Europe's New Border Taxes

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Table of Contents

Abstract

Instead of abolishing internal border controls in 1992, the European Union (EU) replaced them with VAT and statistical requirements that appear to be just as onerous and costly. This paper shows that the compliance costs of the new requirements are on average 5 percent of the value of intra-EU trade of Dutch businesses. Clearly, the costs constitute a (differentiated) border tax that impedes intra-EU trade and violates the Treaty of Rome. The paper analyses the magnitude and determinants of the compliance costs, as well as their effects on intra-EU trade intensity. It is shown that even minor additional compliance costs have a significant negative effect on intra-EU trade.

1. Introduction

In 1985, the European Commission submitted a White Paper to the Council of the European Union (EU) with a program to achieve a Single market by 1992. The Commission expressed the belief that the removal of internal frontiers – the clearest manifestation of the continued division of Europe – should be a primary goal of EU policy. These frontiers included, among others, border controls for the imposition of value-added tax (VAT) on imports by one Member State from another Member State and the collection of statistical information on imports and exports. The costs of these controls to business were an impediment to intra-EU trade. Hence, they should be eliminated.

After much discussion of various alternative VAT systems without border controls, the Council agreed on Directive 91/680/EEC, which abolished these controls under the deferred payment system. Henceforth, VAT on goods from other Member States would not be collected by the customs office, but be payable by the first taxable person in the importing Member State. The new system was called the transitional regime. The regime would expire on 31 December 1996, but it could be extended on an annual basis if agreement on the definitive system could not be reached. To date, the transitional regime is still in place and it is unlikely that it will be changed in the foreseeable future.

Under the transitional regime, intra-EU business transactions are called intra-Community (IC) transactions. Exports to other Member States are labelled IC supplies, and imports from other Member States are labelled IC acquisitions. The only significant difference with the pre-1992 customs procedures is that IC acquisitions must be reported on the domestic VAT return rather than to the customs office. Moreover, customs controls have been replaced by a VAT information exchange system (VIES). Under this system, taxable persons have to report their taxable sales to taxable persons in other Member States, including their VAT identification numbers, on a quarterly basis (listing requirement). The same applies to IC acquisitions, although in The Netherlands, for instance, the VAT return is used for this purpose. The exchange of VIES data between the Member States should enable the VAT administrations in the Member States to match the total of IC supplies (acquisitions) by each taxable person with the total of IC acquisitions (supplies) by taxable persons in other Member States.

Furthermore, a statistical data collection system, referred to as the Intrastat system, was set up to collect trade data between Member States (Council Directive 3330/91/EEC). The statistical requirements pertain to IC transactions in goods (services are exempt), irrespective of whether or not the goods are subject to commercial transactions. Information on inter-company transactions, for instance, also has to be reported. Due to the transitional VAT and Intrastat system, the legal and procedural requirements imposed in respect of IC transactions differ from those imposed on domestic transactions. These requirements bring additional (differential) compliance costs in their train.

7

This paper determines and analyses these differential compliance costs for Dutch business firms with IC transactions, as well as their impact on intra-EU trade intensity. We start by reviewing previous surveys that have attempted to measure the differential compliance costs. We believe that these surveys exhibit various methodological shortcomings. Subsequently, we describe our own survey and specify the estimated multiple regression equation that captures the determinants and quantitative effects of the differential compliance costs of IC transactions. We find that these costs are on average 5 percent of the value of firms' IC trade. Substantial differences between firms can largely be explained by economies of scale and information technology related variables. Furthermore, the evidence suggests that the differential compliance costs reduce the IC trade intensity of firms across industries and trades. In the concluding section, we submit that the high burden of these costs constitutes a barrier to IC trade and therefore violates the non-discrimination provisions of the EC Treaty.

2. Previous studies

A number of studies have estimated the costs to business of complying with various tax and statistical requirements in respect of IC trade, both before and after the abolition of border controls.

Costs of a 'non-unified' Europe

In the mid 1980s, the European Commission, as part of its Single market program, commissioned a survey on the costs of a 'non-unified' Europe. In the course of the survey, referred to as the Cecchini Report (1988), some 500 companies in six Member States (Belgium, France, Germany, Italy, The Netherlands, and the United Kingdom) were interviewed, to determine, among others, the compliance costs of tax, customs and trade data reporting requirements in respect of IC trade. The sample results were extrapolated on an EU-wide basis. The Cecchini Report estimated the aggregate costs to business of the procedures at internal EU-borders in 1986 at euro 8 billion, or 2 percent of the value of total IC trade.[1] These costs represented the direct costs of companies, including the costs of transit delays, but not the opportunity costs in terms of trade foregone. Government costs, estimated at euro 0.5-1.0 billion, were low by comparison.

Three specific findings of the Cecchini Report are worth noting. Firstly, the costs of customs procedures per consignment (on average euro 69 per import procedure and euro 85 per export procedure) were lowest in the Benelux countries, Belgium and The

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[1] The value figures in the Cecchini Report are denominated in ECU. In this paper, all monetary units have been converted into euro at the current exchange rate.

