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European Accounting Harmonization Before and After 1978: A Trade-Base Statistical Perspective

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Avrupa'da Muhasebe Uyum Çalışmaları, 1978 Öncesi ve Sonrası: Ticaret Temelli İstatistiksel Bakış Açısı

Abstract

The purpose of this study has been to (a) measure the growth of exports for five of the six core EU founders (Belgium, France, Italy, Luxembourg, and the Netherlands) and (b) relate the adoption of accounting harmonization standards to this growth. The analysis presented in this paper, supported by independent samples *t*-tests, seemed to rule out the idea that accounting harmonization was constantly designed as a response to stagnation in intra-European trade; the opposite effect was observed. What is not yet clear, and what requires further investigation, is whether and to what extent the EC decided to adopt accounting harmonization measures as a trade-related necessity—for example, because the increasing tempo of intra-European trade had bound together the community in a manner that required harmonization for further trade expansion. The analysis of this topic could add significantly to the accounting history of the EU.

Keywords: European Union, accounting harmonization, accounting

JEL code: M41

Introduction

There are two ways of thinking about accounting harmonization in the European Union (EU) as it has taken place from 1978 onwards: Accounting harmonization can be understood as a form of top-down political pressure or as a form of bottom-up enablement of cross-border trade. The first move towards European accounting harmonization, via the Code Napoleon (Frank, 1979), can be understood as a form of top-

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down pressure. Similarly, political considerations have been described as the prime motivation for the development of post-EU accounting harmonization principles (Haller, 2002). It is, however, possible to think of European accounting harmonization in more economic than political terms. For example, if it can be demonstrated that the pace of intra-European trade accelerated significantly before the passage of the harmonization-relevant European Community (EC) Directives in 1978, then there is some empirical basis for thinking of the evolution of accounting harmonization in Europe as more of an economic than a political result. Or, rather, the politics of accounting harmonization can be re-conceptualized as the necessary outcomes of trade realities.

Data Analysis

The World Bank (2013) provides data on export statistics for all European countries from 1961-2012. The case of France provides an interesting example of the kinds of trading forces that might have been primarily responsible for the adoption of accounting harmonization in the EC Directives of 1978.

The Historical Context Of European Trade Liberalization

Analysis of data from European countries will demonstrate that there was a rapid annual growth in the export of goods and services leading up to the adoption of harmonization-related EC directives in 1978. However, turning the clock back further, it is clear that nearly every country in what would be the EU experienced an even more remarkable upsurge in exports in the postwar period (data obtained from United Nations, 2012):

Table 1 Expansion of Exports in Europe from the Prewar to Postwar Era

Country	Pre-War (1927-1938) Exports (in Millions of 1953 USD)	Post-War (1948-1960) Exports (in Millions of 1953 USD)	Percent Change	Statistically Significant Change?
Denmark	323.67	1011.75	312%	Yes
Finland	135.08	724.92	536%	Yes
France	1687.83	4732.42	280%	Yes
Germany / West Germany	2166.67	5574.92	257%	Yes
Italy	735.25	2749.58	374%	Yes
Netherlands	824.50	3088.00	374%	Yes
Norway	234.75	1064.33	453%	Yes
Sweden	401.83	1975.83	492%	Yes
Switzerland	430.33	1530.17	355%	Yes
United Kingdom	4139.33	9891.00	239%	No

Only one country in this sample, the United Kingdom, did not obtain a statistically significant rise in exports from the 1927-1938 to the 1948-1960 period.

Intra-European trade rose for a number of reasons, among them (a) the intensified need for trade following the devastation of the Second World War and (b) the adoption of neoliberal policies favoring trade. In terms of neoliberalism, American Secretary of State Cordell Hull (1948) had noted that " …if we could get a freer flow of trade…freer in the sense of fewer discriminations and obstructions…so that one country would not be deadly jealous of another and the living standards of all countries might rise, thereby eliminating the economic dissatisfaction that breeds war, we might have a reasonable chance of lasting peace" (p. 81). There was, in this sense, a tight coupling of political and economic outcomes; neoliberal politics led to institutions such as the General Agreement on Tariffs and Trade (GATT), which in turn had salutary economic effects on trade volume.

