons. First, the harmonization proposals would lead to more uniform tax rates within most countries, especially in countries levying increased VAT rates (Belgium, Greece, France, Italy, Portugal, and Spain) and high selective excise rates on luxury goods (Denmark and Ireland), many of which would be dropped or lowered. Overall consumer welfare would most likely increase because harmonization would reduce the effect of the tax system on how households allocate their consumption among various commodities.

Second, the proposals would reduce intercountry differences in tax rates. As a result, relative prices facing consumers residing in different countries would tend to converge, thereby improving the efficiency with which consumption spending is allocated across member countries. Most of the benefits would accrue to high-tax countries that would reduce their tax rate relative to the EC average: they would experience the largest expansion of transactions for which the social benefits (as reflected in the tax-inclusive price)[67] exceed national costs (as reflected in the tax-exclusive price). The increase in these transactions would be especially large because lower foreign demand associated with higher tax rates in low-tax countries would prevent higher domestic demand from raising market prices.[68] At the same time, it is also the case that high-tax countries, in lowering their VAT rates toward the proposed minimum rates, may experience long-run welfare losses. Such losses may arise as a result of a shift away from consumption toward leisure and the consequent fall in labor supply (Perraudin and Pujol (1991)).

The positive effects on efficiency need to be weighed against two potentially significant negative welfare effects. First, the harmonization process would increasingly constrain countries in selecting the tax structures that best meet their national social preferences. To illustrate, depending on social welfare functions, lower taxes on alcoholic beverages and tobacco may raise the marginal social costs above the private benefits of consuming these goods in Denmark, Ireland, and the United Kingdom. Furthermore, if labor mobility within the EC increases, taxes may become largely benefit charges. In that case the VAT may be the only major tax that countries can use to finance differences in expenditures on public goods corresponding to different preferences because the VAT base (private consumption) may most closely match the benefits from public goods.[69] Second, the removal of border controls might exacerbate distortions from VAT rate differentials by encouraging individuals and exempt businesses that are not required to register for imports to engage in cross-border shopping. The overall efficiency losses associated with such behavior would, of course, be mitigated through spontaneous tax rate harmonization. Moreover, special arrangements for tax-exempt institutions, mail-order firms, and direct car

[67]This assumes the absence of externalities. In the case of alcohol and tobacco products, the tax-inclusive price is likely to exceed net social benefits.

[68]Low-tax countries raising their taxes to the EC averages might lose because the consumption of goods for which national benefits exceed costs would decline. In the case of alcohol taxation, however, alcohol-producing countries in southern Europe that raise these taxes might also gain because the social cost of alcohol consumption might have exceeded the national benefit in the tax system before harmonization. At the same time, southern European countries would not suffer a serious terms of trade loss as a result of higher domestic taxes because demand from northern European countries would rise as these countries reduce their excises on alcohol.

[69]More generally, increased mobility of factors within the EC may result in inefficiently low levels for those expenditures for which it is difficult to find taxes that match the benefits.

Table 12. Italy: Estimate of Expenditure Response to Commodity Tax Harmonization
(In percentage change)

Commodity Group	Price	Volume
Food products	–0.07	1.98
Beverages	34.98	–6.72
Tobacco	22.82	–1.64
Clothing	8.35	–1.12
Health expenditures	–0.05	1.77
Transportation services	–5.00	1.32
Recreation	–5.07	–1.31
Hotels and restaurants	5.46	–0.30
Other	4.30	–1.47

Source: Milana (1989).
Note: Relative to the actual tax system in 1987, assuming that after harmonization the standard VAT rate is 20 percent and the reduced VAT rate is 5 percent. At present, the standard rate is 18 percent; there are two reduced rates (2 percent and 9 percent) and an increased rate (38 percent).

purchases should help contain the incentive effects of remaining tax rate differentials.[70]

Distributional Effects

Relative changes in either consumer or producer prices that accompany the allocative effects might have major implications for the intracountry distribution of income. Focusing on the effects of changes in consumer prices, Symons and Walker (1989) found that, on balance, the Commission's initial proposals would slightly increase income inequality in the United Kingdom.[71] Although low-income households would benefit from lower taxes on tobacco and alcohol, this would be more than offset by the regressive elements of the proposals—in particular, higher taxes on food, fuel, and children's clothing (assuming the abolition of the zero VAT rate).