Netherlands.[2] This could be attributed to the simplified VAT procedures, including the deferred-payment scheme, that these countries already used prior to 1992 – indeed, ever since the introduction of their VATs in 1971 and 1969, respectively. In addition, the customs and trade declaration forms for IC (and third-country) transactions were already integrated. At the same time, Italy, for instance, had two separate organisations administering both obligations at considerably higher costs. Secondly, the costs of customs procedures per consignment incurred by small companies were on average 30 percent to 45 percent higher than the costs of large companies.[3] And thirdly, company managers estimated that the costs savings associated with the abolition of EU border controls would be 5 percent of total sales (Cecchini et al, 1988, p. 48).

Evaluations of the transitional VAT and Intrastat system

Although the expectations of the business community regarding the Europe 1992 project had been high, the new legal and procedural requirements of the transitional VAT and Intrastat system were considered disappointing. This is the gist of the six surveys that were undertaken prior to our study. Table 1 summarises various particulars of these surveys that differ significantly in method and geographical scope.

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[2]   Cecchini et al (1988) provide the following breakdown of the costs of import/export procedures (in euros) at internal EU borders in the six Member States covered by the survey: Belgium (26/34), The Netherlands (46/50), Germany (42/79), United Kingdom (75/49), France (92/87), and Italy (130/295).

[3]   Specifically, the costs of customs procedures per consignment were on average euro 85 for imports and euro 95 for exports by companies with less than 250 employees and on average euro 47 for imports and euro 75 for exports by companies with 250 employees or more (Cecchini et al, 1988, p. 18 of the detailed version of the report).

Table 1. Evaluations of VAT transitional regime and Intrastat system

Single market surveys	Geographical scope	Data collection method	Sample	Response
Ball (1993)	All Member States per 1 January 1993	Mail questionnaire	3,500 companies	600 (17.1%)
Netherlands Board of Small Businesses (RMK) (1994)	The Netherlands	Mail questionnaire	1,500 small- and medium-sized companies	190 (13%)
Knigge and Regter (1994) for EIM	The Netherlands	Telephone and face-to-face interviews	N/A	Telephone calls 208; Face-to-face interviews 17
Michie (1995) for KPMG	United Kingdom	Mail questionnaire	N/A	3,000
Haase (1996) for Handwerkinstitut	All Member States per 1 January 1993, except Greece	Mail questionnaire	11,404 companies	1,210 (10.6%)
European Commission (1997)	All Member States per 1 January 1993	Mail, telephone or face-to-face interviews as preferred by respondents	Non-random selection	222 responses covering exports/despatches; 223 responses covering imports/arrivals

The findings of the various surveys can be summarised as follows.

1. The European Commission (1997) reported that the introduction of the transitional VAT and Intrastat system had reduced compliance costs by approximately two-thirds overall.[4] Nevertheless, only 49 percent of respondents preferred the new system to the previous customs regime. Generally, other surveys were more sceptical about the blessings of the new system. The European-wide survey of Haase (1996, p. 181) showed that only 18.3 percent of respondents believed that the abolition of border controls had reduced compliance costs. Moreover, approximately two-thirds of these respondents (14%) considered the advantages as minor (Haase, 1996, p. 181). As regards specific Member States, in The Netherlands, more than half of respondents reported higher compliance costs as a result of the new system (RMK, 1994). In the United Kingdom (Michie, 1995), only 19 percent of respondents believed that the change-over was on balance advantageous, while more than 42 percent disagreed with

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[4] Similarly, Ball (1993) found that 61 percent of respondents believed that the abolition of border controls was, on balance, advantageous. Unfortunately, his survey does not specify from which population and how companies were selected.

the statement that the abolition of customs procedures compensated for the new requirements of the VAT and Intrastat system.

2. The views on the merits and disadvantages of the new system varied considerably among Member States (Ball, 1993; Haase, 1996; European Commission, 1997). While companies in northern Member States were generally sceptical about the costs savings under the transitional VAT and Intrastat system, companies in southern Member States reported significant gains compared with the previous customs regime. As noted by Cecchini et al (1988) and Ball (1993), this difference should be attributed to differences between the old and the new system in the various Member States. Prior to 1993, the costs of the old regime were considerably lower in northern Member States. This implies, of course, that the costs savings should not necessarily be attributed to the change-over *per se.*

3. Interestingly, large companies with established business information systems, needed more time and incurred higher costs in adjusting to the transitional VAT and Intrastat system than small companies (Ball, 1993; EIM, 1994; Michie, 1995).[5] Furthermore, companies with a small volume of IC trade benefited little and in some cases even suffered from the new system (European Commission, 1997).

4. The VAT reimbursement procedure for companies acquiring goods in other Member States without being registered in those States was perceived as ineffective. Ball (1993) reported that only 69 percent of respondents actually reclaimed the tax. The remaining 31 percent considered the procedure as cost ineffective. Haase (1996) found that more than three-fourths of respondents reported difficulties with the reimbursement of VAT paid in other Member States.