However, had politics been primarily responsible for the push towards accounting harmonization that accelerated in the early 1970s with the formation of the International Accounting Standards Committee (IASC), one would expect to see early, top-down efforts to impose a single accounting system across Western Europe and North America. Such a top-down approach was evident in other forms of political interventions in liberal-democratic economic institutions, particularly in the form of the Bretton Woods institutions (Best, 2003). As Best suggested, Bretton Woods did not emerge from the bottom up considerations of trade but rather constituted a top-down political effort to structure trade in a particular way. In other words, the Bretton Woods institutions were not retroactively derived from the way in which the global market had been working over the past several years, but rather represented an attempt to dictate the direction of the global market based on the kind of neoliberal guesswork about free trade evidence in Hull's (1948) memoir.

The data in Table 2 indicate that Europe experienced immense trading success long before there was a move towards the convergence of accounting standards. However, the historical U.N. trade data stop in 1960, and it was not until 1978 that the EC directives herded the members of the future European Union in the direction of accounting harmonization. The question thus becomes: Was there a slowdown in the pace of intra-European trade that the new accounting harmonization directives were intended to remediate or did the ongoing acceleration of trade present the need to institutionalize existing best practices in harmonization, thus making future growth more likely? The answer to such a question can be more readily provided after surveying some of the empirical data pertaining to intra-European trade liberalization in the period from 1961 to 2011, using 1978 as a breakpoint.

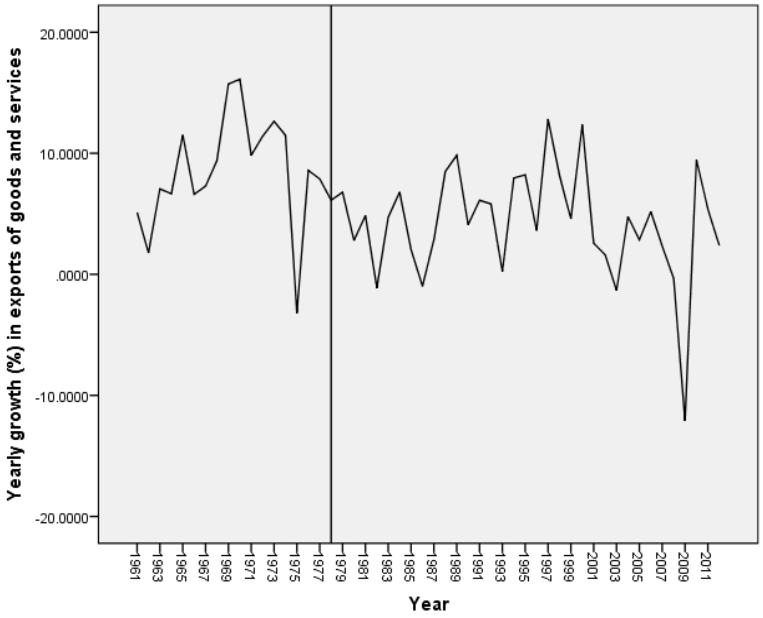
Such an empirical analysis is important for a number of reasons. First, it is necessary to determine whether the period from the early 1960s to 1978 was truly a time of accelerating trade liberalization. If trade was stagnating, then there would be some reason to think of the accounting harmonization-related EC directives as being designed to spark trade (and thereby economic prosperity). On the other hand, if trade were

France

Figure 1 bifurcates France's export performance, in terms of % annual growth in goods and service exports, before and after 1978. Figure 2 complements Figure 1 by showing the same data in the form of a boxplot, making it easier to see the difference in

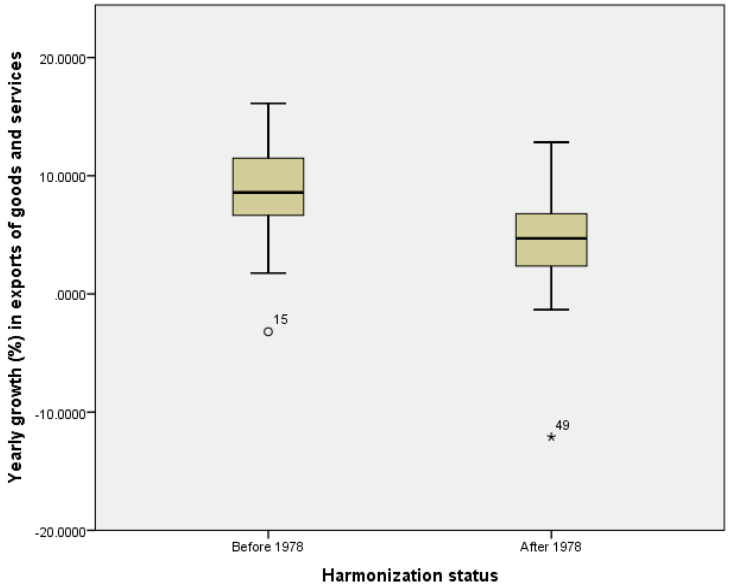
France's annual rates of growth in goods and services exports before and after 1978. Finally, the significance of the difference in goods and services export growth rates before and after 1978 was measured by an independent samples *t*-test.

