

Chapter 1

General introduction

1.1 What is trade facilitation?

1.1.1 Historical background

The term trade facilitation was coined in the late sixties, but its purpose has existed since the beginning of trade. It is still alive and substantial gains remain. Vasco de Gama explorations in search of new trade routes were intended to facilitate trade by reducing distance (Staples, 1998). Since that time, trade facilitation has taken on many new forms. As described by Sengupta (2006), trade facilitation dimensions “*have changed over time as substantive improvements were brought in one area after another*”. Indeed, after a series of improvement in transport had been made, tariffs became the focus of trade facilitation, after tariffs were reduced, non-tariff barriers (such as quantitative restrictions) became the focus, followed by a shift towards other border issues such as the effectiveness of the clearance procedure systems. Current trends in trade facilitation are conducted by the use of Information and Communication Technologies (ICT) and the increasing cooperation between border operators. This movement is supported by several international organizations which aim to enhance international trade, by providing a series of guidelines and arrangements based on best practices as well as a growing number of trade agreements including dedicated provisions. It follows the constant increase of trade flows, the development of just-in-time delivery and the reorganization of production networks (Miroudot et al., 2009) as well as the recent trend in security.

Trade facilitation covers various areas over time according to successive emphases which follow a changing business environment, but also according to the convenience of researchers. What Staples (1998) called “*the plumbing of international trade*” and defined by using a reverse definition¹, encompasses many definitions. Thus, in 1993, the UNCTAD Compendium of Trade Facilitation Recommendations in preparation of the Columbus Ministerial Declaration on Trade Efficiency (1994) reviewed various components, including Customs, transport and transit issues, banking and insurance, information for trade, business practices, telecommunications, human resources development

¹He defined what is not covered by trade facilitation.

and legal issues, while others only refer on a narrower scope. The international community has increasingly studied the impact on trade flows of the lack of efficiency all along the supply chain, which became a higher issue than “classical” tariff barriers. Indeed, today, tariffs are lower than earlier and even more “predictable” than the whole import/export procedure². Since the Singapore Ministerial Conference of 1996, trade facilitation has become the subject of WTO discussions pushing forward trade facilitation developments and stimulating research.

Today, Customs administrations but also related border agencies are under the spotlights. They have to adapt their procedures to a challenging environment by facilitating legitimate trade, without reducing their traditional missions related to security and compliance issues (conformity to standards and regulatory requirements). In addition, they still play a major role in the collection of revenue in many developing countries. Finally, by acting as a focal point, Customs may determine the attractiveness of a country in a global context, what some called “the global village”.

1.1.2 Definition(s) of trade facilitation

As explained previously, various definitions of trade facilitation exist. Some are narrow, focusing mainly on public procedures, while others remain broader, including numerous private issues. In addition, trade facilitation may encompass areas *at* and *behind* the border as well as *soft* and *hard* infrastructures³. However, each trade facilitation definition covers areas where substantial gains remain by minimizing transaction costs and reducing unnecessary regulatory burdens. Several studies reviewed these various definitions of trade facilitation⁴.

The WTO definition is one of the most commonly used. In addition, the current negotiations provide the most agreed upon definition to date, which can be viewed as a baseline definition. According to it, trade facilitation is “*the simplification and harmonization of international trade procedures [including] activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in the international trade*”, Hoekman and Kostecki (2001). As stressed by the last negotiating draft (WTO, 2011), this definition remains restricted to the dimensions which directly depend on public sector involvement. It refers on GATT Articles V, VIII and X which deal with transit issues, formalities, fees and charges, the publication of related laws and the right of independent appeal⁵. The OECD definition presents trade facilitation as the “simplification and standardization of procedures and associated information flows required to move goods internationally from seller to the buyer and to pass payments in the other direction”, and the World Bank follows a broader approach including Customs reforms, regulatory frameworks and standards, but also logistic and infrastructure issues.

²However, some classification and valuation issues remain.

³This expression has been introduced by Portugal-Perez and Wilson (2010).

⁴Such as Staples (1998); UNESCAP (2002); Cosgrove-Sacks and Apostolov (2003); Sengupta (2006); UNESCAP (2008); ADB (2009). It is a non exhaustive list.

⁵The WTO negotiations on trade facilitation are detailed in Chapter 4. The UNCTAD (2005, 2011b), Duval (2006a) or Priya (2010) made a review on the trade facilitation dimensions under negotiation at the WTO.