5. Companies involved in chain transactions viewed the new system as complex and costly (Ball, 1993; Michie, 1995).[6] In triangular transaction (i.e. chain transaction confined to three registered persons in different Member States), the intermediate trader (B) has to register in the Member State of the final purchaser (C) to whom the first trader (A) delivers the goods. Hence, the sale from A to B is an IC acquisition

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[5] RMK (1994) is an exception. It reported that the increase in compliance costs as a percentage of total sales was higher for small than for large companies. But when we recalculated the compliance costs by company size measured by the number of employees, we found that the highest compliance costs were clearly incurred by companies with the largest number of employees.

[6] Chain transactions involve more than three sales of the same goods in different Member States, while the goods are delivered by the first seller to the last buyer. Michie (1995) reports that chain transactions comprise 30 percent of IC transactions in the United Kingdom. The majority of companies involved in chain transactions were large and medium-large companies. Only 4 percent of companies that engaged in triangular transactions had total sales of euro 82,000 or less (Ball, 1993).

of B in C's Member State, while the transaction between B and C is a domestic transaction in C's Member State. Because B's registration in Member State C gives rise to additional compliance costs for intermediate traders, a simplified procedure has been agreed upon which relieves B from the registration requirement in C's Member State. Ball (1993) reported, however, that this so-called simplified procedure was used by only 52 percent of trade intermediaries.[7] In the United Kingdom, 44 percent of respondents believed that the simplified procedure was not cost effective (Michie, 1995).

Methodological flaws

Various surveys have methodological shortcomings, such as a lack of transparency of the sampling procedures (Ball, 1993; European Commission, 1997) and low responses (Ball, 1993; Knigge and Regter, 1994[8]; Haase, 1996). In the two European-wide surveys (Haase, 1996; European Commission, 1997) only a small number of companies were interviewed in some Member States which made the surveys less representative than desirable. In addition, some of the surveys could be biased, because questions were addressed to accounting personnel who, at the time of the surveys, had limited experience with VAT and Intrastat compliance procedures that were previously handled by logistical staff. Perhaps the most serious shortcoming of most surveys is that compliance costs were expressed as a percentage of total sales or accounting costs. Compliance costs of IC transactions are incurred to support IC transactions of individual firms and therefore should be related to the value of IC trade of these firms.

Finally, the theoretical underpinnings of most studies, particularly in terms of research design, are weak. Generally, the studies attempt to realise two research objectives that require conflicting research designs. One objective is to evaluate the European legal systems as such, while the other objective is to identify differences in implementation of legal systems between Member States. Large variations in the variables require the use of different constants in the research designs. The first objective requires a large variation of companies and as few as possible differences in implementation by Member States. By contrast, the second objective requires a limited number of similar companies and as much

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[7] Ball (1993) found that the majority of companies involved in chain transactions were large en medium-large companies. Furthermore, only 4 percent of companies that engaged in triangular transactions had total sales of euro 82,000 or less.

[8] The sample of Knigge and Regter (1994) consisted of only 17 "average" companies. This small sample was justified on the ground that compliance costs were estimated using the "cash" approach which calculates costs in detail by measuring the required time of each component of the compliance activity. This approach reduces the likelihood that respondents omit compliance activities and consequently underestimate compliance costs. But contrary to the "average company" assumption, Knigge and Regter (1994, p. 34) found that there were large differences in the way companies complied with the new requirements.

12

variation in implementation between Member States as possible. The combination of these objectives in one research design results in findings that have limited value for either objective, as shown by the European-wide studies of Haase (1996) and the European Commission (1997).

3. Organisation of survey

Our survey attempts to evaluate the compliance costs of the transitional VAT and Intrastat system for IC transactions and not to identify the consequences of differences in implementation between Member States. Hence, our study requires a large variation of firms and as few as possible differences in implementation. This can be achieved by confining the sample to VAT entities in one Member State. We chose The Netherlands for three reasons. Firstly, the country is a centre of European-wide distribution networks with ample experience in IC transactions. Secondly, VAT-liable firms and tax offices in The Netherlands had substantial experience with the deferred payment scheme prior to the introduction of the equivalent transitional regime. Thus, the effect of adjustment problems should have been minimal. Thirdly, the implementation of EU legislation and regulations on VAT and Intrastat by the Dutch VAT administration is generally considered as efficient. All three aspects imply that our estimates of IC compliance costs are likely to be low when placed in an EU-wide context.

The survey form, which was drafted with the assistance of tax advisors, tax officials and organisations of employers and accountants, consisted of three parts. Parts A and B requested data on the general characteristics of the firm, its business information system, and IC transactions. Part C requested information on compliance costs activities related to IC transactions.[9] These activities include (1) the search for and verification of VAT numbers, (2) the retrieval from the business information system of (different) data on IC transactions for the VAT return, the quarterly sales listing, as well as the Intrastat return, and (3) the processing of the VAT return, the sales listing and the Intrastat return in the business information system. The respondents were requested to indicate average time and frequency per activity. Measurements of compliance activities were translated into monetary values by multiplying them with the average labour costs of accounting personnel, including a mark-up for overhead costs.

The sample was randomly selected from the data base of VAT registered firms in The Netherlands. To select firms with IC transactions, the Dutch VAT declaration form was used which requires firms to provide information on the volume of IC transactions. Of 2,988 active firms with IC transactions, 642 (21.5%) firms responded after one reminder. The response was tested for representativeness with respect to the size and economic activity of the responding firms. The evaluation did not indicate significant differences, except that firms with more than 100 employees had a higher response rate than smaller firms.