Figure 1. Annual % Growth in Exports of French Goods and Services, 1961-2011.



Note that growth was more rapid before 1978 than after 1978.

Figure 2. Boxplot, Annual % Growth in Exports of French Goods and Services,



Before 1978 and After 1978. The outliers are as follows: 15 = 1975; 49 = 2009.

An independent samples *t*-test was conducted in order to determine whether the differences before and after 1978 were significant:

Table 2. Independent Samples T-Test: French Exports Before and After 1978

Group Statistics

	Year	N	Mean	Std. Deviation	Std. Error Mean
Yearly growth (%) in exports of goods and services	>= 1978	35	4.286966	4.5590039	.7706123
	< 1978	17	8.583393	4.7504415	1.1521513

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
Yearly growth (%) in exports of goods and services	Equal variances assumed	.051	.822	-3.145
	Equal variances Not assumed			-3.100

Independent Samples Test

		t-test for Equality of Means		
		Df	Sig. (2-tailed)	Mean Difference
Yearly growth (%) in exports of goods and services	Equal variances assumed	50	.003	-4.2964276
	Equal variances Not assumed	30.633	.004	-4.2964276

Independent Samples Test

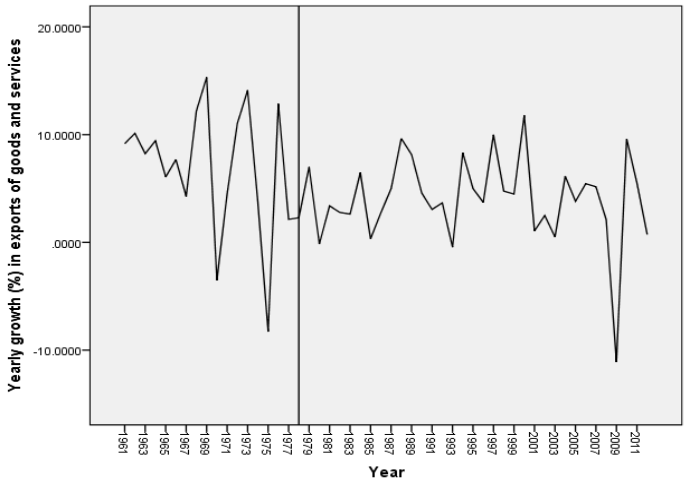
		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.3661270	-7.0403745	-1.5524807
	Equal variances Not assumed	1.3861082	-7.1247891	-1.4680661

The mean % growth in French exports of goods and services in 1978 and afterwards was 4.29% (*s* = 4.56), as compared to a mean of 8.58% (*s* = 4.75) before 1978. At an α of .05, variances were equal (p = .051) and the difference between pre- and post-1978 means was statistically significant (p = .004). In the subsequent analyses, the same tests were applied to the remainder of the EU's original members, namely Belgium, Italy, Luxembourg, and the Netherlands; Germany was excluded because of the confounding effect of West-East German unification.