In general, the proposals may widen income inequalities in most member countries.[72] In particular, an increment in excise rates on certain income-inelastic goods (in Greece, Portugal, and Spain) and abolition of increased VAT rates or selective excises on income-elastic commodities (Belgium, Denmark, France, Greece, Italy, Portugal, and Spain) will by themselves tend to reduce the progressivity of the tax system. A possible removal of the zero VAT rates (Ireland, Portugal, and the United Kingdom) would compound this effect. Whether commodity tax harmonization would harm low-income households ultimately depends on the accompanying fiscal measures. Although some of these measures would primarily deal with the revenue implications of the harmonization proposals, others—for instance, personal income tax changes or adoption of targeted subsidies—could be designed explicitly to protect the living standards of low-income households.[73] However, in countries that do not have alternative policy instruments but rely mainly on differential commodity taxation to pursue their equity objectives, the fiscal system is likely to become less progressive as a result of the harmonization proposals.

The changes in relative producer prices might affect income distribution—not only within a given country, but also among countries—if relative market prices influence the terms of trade among member countries.[74] An analysis of these effects, however, would require a disaggregated model that accounts for the general equilibrium effects on relative prices.[75]

[70]In addition, cross-border shopping may induce governments to opt for higher personal income tax rates and lower commodity tax rates than in the absence of these transactions in order to protect retail businesses located near the borders. This may harm efficiency because, at current rates, the VAT is likely to yield lower marginal welfare costs than income taxes (Tait (1988, pp. 220–21)).

[71]As regards tradable goods, the EC proposals are likely to generate larger effects on consumer prices than on producer prices because they tend to leave the average level of taxation in the EC largely unaffected.

[72]Moreover, the elimination of border controls is likely to enhance the mobility of selected factors, including various kinds of capital and labor. This tends to reduce the ability of governments to redistribute income because increased mobility of selected factors makes it more difficult to extract rents from these factors. Moreover, some of the commodity groups included in the proposed reduced VAT rate band under the 1987 proposals (such as energy products for heating and lighting) are income-elastic items.

[73]Davis and Kay (1985) have shown how one can design a package of expenditure measures to offset the regressive effect of eliminating zero rating in the United Kingdom.

[74]Keen (1987) demonstrated that tax harmonization typically redistributes income across countries. Accordingly, tax harmonization might benefit all EC member countries only if the countries that gain from harmonization compensate those that lose.

[75]Jones and Whalley (1988) used an applied general equilibrium model to study the effects of Canadian federal tax policies on welfare in the various provinces. They found that federal taxes generate significant effects on the interregional distribution of income. To illustrate, removing all federal nonenergy taxes would reduce Quebec's regional income by more than 3 percent and raise Ontario's income by about 2 percent. However, these welfare effects include the effects not only of changes in regional terms of trade but also of interregional redistribution of tax revenues across provinces by the federal government. National tax systems keep most tax revenues within the country; hence, the intra-EC distributional effects associated with national tax systems are likely to be small.

Table 13. France: Estimate of Expenditure Response to Commodity Tax Harmonization
(In percentage change)

	Case 1		Case 2	
Commodity Group	Price	Volume	Price	Volume
Food products	3.5	–1	1.5	–0.5
Alcoholic beverages	10.0	–6	10.0	-6.0
Tobacco	20.0	–4	18.0	–3.5
Heating, home, energy	–10.0	3	–12.0	4.0
Car expenses	-6.0	4	–8.0	5.0
Petrol	–10.0	2	–10.0	2.0
Electronic appliances	–14.0	6	–16.0	6.5
Total	–0.1	0	–0.7	0.2

Source: Darmon and L'Hardy (1989).
Note: Relative to the actual tax system in 1987. Case 1 assumes the 1987 EC Commission proposal for a standard VAT rate of 19 percent and a reduced VAT rate of 9 percent; case 2 assumes lower rates of, respectively, 17 percent and 7 percent. The actual standard rate was 18.6 percent; there were several reduced rates (see Table 1) and an increased rate (28 percent).

Revenue Effects

Estimates of first-order revenue effects assume the absence of compensatory fiscal measures and ignore induced substitution and income effects although relative price effects and the resulting changes in the structure of demand may be significant for certain member countries—as indicated above. In fact, any initial revenue losses caused by a cut in excise rates may largely be offset over time by a broadening of the tax base. Moreover, additional macroeconomic responses may offset the initial impact on tax revenues through induced changes in the tax base. Changes in cross-border shopping by individuals and tax-exempt entities may also affect revenue.