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[9] The data were collected three years after the introduction of the Single market; hence, the influence of adjustment costs, if any, should be minimal.

13

4. Results

Our survey reveals that total differential compliance costs of IC transactions of VAT-liable firms in The Netherlands are on average 5 percent of the value of their IC trade with large variations around this average.[10] Figure 1 shows the compliance costs of IC trade against the number of IC transactions. At one extreme, there is a large number of firms with a small volume of IC trade that are confronted with excessively high compliance costs. By contrast, a relatively small number of firms with sophisticated business information systems have very low compliance costs. Almost two-thirds of firms with IC trade have less than 60 IC business transactions per annum. These small IC traders have compliance costs that exceed the average of 5 percent of the value of IC trade per firm. More than one-third of firms incur compliance costs in excess of 12 percent of their IC trade. The differences in compliance costs between firms with and without IC trade are attributable to the transitional VAT regime and the Intrastate requirements. These compliance costs represent a hefty discriminatory border tax that should be a significant impediment to internal EU trade.

Figure 1. Relative compliance costs of IC transactions and number of IC transactions

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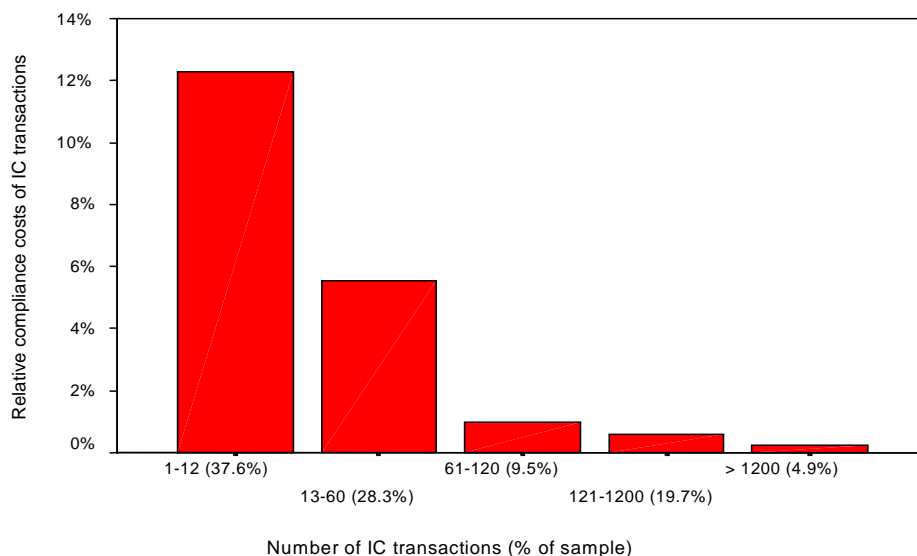
[10] To convey an impression of total VAT compliance costs of IC transactions, the 5 percent should be added to the general VAT compliance costs. Unfortunately, with respect to The Netherlands, only estimates of aggregate compliance costs as a percentage of aggregate turnover of classes of firms are available. These estimates range from 2% of turnover for small firms to 0.006 percent for very large firms (Allers, 1994, p. 129). Of course, these figures have little relevance for our analysis.

14

To identify the determinants of compliance costs of IC trade, we estimated an exponential function. The equation is non-linear in the variables but linear in the coefficients and thus can be linearised by applying a logarithmic transformation. The logarithmic transformation yields a function with a double-log functional form, which can be estimated by ordinary least squares. The choice of this functional form is based on the assumption that compliance costs elasticities are constant. This functional form is generally accepted in the compliance costs literature (Blumenthal and Slemrod, 1994; Guntz et al, 1995).[11] The dependent variable of the equation is compliance costs of IC transactions expressed as a percentage of the value of IC transactions. The independent variables and measures are shown in the first column of Table 2.

The estimated results of the multiple regression analysis are also presented in Table 2. The F-value of 54, shown at the bottom of the Table, is significantly above the critical F-value of a 99 percent confidence interval. Thus, based on the F-value, the regression equation is statistically significant. The adjusted coefficient of determination R^2 suggests that, taking into account the degrees of freedom of the regression equation, 72 percent of the variation around the average of the dependent variable can be explained by the regression equation. This is a reasonable score for cross-sectional research that includes a large variety of firms.

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[11] We explored alternative functional forms but none were found to be satisfactory. Furthermore, none of the correlations between the independent variables had a value higher than 0.7. The method is insufficient, however, to detect multicollinearity in regression equations with more than three explanatory variables. Hence, VIF-scores and matrix decomposition were used to detect multicollinearity, but neither method indicated any problem with the equation.