Belgium

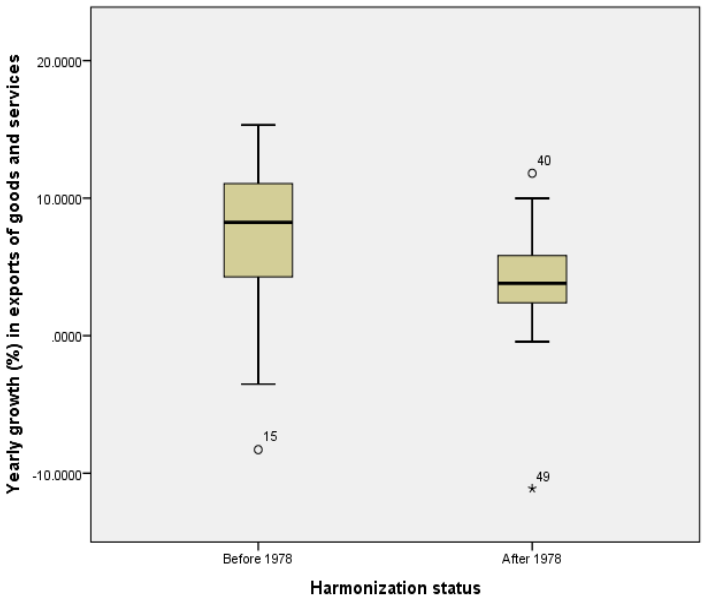
Figure 3 bifurcates Belgium's export performance, in terms of % annual growth in goods and service exports, before and after 1978. Figure 4 complements Figure 3 by showing the same data in the form of a boxplot, making it easier to see the difference in Belgium's annual rates of growth in goods and services exports before and after 1978. Lastly, the significance of the difference in goods and services export growth rates before and after 1978 was measured by an independent samples *t*-test.

Figure 3. Annual % Growth in Exports of Belgian Goods and Services, 1961-2011.



Note that growth was, at an α of .05 not more rapid before 1978 than after 1978.

Figure 4. Boxplot, Annual % Growth in Exports of Belgian Goods and Services,



Before 1978 and After 1978. The outliers are as follows: 15 = 1975; 40 = 2000; 49 = 2009.

The mean % growth in Belgian exports of goods and services in 1978 and afterwards was 4.02% (s = 4.02), as compared to a mean of 7% (s = 6.12) before 1978. At an α of .05, variances were unequal (p = .046) and the difference between pre- and post-1978 means was not statistically significant (p = .083).

Table 3 Independent Samples T-Test: Belgian Exports Before and After 1978

Group Statistics

	Year		Mean	Std. Deviation	Std. Error Mean
Yearly growth (%) in exports of goods and services	>= 1978	35	4.016926	4.0216547	.6797837
	< 1978	17	7.005590	6.1933565	1.5021096

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
Yearly growth (%) inexports of goods and services	Equal variances assumed	4.198	.046	-2.096
	Equal ariances Not assumed			-1.813

Independent Samples Test

		t-test for Equality of Means		
		df	Sig.(2tailed)	Mean Difference
Yearly growth (%) in exports of goods and services	Equal variances assumed	50	.041	-2.9886640
	Equal variances Not assumed	22.775	.083	-2.9886640

Independent Samples Test

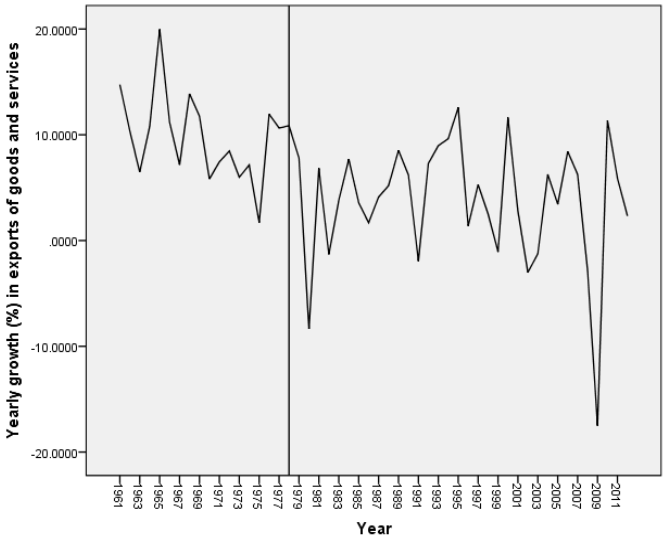
		t-test for Equality of Means		
		Std. Error Difference	95%Confidence Interval of the Difference	
			Lower	Upper
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.4261506	-5.8531718	-.1241562
	Equal variances Not assumed	1.6487690	-6.4012655	.4239376

Italy

Figure 5 bifurcates Italy's export performance, in terms of % annual growth in goods and service exports, before and after 1978. Figure 6 complements Figure 5 by