Various estimates of the revenue effects of the Commission's 1987 proposals for VAT and excise rate approximation are presented in Table 16.[76] Denmark and Ireland are likely to suffer the largest revenue losses. In Denmark, the reduction of the standard VAT rate to 20 percent and the introduction of a reduced rate at the maximum level of 9 percent would lead to an estimated fall in revenue of about 3 percent of GDP, which could rise to as much as 6 percent of GDP with the elimination of all minor excises (excises on commodities other than alcoholic beverages, tobacco, and mineral oils) and the reduction of several major excise rates.[77] The total revenue loss in terms of GDP in Ireland amounts to about 3 percent, primarily attributable to losses from excise revenue and (especially) a large reduction in tax rates on alcohol. The removal of zero rating would partially offset the revenue losses from a cut in the standard VAT rate from 25 percent (that is, the former rate assumed in the simulations) to 20 percent. In any event, in the absence of frontier controls, it would be difficult for Ireland to maintain a standard rate much above the 15 percent rate in the United Kingdom.

On the basis of informal calculations (in the absence of published studies), it appears that Greece, Portugal, and Spain would benefit from added revenue amounting to some 2 percent of GDP, chiefly from excise rate increments on products with a relatively low price elasticity of demand and including a net contribution of less than 1 percent of GDP from changes in VAT rates in Spain.

For most other EC member countries, the estimated revenue impact amounts to less than 1 percent of GDP. In France, a fall in VAT revenue

[76]Most of the studies cited in the table make broadly similar assumptions about the VAT tax rates: in most countries, it is assumed that only the minimum changes are made to satisfy the VAT band. Most of the estimates in the studies are based on first-order revenue effects; however, the results reported in CEPS (1989) are drawn from various sources and may include some second-order effects. Some observers have argued that tax-induced cross-border shopping by individuals and tax-exempt institutions will force high-tax countries to reduce taxes even further than required by the 1987 EC proposals.

[77]The assumed elimination of all minor excises overstates the estimated revenue loss in that excises on some nontradables could be retained under the proposals. In particular, the excise on motor vehicles (for example, in Denmark and the Netherlands) could be converted into registration fees.

Table 14. Germany: Estimate of Expenditure Response to Excise Duty Harmonization
(In percentage change)

Commodity	Price	Volume
Petrol (leaded)	22.91	–5
Diesel	-0.32	3
Cigarettes	13.40	–10
Beer	14.78	–8
Wine	5.73	–3
Spirits	1.81	0

Source: Seidel (1988).
Note: Relative to excise duties in effect in 1987.

Table 15. Belgium: Estimate of Expenditure Response to Commodity Tax Harmonization
(In percentage change)

Commodity	Price	Volume
Food, tobacco, drinks	0.71	–0.83
Clothing and footwear	0.24	0.34
Housing	0.19	–0.04
Heating	–4.54	2.03
Lighting	–7.88	3.35
Domestic services	0.21	0.01
Furniture	1.83	–1.71
Cars	–4.50	4.08
Car services	9.49	–6.66
Transportation	–3.80	0.77
Communication	–0.07	–4.29
Medical services	–0.08	–0.14
Entertainment	1.90	1.39
Other	0.17	–0.07

Source: Gouzee, Bossier, and Englert (1988).
Note: Effects five years after implementing Commission proposals, relative to the actual tax system in 1987. Assumptions are a standard VAT rate of 19 percent, compared with the actual standard rate of 19 percent and a reduced VAT rate of 6 percent, three reduced rates (1 percent, 6 percent, and 7 percent), and two increased rates (25 percent and 33 percent).

dominates a small reduction in excise receipts. As suggested by the range of estimates, however, the loss in VAT revenue may be mitigated by flexible implementation, such as maintaining the current level of taxation on automobiles as well as on heating and lighting products. The small decrease in excise receipts corresponds to the net effect of a large decrease in revenue from taxes on oil products and a substantial increase in revenue from taxes on tobacco and alcohol. A small decrease in VAT revenue in Germany is anticipated, reflecting the opposite influence of a small broadening of the VAT base, on the one hand, and the increased coverage of the reduced rate, on the other. Harmonization of excises in Germany would involve increased revenue from excises on oil products, tobacco, and beer. The abolition of some minor excise taxes would only partially offset these revenue gains. As regards Italy, it is not clear whether the rise in revenue from VAT and excises on tobacco and alcoholic beverages would compensate for a possible fall in oil excise receipts. For the United Kingdom, the estimated first-order revenue gain reflects two large offsetting effects: a large fall in excise receipts (especially those on alcohol and diesel fuel), and a significant rise in VAT revenue arising from the elimination of zero rating. For Belgium, studies suggest a similar small gain in total revenue; a net fall in VAT revenue, which reflects lower taxes on cars and energy supply, is more than offset by a large increase in excise revenue, mainly from oil products. Luxembourg[78] and (to a lesser extent) the Netherlands are likely to gain from first-round revenue effects, which could rapidly vanish due to a shrinking tax base associated with cross-border shopping.