Table 2. Results of multiple regression analysis of the determinants of compliance costs of IC transactions

Explanatory Variables		Estimated Coefficients	Standard Errors	t-values	Significance
(Constant)		4.8954	0.5261	9.305	$P < 0.01$
Firm size (number of employees in fte)	(α_1)	0.1241	0.0535	2.243	$P < 0.05$
Manufacturing*	(α_2)	-0.0285	0.2461	-0.116	NS
Trade*	(α_3)	0.2131	0.2025	1.052	$P < 0.01$
Filing frequency (monthly/quarterly)	(α_4)	-0.8747	0.1694	-5.164	$P < 0.01$
Frequency of IC transactions	(α_5)	-0.7235	0.0467	-15.509	$P < 0.01$
Average transaction size	(α_6)	-0.7867	0.0501	-15.701	$P < 0.05$
Threshold IC acquisitions*	(α_7)	-0.4771	0.1962	-2.432	NS
Threshold IC supplies*	(α_8)	-0.1805	0.2187	-0.825	$P < 0.01$
Number of new IC buyers	(α_9)	0.1451	0.0453	3.204	$P < 0.01$
Listing requirement*	(α_{10})	0.6343	0.2353	2.696	$P < 0.05$
Computerised system*	(α_{11})	-0.4509	0.2043	-2.207	$P < 0.05$
Internal integration*	(α_{12})	-0.3465	0.1630	-2.125	$P < 0.01$
Government software*	(α_{13})	0.5913	0.1653	3.576	$P < 0.01$
EDI with IC buyers*	(α_{14})	1.1952	0.3766	3.174	$P < 0.01$
EDI with IC suppliers*	(α_{15})	-0.6446	0.3199	-2.015	$P < 0.05$
EDI with VAT office*	(α_{16})	-0.5818	0.3523	-1.652	$P < 0.1$
* dummy variable					
Model summary		Adj. $R^2 = 0.72$	F = 54.37	N=350	

The following comments can be made on the explanatory variables.

Firm size. The positive sign of the coefficient (α1) indicates that firm size has a positive independent influence on relative compliance costs of IC transactions. More specifically, if firm size increases by 1 percent, compliance costs as a percentage of IC trade increase by 0.12 percent. This result suggests that – despite the objective of the Single market program to enable firms to exploit economies of scale – the artificial split-up of business information systems of big European-wide companies involves diseconomies of scale. Problems of business information systems can be reduced by advanced computer systems, but a large volume of IC trade would be necessary to recover the costs. The current tax requirements, moreover, were introduced as transitional arrangements. Consequently, the write-off time of the costs would seem to be limited.

Type of business activity. The insignificant signs of the coefficients of the dummy variables 'manufacturing' (α2) and 'trade' (α3) indicate that the type of business activity does not have an independent influence on the compliance costs of IC transactions. This finding is in line with the results reported by Allers (1994, p. 142). It suggests that differences in compliance costs between economic activities are likely to reflect the

16

influence of other variables, such as the extent of computerisation or the volume of IC trade.

Filing frequency. The negative and significant sign of the coefficient of the dummy variable ($\alpha 4$) indicates that firms with quarterly and annual filing frequencies have lower compliance costs than firms with monthly filing frequencies. This finding is in line with the results of a survey of the compliance costs of the Canadian VAT (Cléroux, 1992, p. 42). Generally, the filing frequency of the VAT return depends on the amount of VAT that is due. In this respect, small and medium-sized firms seem to have an advantage.

Number and average size of IC transactions. Everything else being equal, the estimates suggest that if a firm increases the number ($\alpha 5$) and average size ($\alpha 6$) of IC transactions by 1 percent, relative compliance costs decline by 0.72 and 0.79 percent, respectively. This supports the proposition of transaction-cost theory that the size and frequency of transactions are the main determinants of transaction costs (Williamson, 1985). The result is also in line with studies of VAT compliance costs (see, e.g. Sandford *et al* (1981)) which report that compliance costs increase the smaller is the average size of the transaction.

Statistical thresholds. The coefficient of the dummy variable 'threshold IC acquisitions' ($\alpha 7$) is negative. Contrary to our expectations, however, the coefficient of the dummy variable 'threshold IC supplies' ($\alpha 8$) is not significantly different from zero, which suggests a strong interaction between the compliance costs of the VAT listing and Intrastat requirements. This finding indicates that the effectiveness of thresholds in reducing compliance costs is limited by the interaction with other requirements.

Type of transaction. The positive signs of the coefficients of the dummy variable 'new IC buyers' ($\alpha 9$ = number of requested VAT numbers) and the dummy variable 'listing requirement' ($\alpha 10$) indicate higher compliance costs with respect to IC supplies (compared with IC acquisitions). As expected, the requirement to request, verify and process VAT identification numbers in the business information system is especially onerous for companies that sell often to new IC buyers. The listing requirement increases compliance costs of companies that are exempt from the Intrastat requirements for IC supplies.