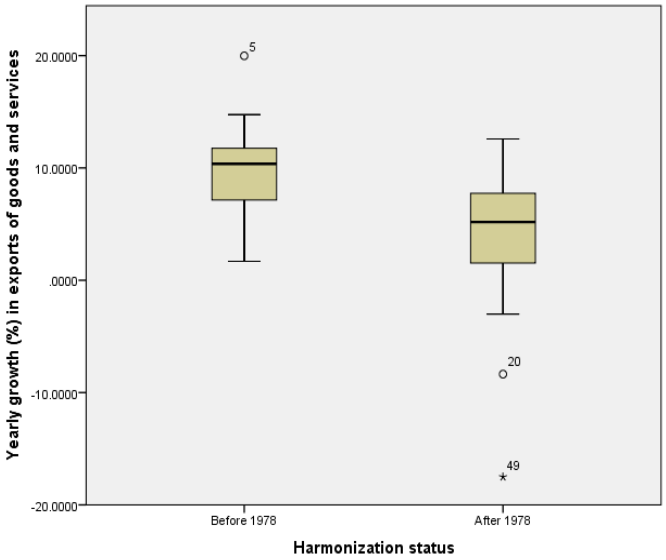
showing the same data in the form of a boxplot, making it easier to see the difference in Italy's annual rates of growth in goods and services exports before and after 1978. Lastly, the significance of the difference in goods and services export growth rates before and after 1978 was measured by an independent samples *t*-test.

Figure 5. Annual % Growth in Exports of Italian Goods and Services, 1961-2011.



Note that growth was more rapid before 1978 than after 1978.

Figure 6. Boxplot, Annual % Growth in Exports of Belgian Goods and Services,



Before 1978 and After 1978. The outliers are as follows: 15 = 1975; 40 = 2000; 49 = 2009.

The mean % growth in Italian exports of goods and services in 1978 and afterwards was 3.86% (*s* = 6), as compared to a mean of 9.73% (*s* = 4.22) before 1978. At an α of .05, variances were equal (*p* = .281) and the difference between pre- and post-1978 means was statistically significant (*p* = .001).

Table 4 Independent Samples T-Test: Italian Exports Before and After 1978

Group Statistics

	Year		Mean	Std. Deviation	Std. Error Mean
Yearly growth (%) in exports of goods and services	>= 1978	35	3.857114	6.0502626	1.0226810
	< 1978	17	9.735577	4.2248666	1.0246807

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.185	.281	-3.594
	Equal variances Not assumed			-4.061

Independent Samples Test

		t-test for Equality of Means		
		Df	Sig.(2-tailed)	Mean Difference
Yearly growth (%) in exports of goods and services	Equal variances assumed	50	.001	-5.8784638
	Equal variances Not assumed	43.459	.000	-5.8784638

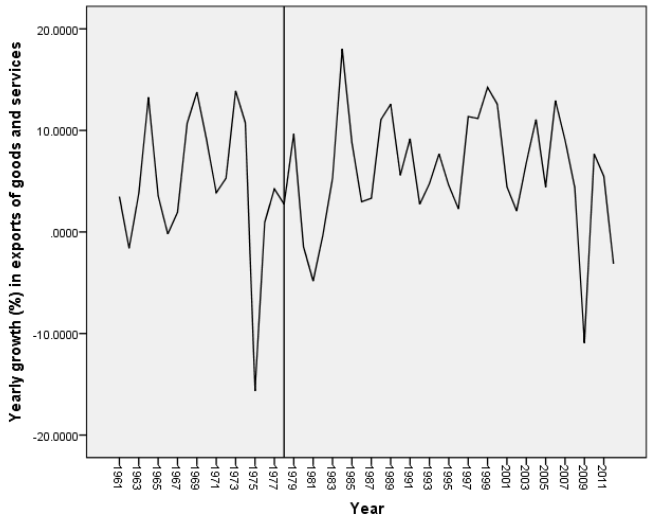
Independent Samples Test

		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.6354232	-9.1633080	-2.5936196
	Equal variancesNot assumed	1.4477040	-8.7971463	-2.9597813