[78] An informal calculation for Luxembourg indicates an immediate revenue gain totaling some 5 percent of GDP, most of which, however, would be quickly eroded by a sizable response of cross-border shoppers to the alignment of standard VAT and excise rates to the proposed minima.

Macroeconomic Effects

Although several model-based simulations have been performed on the macroeconomic effects of the Commission's 1987 proposals, comparison of the results is made difficult by differing assumptions about implementation of the proposals, alternative policy assumptions, and different model structures. None of the models used for such simulations thus far seems to approximate sufficiently closely the medium-term, multicountry, multisectoral computational framework that in principle would be required for such an exercise. In particular, the models for the most part do not capture the allocative response to tax-induced price changes that underlies the macroeconomic effects and is likely to be the most significant over the medium term. Among the various models applied, the Commission's HERMES seems to contain the richest sectoral disaggregation, whereas the OECD's INTERLINK can capture in principle the transmis-

Table 16. Revenue Effects of Commodity Tax Harmonization in Selected EC Member Countries
(In percent of GDP)

	Change in Government Revenue, 1986			
Country	VAT	Excises	VAT and excises	Source
Belgium	. . .	. . .	0.3	Lee, Pearson, and Smith (1988)[1]
	–0.3	0.8	0.5	Gouzee, Bossier, and Englert (1988)[2] CEPS (1989)[2]
Denmark	. . .	. . .	–3.8	Lee, Pearson, and Smith (1988)[1]
	–3.0	–3.2	–6.2	Denmark (1989)[3]
	–2.9	–0.9	–3.8	CEPS (1989)[3]
France	. . .	. . .	–0.7	Lee, Pearson, and Smith (1988)[1]
	–0.3/–0.6	–0.01	–0.3/–0.6	CEPS (1989)[4]
Germany	. . .	. . .	0.5	Lee, Pearson, and Smith (1988)[1]
	–0.2	0.4	0.2	CEPS (1989)[5]
Ireland	. . .	. . .	–2.6	Lee, Pearson, and Smith (1988)[1]
	. . .	. . .	–2.9	CEPS (1989)[6]
Italy	. . .	. . .	–0.7	Lee, Pearson, and Smith (1988)[1]
	0.8	–0.6	0.2	Bollino, Ceriani, and Violi (1988)[7]
	1.0	–0.5	0.5	CEPS (1989)[7]
Netherlands	. . .	. . .	0.6	Lee, Pearson, and Smith (1988)[1]
	–0.2	0.3	0.1	CEPS (1989)[8]
United Kingdom	. . .	. . .	0.2/0.3[9]	Lee, Pearson, and Smith (1988)[1]
	0.9	–0.6	0.3	CEPS (1989)[10]

[1]Assumes VAT standard rate of 15 percent and reduced rate of 4 percent.
[2]Assumes VAT standard rate of 19 percent and reduced rate of 6 percent.
[3]Assumes VAT standard rate of 20 percent and reduced rate of 9 percent.
[4]No change in standard VAT or reduced rates; abolition of increased rate. The first estimate involves VAT harmonization excluding automobiles, heating, and lighting products; the second estimate assumes total harmonization.
[5]No change in VAT rates.
[6]Assumes VAT standard rate of 20 percent, reduced rate of 9 percent, and abolition of zero rate.
[7]Assumes VAT standard rate of 20 percent and reduced rate of 5 percent.
[8]No change in VAT rates.
[9]The first estimate assumes unchanged expenditure; the second estimate allows for tax-induced expenditure changes.
[10]No change in standard VAT rate; reduced rate of 4 percent and abolition of zero rate.

sion of the impact of exogenous changes among national economies.[79]

Preliminary simulation results of medium-term macroeconomic effects of the VAT rate approximation under the 1987 proposals, based on the INTERLINK model, are given in Table 17.[80] In the reported simulations, standard and reduced VAT rates are fixed at, respectively, 16.5 percent and 6.5 percent, with a 2.5 percentage point variation around the central rates. Each member country is assumed to select its actual VAT rate so as to minimize the first-order revenue effects (including the effects of a fully harmonized VAT base).[81] The

[79]Both of these models have been developed to simulate the medium-term effects of various aspects of implementing the single market. See EC Commission (1988c).