Computerisation, internal integration, and government-supplied software. The signs of the estimated coefficients of the dummy variables 'computerised system' ($\alpha 11$) and 'internal integration' ($\alpha 12$) of inventory and accounting systems confirm the importance of computerisation in reducing compliance costs. The sign of the coefficient of the dummy variable 'government-supplied software' ($\alpha 13$) indicates that firms that use government-supplied standard software are relatively inefficient**.**

EDI. Although it is often asserted that information and communication technology reduces compliance costs, few studies have provided useful empirical evidence. In fact, the positive and statistically significant value of the coefficient of the dummy variable 'EDI

17

with IC buyers' ($\alpha14$) appears to be at odds with the costs savings suggested in the literature. One explanation of this unexpected result could be that the tax authorities accept electronic invoices only if both buyer and supplier meet specified requirements in addition to the normal requirements for conventional invoices. In addition, these additional requirements may differ between Member States. Hence, these additional requirements may increase compliance costs of IC transactions, particularly if more than one tax office is involved. This finding is confirmed by a European-wide survey of the use of EDI for invoicing purposes which indicates that additional VAT requirements for electronic invoicing are complex and time-consuming (Schmidt, 1997, p. 261). It is also possible that EDI is still in an experimental phase. In other words, the differential costs would decline over time. The values of the coefficients of the dummy variables 'EDI with IC suppliers' ($\alpha15$) and 'EDI with tax office' ($\alpha16$) indicate that EDI can indeed reduce compliance costs of IC transactions by respectively 47% and 44%.[12]

Effect of compliance costs on IC trade intensity

To estimate the effect of the differentially higher VAT and Intrastate compliance costs on IC trade, we measured IC trade intensity as the total value of IC transactions as a percentage of the total sales of firms. If compliance costs of IC transactions induce a bias for domestic trade, IC trade intensity should decrease. We examine this relationship using an exponential function where the log of IC trade intensity is the dependent variable and the log of relative compliance costs of IC transactions is the independent variable. The log of firm size and dummies for manufacturing and trade were included to control for the influence of firm size and industry characteristics. (Dummies for different types of goods were also included in the equation, but they proved to be insignificant.) To make sure that the results were not driven by a restrictive specification of the functional form, a flexible approach was adopted that uses first and second order terms and interactions between the variables.

The results of the estimated regression equation are presented in Table 3. The F-value of 15 is significantly above the critical F-value of a 99 percent confidence interval, indicating that the regression equation is statistically significant. To simplify the interpretation of the estimated coefficients, the predictions of the equation are presented in Figure 2. The curves in Figure 2 represent combinations of firm size and relative compliance costs given a specified level of IC trade intensity. Consider, for instance, the curve with an IC trade intensity of 0.20 in Figure 2. If relative compliance costs of a given firm size increase, the firm will have to shift to a curve with a lower level of IC trade intensity. This is true for any point on any IC trade intensity curve in Figure 2, indicating that the level of relative compliance costs always has a negative effect on IC trade intensity.

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[12] These results were calculated using the following calculation rule for logarithms for dummy variables (d): ln(Ci|d=1) - ln(C|d=0) = ln {(C|d=1)/(C|d=0)}.

18

Table 3. Results of multiple regression analysis

Explanatory Variables		Estimated Coefficients	Standard Errors	t-values	Significance
(Constant)		-4.6663	0.7446	-6.267	$P < 0.01$
Log (firm size)	(α_1)	-0.2681	0.1020	-2.628	$P < 0.01$
Manufacturing	(α_2)	0.7286	0.2402	3.034	$P < 0.01$
Trade	(α_3)	0.5255	0.2177	2.413	$P < 0.05$
Log (compliance costs)	(α_4)	-1.0221	0.2180	-4.689	$P < 0.01$
Log2(compliance costs)	(α_5)	-0.0616	0.0158	-3.893	$P < 0.01$
Interaction (firm size x costs)	(α_6)	-0.0831	0.0194	-4.284	$P < 0.01$
Model summary		Adjusted $R^2 = 0.32$	F = 15	N=350	

It should be noted that the coefficient of the interaction term[13] in Table 3 is negative, which indicates that the effect of relative compliance costs of IC transactions is smaller if firm size increases. This can be seen in Figure 2 by the widening of the distances between the curves if firm size increases. This means that larger changes of relative compliance costs are needed in order to produce the same effect on IC trade intensity. Thus, the effect of relative compliance costs decreases with increases in firm size.

Interestingly, Figure 2 indicates that even changes in very low levels of compliance costs have a significant negative effect on IC trade intensity. This supports the proposition of Obstfeld and Rogoff (2000) that relatively small differences in differential transaction costs can induce a significant bias for domestic trade. The theoretical argument is that a bias for home trade depends on an interaction between the differential costs of international trade and the elasticity of substitution between home and foreign goods. Empirical estimates of the average size of this elasticity are rather high (between 5 and 6) as well as biased downwards because information on goods that are not traded is not included. The estimates of our study are biased downwards for the same reason, since firms without IC trade are excluded from the sample.

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[13] The variables in the interaction are mean-centered, a procedure commonly recommended to reduce multicollinearity and provide to unbiased parameter estimates (Aiken and West, 1991). To check if this was successful, we employed two widely used measures of multicollinearity (Judge *et al*, 1988). The maximum variance inflation factor as well as the maximum condition index were well below the levels (10 and 30, respectively) that commonly signal detrimental multicollinearity.