Luxembourg

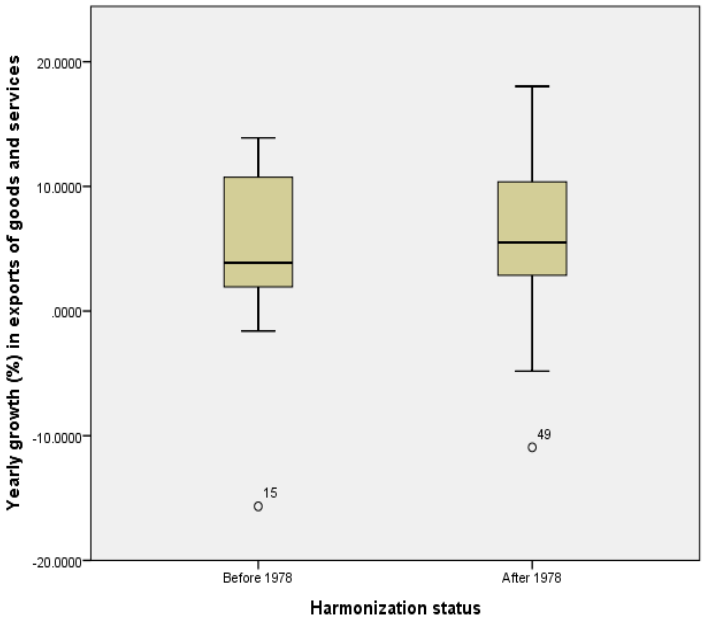
Figure 7 bifurcates Luxembourg's export performance, in terms of % annual growth in goods and service exports, before and after 1978. Figure 8 complements Figure 7 by showing the same data in the form of a boxplot, making it easier to see the difference in Luxembourg's annual rates of growth in goods and services exports before and after 1978. Lastly, the significance of the difference in goods and services export growth rates before and after 1978 was measured by an independent samples *t*-test.

Figure 7. Annual % Growth in Exports of Luxembourgian Goods and Services, 1961-2011.



Note that, at an α of .05, growth was not more rapid before 1978 than after 1978.

Figure 8. Boxplot, Annual % Growth in Exports of Luxembourgian Goods and Services,



Before 1978 and After 1978. The outliers are as follows: 15 = 1975; 49 = 2009.

The mean % growth in Luxembourgian exports of goods and services in 1978 and afterwards was 5.96% (*s* = 5.85), as compared to a mean of 4.77% (*s* = 7.23) before 1978. At an α of .05, variances were equal (*p* = .623) and the difference between pre- and post-1978 means was not statistically significant (*p* = .529).

Table 5. Independent Samples T-Test: Luxembourgian Exports Before and After 1978

Group Statistics

	Year	N	Mean	Std. Deviation	Std. Error Mean
Yearly growth (%) in exports of goods and services	>= 1978	35	5.955813	5.8488211	.9886312
	< 1978	17	4.769589	7.2317797	1.7539642

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
Yearly growth (%) in exports of goods and services	Equal variances assumed	.245	.623	.634
	Equal variances not assumed			.589

Independent Samples Test

		t-test for Equality of Means		
		df	Sig.(2tailed)	Mean Difference
Yearly growth (%) in exports of goods and services	Equal variances assumed	50	.529	1.1862238
	Equal variances not assumed	26.522	.561	1.1862238

Independent Samples Test

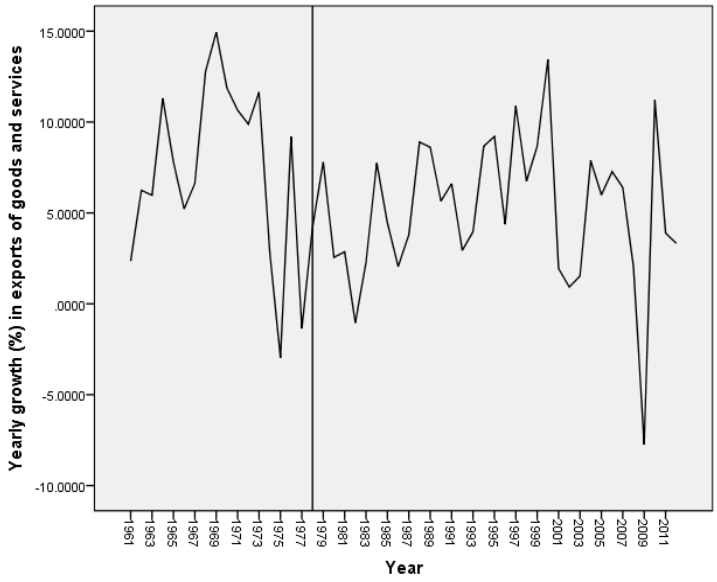
		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.8696466	-2.5690720	4.9415196
	Equal variances notassumed	2.0134006	-2.9484209	5.3208684