[80]See EC Commission (1987j). The model does not include Greece and treats Belgium and Luxembourg as one country.

[81]Under this set of assumptions, the standard VAT rate is set at 19 percent for most countries, except for Spain, Germany, and the United Kingdom (in which the rate is fixed at 14 percent), and for Portugal and Italy (with rates of about 16 percent). Reduced VAT rates vary from 9 percent (Belgium, Denmark, and France) to about 7 percent (Germany) and between 4 percent and 6 percent for the remaining countries. No allowance is made for grandfathering of the zero rate, as suggested in May 1989 (EC Commission (1989c)).

Table 17. Macroeconomic Effects of VAT Harmonization
(In percent deviation from baseline)

Country	Price Level (GDP Deflator)		Nominal Wages		Real GDP		Real Private Consumption		Unemployment Rate[1]		Current Account Balance[2]		Budget Balance[2]	
	1 year	5 years	1 year	5 years	1 year	5 years	1 year	5 years	1 year	5 years	1 year	5 years	1 year	5 years
Belgium[3]	−0.1	−0.1	—	—	0.1	0.1	—	—	—	−0.1	—	—	—	—
Denmark	−5.1	−7.2	−3.4	−6.5	1.1	4.0	1.4	3.8	−0.2	−1.2	−0.3	−0.3	−2.5	−1.1
France	−0.6	0.8	−0.2	1.2	0.1	1.1	0.2	0.8	−0.1	−0.5	—	−0.6	−0.6	−1.1
Germany	0.1	0.1	—	—	—	—	—	—	—	0.1	—	—	—	−0.1
Ireland	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Italy	—	0.2	—	0.2	—	—	—	—	—	—	—	—	0.1	0.1
Netherlands	0.3	0.3	—	—	−0.1	−0.2	−0.1	−0.2	—	0.1	—	—	0.2	—
Portugal	−0.6	−0.6	−0.3	−0.4	0.2	0.5	0.1	0.4	—	−0.2	—	—	−0.2	—
Spain	0.1	0.1	—	—	—	−0.1	−0.1	−0.1	—	—	—	—	—	—
United Kingdom	0.4	−0.5	0.2	−0.9	−0.3	—	−0.3	−0.3	0.2	0.3	0.1	—	0.2	0.3

Source: EC Commission (1987j).
Note: Simulation with 1986 data base.
[1]In percent of labor force.
[2]In percent of GDP.
[3]Includes Luxembourg.

simulations are based on a number of simplifying assumptions: fixed nominal exchange rates; fixed tax rates other than VAT; fixed real government expenditures; and fixed nominal money stocks for the four largest member countries (nominal interest rates are fixed for the remaining member countries). The simulations account neither for spillover effects from other countries nor for the effects of the removal of border controls. Besides the main direct impact of VAT rate changes on prices, secondary price effects may also occur through the wage indexation mechanism, which reinforces the effect of an initial price change on the price level, and through activity effects (assuming a Phillips curve relationship), which may weaken the initial price effect.

The general picture that emerges is that, with the exception of four countries (Denmark, France, Portugal, and the United Kingdom), the static macroeconomic effects—subject to the above caveats—of the proposal would be negligible. Consistent with the earlier findings on the revenue effects from VAT harmonization, and given the assumption that no compensatory fiscal action is taken, Denmark would experience the strongest macroeconomic response stemming from the initial strong deflationary effect on prices. Over the medium term, GDP in Denmark would rise about 4 percent above its baseline level, and prices would fall about 7 percent below their baseline level. In Ireland, the price response to VAT harmonization would be small because the effects of the cut in the standard rate is offset by the effect of the assumed abolition of the zero rate. In France, the liberalized deductibility of VAT would lead to inflationary pressures induced by a stimulus to economic activity that over time offsets the initial fall in prices; at the end of five years, prices exceed their baseline level by nearly 1 percent. In the United Kingdom, in which VAT rates rise and repeal of the zero rate is assumed, a similar mechanism would yield a small decline in the price level of about 0.5 percent in the medium term. In Portugal, the initial deflationary effect on the price level remains unchanged at about 0.6 percent. In all countries, the effect on the external current account balance is small because changes in international competitiveness and domestic absorption largely offset changes in the external account. In general, countries that reduce VAT rates experience a modest deterioration in their external balance relative to its baseline level.