Figure 2. **The impact of compliance costs of IC transactions on IC trade intensity**
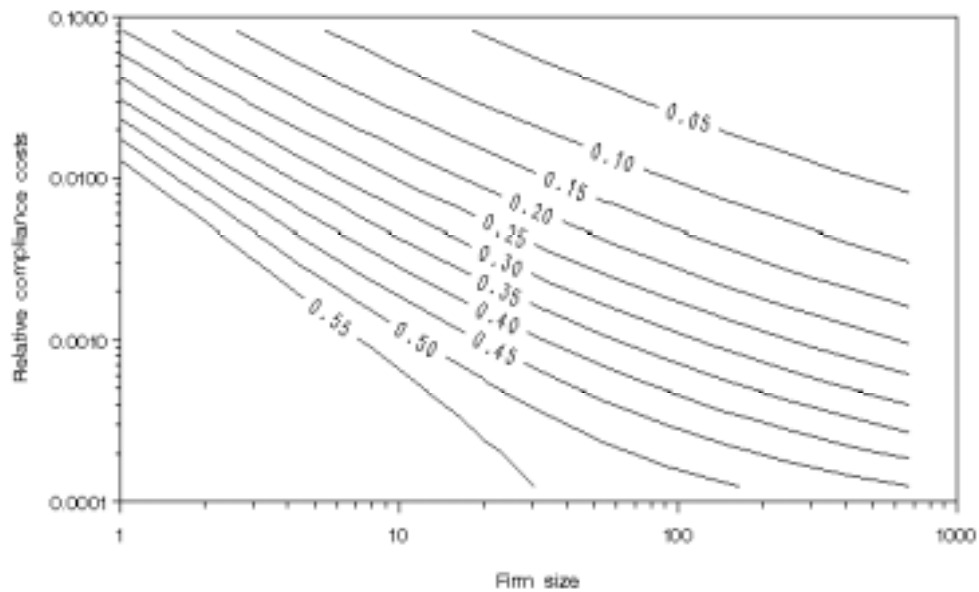
5. Policy implications

In sum, our study shows that the differential compliance costs of the transitional VAT and Intrastat system at on average 5 percent of the value of IC transactions represent a sizeable border tax (with large differences between firms). These compliance costs impede IC trade, distort competition and consequently weaken the competitive strength of European businesses. Although our findings are specific to The Netherlands, it is unlikely that the level of compliance costs would be lower in other Member States. We doubt, moreover, whether current compliance costs are lower than the compliance costs of the tax, customs and trade statistics regime prior to 1993. Our study also indicates that even relatively low compliance costs can have a significant negative effect on IC trade intensity if supply elasticities are high.

These findings should have implications for EU tax policy. The two important questions that our survey raises are (1) do the new internal border taxes violate the 1957 Treaty on the European Community (ECT), as amended by the 1997 Treaty of Amsterdam? and (2) what can be done to bring the compliance costs down to a level that is acceptable when judged in light of subsidiarity, neutrality, and feasibility considerations?

20

Legal considerations

Directly applicable Community law prohibits overt and covert discrimination of IC cross-border situations (supply of goods and services, cross border movement of persons and capital), as compared to domestic situations. Prohibited is any different treatment, without justification, by a single legislator (Member State or Community) of similar situations on the basis of an arbitrary criterion, resulting in a disadvantage for the cross-border as compared to the domestic situation (reverse discrimination). To emphasise, it is constant case law that acts of Community institutions are also tested against the constitutional principle contained in ECT. In principle, border taxes imposed by individual Member States cannot be replaced by Community border taxes.

Furthermore, it is clear from case law in the income tax area[14] that the distinction made in international law between substance and procedure is not acceptable for the EU. The starting point is that treatment of similar situations must be identical and that in order to reach that result both the substantive and procedural tax rules must be the same so that both the tax and the tax compliance burden, broadly interpreted, are the same. Interesting for our survey is *Futura* (Case 250/95) in which the Luxembourg requirement that non-residents, if they were to enjoy a carry-over of losses, had to record those losses in accounts kept at the branch and in accordance with Luxembourg rules, was considered EU incompatible. The Advocate General opined that the rule constituted different procedural treatment by requiring non-residents to keep two sets of account, one at head office and one at the branch, whereas residents only had to keep one set of accounts. The ECJ considered that although the rule applied without distinction to residents and non-residents, nevertheless it constituted a prohibited non-discriminatory restriction to free movement.

The constitutional non-discrimination principle was tested in Case 114/96 in which the appellant maintained that the Intrastat requirements violated Article 30 ECT (old) which prohibits quantitative import restrictions and "any measures with equivalent effect" and Article 34 ECT (old) which prohibits quantitative export restrictions and "any measures with equivalent effect." The Advocate General opined and the ECJ concurred that trade statistics are essential to obtain insight in the development and the completion of the internal market. Accordingly, the ECJ was willing to accept the justification for legal and procedural differentiation between domestic and IC situations, because this different treatment was objectively justified, served an overriding public interest, and did not result in an unnecessary burden on traders. The collection of these statistics would be discriminatory only if the measure would exceed what is necessary to achieve its purpose (proportionality principle).

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[14] Reference is made to Biehl (Case 175/88), Commission vs. Luxembourg (Case 151/94), and Schumacker (Case?)