The Netherlands

Figure 9 bifurcates the Netherlands' export performance, in terms of % annual growth in goods and service exports, before and after 1978. Figure 10 complements Figure 9 by showing the same data in the form of a boxplot, making it easier to see the difference in the Netherlands' annual rates of growth in goods and services exports

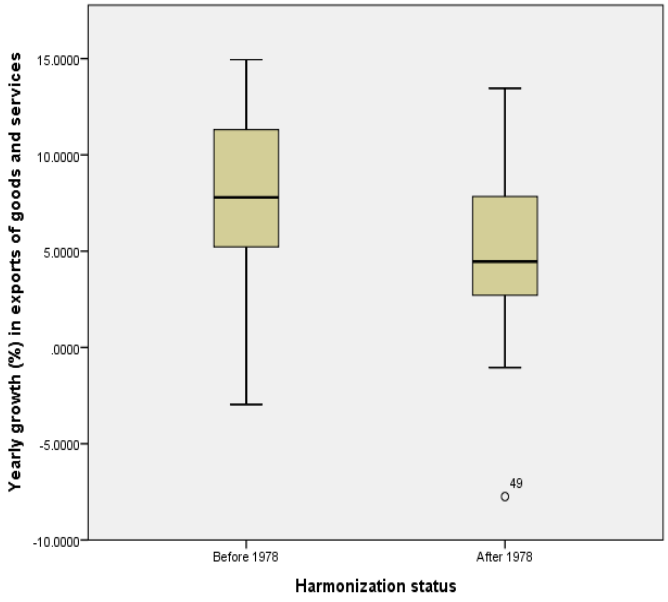
before and after 1978. Lastly, the significance of the difference in goods and services export growth rates before and after 1978 was measured by an independent samples *t*-test.

Figure 9. Annual % Growth in Exports of Dutch Goods and Services, 1961-2011.



Note that, at an α of .05, growth was not more rapid before 1978 than after 1978.

Figure 10. Boxplot, Annual % Growth in Exports of Dutch Goods and Services, Before 1978 and After 1978.



The outlier is as follows: 49 = 2009.

The mean % growth in Dutch exports of goods and services in 1978 and afterwards was 5.14% (s = 3.98), as compared to a mean of 7.35% (s = 5) before 1978. At an α of .05, variances were equal (p = .250) and the difference between pre- and post-1978 means was not statistically significant (p = .091).

Table 6 ***Independent Samples* T-*Test: Dutch Exports Before and After 1978***

Group Statistics

	Year	N	Mean	Std. Deviation	Std. Error Mean
Yearly growth (%) in exports of goods and services	>= 1978	35	5.144401	3.9834301	.6733226
	< 1978	17	7.353513	4.9888919	1.2099840

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.354	.250	-1.726
	Equal variances not assumed			-1.595

Independent Samples Test

		t-test for Equality of Means		
		df	Sig.(2tailed)	Mean Difference
Yearly growth (%) in exports of goods and services	Equal variances assumed	50	.091	-2.2091118
	Equal variances not assumed	26.258	.123	-2.2091118

Independent Samples Test

		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Yearly growth (%) in exports of goods and services	Equal variances assumed	1.2802547	-4.7805791	.3623556
	Equal variances not assumed	1.3847110	-5.0540629	.6358394

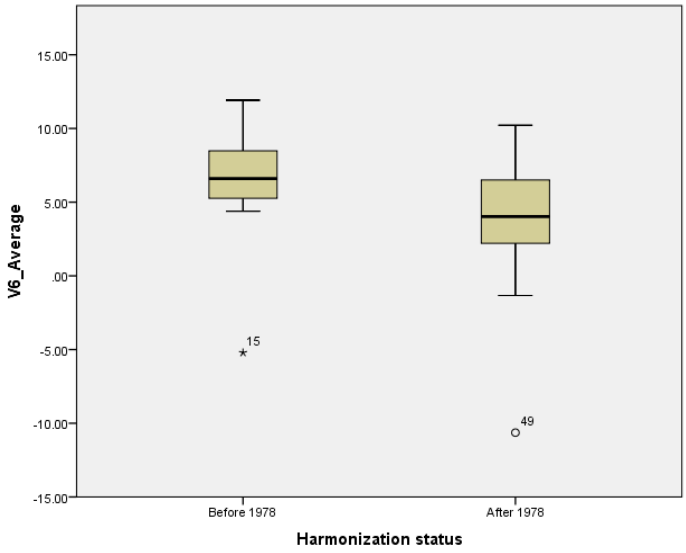
Aggregate Analysis

Finally, analyses were performed on all countries in the sample (Belgium, France, Italy, Luxembourg, and the Netherlands) in order to compare pre- and post-1978 export levels. The results were as follows:

Figure 11. Annual % Growth in Exports of Sample-Wide Goods and Services, 1961-2011.

Note that growth was not more rapid before 1978 than after 1978.

Figure 12. Boxplot, Annual % Growth in Exports of Sample-Wide Goods and Services, Before 1978 and After 1978.



The outliers are as follows: 15 = 1975; 49 = 2009.

Table 7 Independent Samples T-Test: Sample-Wide Exports Before and After 1978

Group Statistics

	Year	N	Mean	Std. Deviation	Std. Error Mean
V6_Average	>= 1978	35	3.8290	3.74397	.63285
	< 1978	17	6.3129	3.64648	.88440

Independent Samples Test

		Levene's Test for Equality of Variances		t-testfor Equality of Means	
		F	Sig.	t	df
V6 Average	Equal variances assumed	.178	.675	-2.263	50
	Equal variances not assumed			-2.284	32.562

Independent Samples Test

		t-test for Equality of Means		
		Sig.(2tailed)	Mean Difference	Std. Error Difference
V6 Average	Equal variances assumed	.028	-2.48391	1.09768
	Equal variances not assumed	.029	-2.48391	1.08750

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
V6 Average	Equal variances assumed	-4.68866	-.27916
	Equal variances not assumed	-4.69758	-.27024

The mean % growth in sample-wide exports of goods and services in 1978 and afterwards was 3.83% (*s* = 3.74), as compared to a mean of 6.31% (*s* = 3.65) before 1978. At an α of .05, variances were equal (*p* = .675) and the difference between pre- and post-1978 means was not statistically significant (*p* = .028).

Discussion and Conclusion

The purpose of this study has been to (a) measure the growth of exports for five of the six core EU founders (Belgium, France, Italy, Luxembourg, and the Netherlands) and (b) relate the adoption of accounting harmonization standards to this growth. The analysis of export expansion presented in this study is not novel; it has long been known that Europe has undergone a significant expansion in trading volumes. However, it is important to keep this long history of trade expansion in mind when understanding the motivation of EU (then EC) to move towards accounting harmonization.

The analysis presented in this paper seems to rule out the idea that accounting harmonization was constantly designed as a response to stagnation in intra-European trade; the opposite effect was observed. What is not yet clear, and what requires further investigation, is whether and to what extent the EC decided to adopt accounting harmonization measures as a trade-related necessity (for example, because the increasing tempo of intra-European trade had bound together the community in a manner that required harmonization for further trade expansion). The analysis of this topic could add significantly to the accounting history of the EU.

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AVRUPA'DA MUHASEBE UYUM ÇALIŞMALARI, 1978 ÖNCESİ VE SONRASI; TİCARET TEMELLİ İSTATİSTİKSEL BAKIŞ AÇISI

İbrahim MERT •

Özet

Bu çalışmanın amacı, merkezi tedarik zinciri yapısına sahip işletmelerde satın alma fonksiyonuna dayalı tedarik zinciri toplam maliyetini optimize etmektir. Bu amaçla farmasötik alanda faaliyet gösteren, kendi üretimini yapan, satın almacı ve tedarikçisini kendi bünyesinde bulunduran bir işletmede tedarik zinciri yıllık toplam maliyetini optimize etmek adına uygulama yapılmış ve farklı tedarikçi kombinasyonlarında satın alma faaliyetleri sonucu oluşan tedarikçi, satın almacı ve tedarik zinciri için ortaya çıkan yıllık toplam maliyetler değerlendirilerek işletme açısından minimum maliyetli durum seçilmiştir. Bu çalışmada, Excel Solver ve Lingo 11.0 programları kullanılmıştır.

Anahtar kelimeler: Merkezi Tedarik Zinciri, Optimizasyon, Satın alma

JEL Kodu: C61

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