If VAT and excise approximation work in opposite directions, the overall macroeconomic effects tend to be weaker than implied in the foregoing results. The results shown in Table 18, based on simulations with alternative models, illustrate this point for Belgium and Italy. Simulation results based on the Bank of Italy model (Bollino, Ceriani, and Voili (1988)) show that VAT harmonization would have stronger macroeconomic effects than the unification of excises. In contrast, the results reported for Belgium, based on the HERMES model (Gouzee, Bossier, and Englert (1988)), suggest that excise harmonization has a dominant macroeconomic impact; although the overall macroeconomic outcomes continue to be small, they are opposite in direction to the INTERLINK simulations of VAT harmonization (EC Commission (1987j)).

For France, the simulations of VAT harmonization obtained from the METRIC model (Bloch and Maurel (1989)) appear to be at odds with the INTERLINK results, since the short-term price effects and medium-term activity effects are opposite in sign. The differences may arise because the METRIC model allows for offsetting changes in the relative prices of consumer and producer goods, which weaken the transmission of tax changes to output and domestic absorption. A comparable discrepancy emerges between the simulations conducted with HERMES (van der Putten (1987)) and INTERLINK for the VAT rate changes for the United Kingdom with respect to the medium-term price effects.

The simulations for Ireland, based on a national model for Ireland (Bradley and FitzGerald (1989)), stand apart from the others because of the underlying assumption that compensatory fiscal action is taken to ensure revenue neutrality. This assumption explains in part the otherwise somewhat surprising modest macroeconomic consequences of both VAT and excise harmonization, except for a remarkable dip in the rate of unemployment of 1.5 percentage points over the medium term. The simulation incorporates an assumed increase in other indirect taxes to offset an estimated revenue loss of about 2.6 percent of GDP. Initially, consumer prices and external balance fall relative to the baseline while domestic absorption expands; after two years, prices rise about 0.2 percent above their baseline level. This outcome reflects the rise in disposable income and domestic absorption, whereas the deterioration in the external balance is reversed as a result of the improvement in competitiveness given the initial fall in domestic prices.

Although differing in specification detail and underlying policy assumptions, all the above models share a highly aggregated structure in which tax policy exercises its main macroeconomic effects through changes in the price level and domestic demand. Several limitations are common to all the models. The intertemporal effects of changes in tax structure on saving, investment, and the intertem-

Table 18. Macroeconomic Effects of Commodity Tax Harmonization in Selected EC Member Countries

(In percent deviation from baseline)

Country	Price Level		Real GDP		Real Private Consumption		Unemployment Rate[1]		External Balance[2]		Budget Balance[3]	
	1 year	4 years	1 year	4 years	1 year	4 years	1 year	4 years	1 year	4 years	1 year	4 years
Belgium												
VAT	–0.5	–0.8	0.3	0.3	0.4	0.4	–0.1	–0.1	–0.1	—	–0.2	–0.2
Excises	0.9	1.0	–0.4	–0.3	–0.7	–0.5	0.2	0.1	0.1	0.1	0.4	0.4
Total	0.4	0.2	–0.2	–0.1	–0.3	–0.1	–0.1	—	0.1	0.1	0.2	0.2
France												
VAT	0.1	0.4	0.1	–0.2	0.4	–0.2	...	...	–0.1	0.1	–0.1	0.1
Italy												
VAT	3.1	–0.1	–0.4	0.4	–0.8	0.1	...	...	...	...	–0.6	–0.6
Excises	–0.3	0.1	0.1	–0.1	0.3	—	...	...	—	—	0.9	0.5
Total	3.0	—	–0.3	0.3	–0.5	0.1	...	...	...	...	0.3	–0.1
Ireland												
Total	–0.3	0.2[4]	0.4	0.2[4]	0.7	—[4]	–1.1	–1.5[4]	–0.2	0.1[4]	–0.2	0.1[4]
United Kingdom												
VAT	0.7	1.1	–0.3	–0.4	–0.6	–0.4	0.1	0.3	0.6	0.5	—	–0.1

Source: Belgium—Gouzee, Bossier, and Englert (1988); France—Bloch and Maurel (1989); Italy—Bollino, Ceriani, and Voill (1988); Ireland—Bradley and FitzGerald (1989); and United Kingdom—van der Putten (1987).