However, as we interpret the further developments in the internal market, it is not excluded that the ECJ will reverse its position that differentiation in statistical (and VAT) requirements between domestic and IC transactions, resulting in a disadvantage for IC supplies and acquisitions, does not constitute unlawful discrimination. Before 1999, the collection of trade statistics was essential for the design of trade and exchange rate policies of individual Member States. With the introduction of the euro, however, this purpose has become redundant. In any case, the trade data collection requirements are so fragmentary and incomplete that we doubt whether they serve much purpose at all. Thus, services, a large and growing proportion of the national products of Member States, are exempted from the Intrastat requirements. In the case of goods, moreover, the requirement makes little sense in the case of intracompany transactions, representing three-fourths of all intra-EU trade in goods, because the declared values are largely meaningless. Finally, we note that federal countries, such as the United States and Canada, do not collect trade statistics at internal state and provincial borders. Yet, this is not considered an impediment to the formulation of the economic policies of individual state and provincial governments.

Some suggestions

In attempting to formulate some suggestions to eliminate or at least mitigate the differential compliance costs burden, we proceed from the assumption that Member States should retain the maximum degree of autonomy in administering their own VAT systems, including setting their own VAT rates. Accordingly, we do not consider solutions which in essence would involve ceding the whole or part of the administration of the various VATs to the European Commission. These proposals include the Commission's (1996) common VAT, the "exporter rating system" (taxation of IC supplies at the VAT rate of the country from which the goods are supplied in conjunction with a tax clearing mechanism), and various "uniform rating systems" (taxation of IC supplies at a uniform VAT rate, regardless of the rate that would be applied to corresponding domestic supplies).[15] Furthermore, we note that changes involve new adjustment costs, particularly for firms with sophisticated business information systems.[16]

Accordingly, we limit our suggestions to solutions that can be found within the transitional VAT and Intrastat system. We offer the following ideas as food for thought.

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[15] We refer to McLure's (1999) CVAT, Bird and Gendron's (1998) dual VAT, and Keen and Smith's (1996) VIVAT. For a review of these proposals, as well as the Commission's scheme, see Keen (2000) and Smith (2000).

[16] We support the European Commission's call for reducing unwarranted differences between Member States in VAT legislation, interpretation, and implementation. This would lessen the complexity of the transitional regime and reduce the costs associated with entry to other Member States (Smith, 1997, p. 22).

1. Abolish the Intrastat system for VAT-liable persons with IC transactions on the grounds outlined above. Intrastat requires data for each category of goods (identified by the corresponding 8-digit code) on the Member Sate of supply and acquisition, volume, value, nature of the transaction, supply conditions, and the probable mode of transportation. The furnishing of these data represents a significant increase in overall compliance costs. We note that the VAT and statistical requirements are not suited to modern business practices of firms that try to use the economies of scale of the Single market, but are obliged to record trade data per Member State.

2. Increase the assimilation threshold which exempts VAT-liable persons with IC transactions from the requirement to file Intrastat returns. Instead the VAT return is used for that purpose. An increase of the assimilation threshold to euro 1 million would reduce compliance costs of IC transactions to less than on average 1% of the value of IC transactions. More generally, we note that our study shows that thresholds are an effective instrument to reduce business compliance costs, provided that the threshold applies to all tax and statistical requirements.

3. Encourage individual Member States to perform joint audits of VAT returns. The mutual assistance directive allows tax authorities to obtain any information which is necessary for determining the tax which a taxpayer must pay. The bulk of IC transactions takes place with neighbouring Member States. Following the example of Euroland or Schengenland, regional groupings of Member States could agree to monitor VAT obligations regarding IC transactions on a joint basis. By analogy, bilateral and multilateral agreements already exist to investigate criminal activities.

4. Compensate firms with a small volume of IC trade for the compliance costs which they incur. As shown above, the negative effect of compliance costs on IC trade intensity is greater for small firms than for large firms. Compensation equal to 5% of the first euro 1 million of IC transactions would reduce average compliance costs to less than 0.5% of the value of IC transactions. This modification would not reduce the quality of VAT information flows. Compensation could be given in the form of a proportional tax credit against the VAT payable as shown on the return. Interestingly, Denmark has a mechanism under its income tax to compensate small firms for the disproportionate higher compliance costs which they incur (Sandford, 1995, p. 255).[17]

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[17] In Denmark, compensation is given at the rate of 2.5 percent of net income, with a maximum of euro 790 which is reduced by euro 264 for every year of manpower working capacity. Although a compensation scheme would improve the firm's competitive condition, new distortions would arise if firms would be compensated differently among Member States. In addition, the compensation would have to be an approximation of real costs and, therefore, could easily be considered an export subsidy.

5. Introduce licenses for IC traders that are links in complex IC supply chains. Firms with accounting systems that meet specified requirements might be issued a license to trade with firms in other Member States on a zero-rate basis. Generally, such firms have sophisticated business information systems and therefore should be able to meet additional requirements without much additional cost. However, firms with less sophisticated business information systems would be disadvantaged by the conditions attached to the licenses.

Obviously some combination of these measures should also be feasible. The measures are not ideal in the sense that they would eliminate all compliance costs differences between domestic and IC transactions. That ideal remains elusive as long as VATs are administered at Member State level. As with other EU issues, a balance must be struck between subsidiarity and neutrality considerations. But the EU is not on the right track if the old tax, customs and statistical obligations which have the effect of border taxes are replaced by EU-wide internal border taxes.

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25

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26