[1] In percent of labor force.

[2] In percent of GDP. Manufacturing trade balance for France; balance of payments for Ireland and the United Kingdom; and current account balance for Belgium.

[3] In percent of GDP. Change in net government indebtedness (in percent of GDP) for Italy, and exchequer borrowing (in percent of GDP) for Ireland.

[4] Two years rather than four years.

poral allocation of labor are ignored.[82] Furthermore, changes in consumption tax rates are not anticipated. But above all, as mentioned, the high level of aggregation glosses over the effect of the sectoral responses to the substitution in private consumption. In addition, the simulations are based on separate national models and ignore international spillover effects of tax policy.[83] Notwithstanding the relatively weak macroeconomic responses, especially for the larger EC countries, the above results may be magnified through dynamic repercussions, which are largely ignored in these simulations.

Effects on Non-EC Countries

Nonmember countries would be affected by the EC harmonization proposals through several channels. In the context of a federal system of government, Gordon (1983) formally derived the various types of externalities that a particular government can inflict on other jurisdictions. Spillover effects that appear relevant in the EC context include terms of trade effects as well as the consequences for tax bases in nonmember countries. In a second-best world with initial distortions (including nontax distortions), EC tax harmonization may influence the volume of those transactions in nonmember countries for which social benefits exceed social costs. However, spillover effects are difficult to identify in the absence of an explicit general equilibrium model that accounts for both tax and nontax distortions in the rest of the world.

The terms of trade effect depends on how the EC harmonization proposals would affect the demand for specific importables relative to that for exportables in the EC as a whole. The elimination of increased VAT rates might improve the terms of trade of nonmember countries in Europe by stimulating import-intensive demand for luxury goods in the Community. Similarly, excise harmonization might raise demand for high-quality tobacco, which is mainly imported from outside the Community. More generally, the harmonization proposals would limit the ability of individual member countries to use their tax structures as an instrument of protection. In particular, excise rate harmonization is likely to result in some trade creation vis-à-vis non-EC producers of certain commodities. On the whole, terms of trade gains and commodity trade creation would be very modest.

Several effects of the tax harmonization proposals are likely to harm non-EC economies. It is conceivable that the terms of trade of nonmember countries may worsen in the short run—for example, because of the higher short-run investment demand in the EC associated with the restructuring of production. More important, the removal of border controls on intra-EC trade would result in trade diversion away from countries outside the EC, reflecting the substitution of consumption to higher-cost EC suppliers from lower-cost non-EC sources, upon abolition of intra-EC border controls and retention of border controls toward nonmember countries.[84] Moreover, some producers would move their production facilities from non-EC economies to the Community to benefit from the integrated EC market (Bakhoven (1989)). This production shift may not only compound a possible deterioration in the non-EC terms of trade by shifting investment demand to the EC, but may also shrink the tax bases in nonmember countries.

In addition, the above measures should strengthen significantly the export competitiveness of the EC. However, the rest of the world would probably also benefit from the proposals. First, multinational companies based both inside and outside the EC are in a strong position to take advantage of the opportunities offered by the removal of such barriers. Second, higher EC consumption associated with income effects from enhanced efficiency may raise import demand in nonmember countries. On balance, coupled with removal of border controls (EC Commission (1988e)), commodity tax harmonization would probably have adverse net static effects on non-EC economies in the absence of compensatory macroeconomic policies. Dynamic effects may or may not offset these adverse effects.

[82]For an analysis of intertemporal effects, see Frenkel and Razin (1987). Some dynamic simulations provided in Frenkel, Razin, and Symansky (1990, 1991) show that, depending on the initial trade position and parameter elasticities, a cut in consumption tax rates induces an excess demand for current goods and tends to worsen the current account position.

[83]Although in principle some of these effects could be captured through INTERLINK, in practice they are not.

[84]Table 10 contains estimates for the costs of border controls borne by firms on trade flows between the EC and the rest of the world. Lipsey (1960) has discussed the distinction between trade diversion and trade creation. Several nontax proposals associated with the completion of the internal market reduce nontariff barriers only for intra-EC trade. Trade diversion is likely to dominate the possible trade creation effects from the harmonization of excises.