The UNECE defines trade facilitation as a “comprehensive and integrated approach to reducing the complexity and cost of the trade transactions process, and ensuring that all these activities can take place in an efficient transparent and predictable manner based on internationally accepted norms, standards and best practices”, while the UN/CEFACT relies on “the simplification, standardization, and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payments”. For the Global Facilitation Partnership for Transportation and Trade (GFPTT), it encompasses “any measure, or set of measures, that aims to increase the cost effectiveness of international trade transactions”. APEC considers that “trade facilitation generally refers to the simplification, harmonization, use of new technologies and other measures to address procedural and administrative impediments to trade”. The WCO focuses on the elimination of unnecessary trade burdens by using modern technologies and improving international cooperation. Finally, the International Chamber of Commerce relies on the efficiency of the processes associated with trading in goods across national borders (ADB, 2009).

All definitions refer to a set of “universal” points such as the simplification, standardization and reduction of procedures. The differences lay down in the various components used to break down trade costs. Numerous activities make trade easier but they do not belong to trade facilitation *per se*. Thus, according to Staples (1998), physical infrastructures, non-tariff barriers or trade promotion activities are not part of trade facilitation. For him, “*trade facilitation is technical and detailed by nature*”. It may be referred today as the narrow definition of trade facilitation, as followed by the WTO. However, many researchers adopt a broader approach and include various components such as logistic and infrastructure factors (Wilson et al., 2004; Nordås and Piermartini, 2004; Duval, 2011), or broad proxies of transparency and ICT issues (Helble et al., 2007).

1.1.3 A component of trade costs

Depending on which definition you use, trade facilitation can contribute a small or a large amount to trade costs⁶. As stressed by Arvis et al. (2007), there is a large variety of effects that enable the flow of trade, from tariff and non-tariff barriers, to transportation issues and other considerations such as corruption or institutional costs. Earlier, Anderson and van Wincoop (2004) had shown that trade costs could account for a tax-equivalent of 170% for rich countries, where border-related trade barriers (policy, language, currency, information, security) accounted for 44% and transportation costs for 21%. The movement of goods from the exporter to the ultimate consumer involves numerous transaction costs and these various components should be taken into account in trade facilitation analysis. In addition, any bottlenecks in the trade chain may cancel the benefits of the other links of the chain, particularly in the area of trade facilitation (WB, 2003; Kommers, 2009).

⁶See Anderson and van Wincoop (2004), Jacks et al. (2006, 2011), Pomfret and Sourdin (2010a,b) or Novy (2010) for a review of the trade costs literature.

Transportation costs have still an important impact on trade costs and remain difficult to assess. As stressed by many studies, the impact of geography and particularly, being landlocked, continue to pose substantial difficulties⁷. The impact of distance remains high, despite a series of technological developments. What Disdier and Head (2008) called the puzzling persistence of the distance effect, have many explanations which are further developed in Chapter C in the appendix. As stressed by Behar and Venables (2010), transport costs have many components and are particularly sensitive to networks, reliability and predictability issues. Much of the literature relies on the impact of time and the cost of delays, especially on time-sensitive goods (Hummels, 2001, 2007; Harrigan and Venables, 2004; Evans and Harrigan, 2005; Nordås et al., 2006; Li and Wilson, 2009a; Djankov et al., 2010).

Non-Tariff Measures (NTMs) are closely related to trade facilitation too, as pointed out by the new definition proposed by the UNCTAD (2009) which states that “*non-tariff measures are policy measures, other than ordinary Customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both*”. However, in the “legal language” of the WTO trade negotiations, NTMs such as Sanitary and Phytosanitary Measures or Technical Barrier to Trade, are not dealt as a trade facilitation issue *per se*. Even if data are scarce⁸, several surveys show that NTMs are still important such as Manifold (2002), Donnelly and Manifold (2005), the OECD (2005e), Dee and Ferrantino (2005) or Martinez et al. (2009). Moreover, these surveys stress the importance of Customs procedures which in addition are often classified as horizontal, impacting all products. A recent study of Berden et al. (2009) indicates that even in developed countries there remains huge gains by reducing such measures⁹.

1.2 A global game with various challenges

1.2.1 International bodies

Long before the WTO, numerous international bodies have enhanced the multilateral cooperation between States in matters of trade related standards. As stressed by Hoekman and Kostecki (2001), several organizations related to infrastructure, standards, intellectual property and trade, were in place before 1914. Since then, numerous bodies -public or private- have pursued the harmonization and automation of trade procedures. Many studies provide an extensive review of these bodies¹⁰ which encompass various United Nations bodies, the WCO, the WTO and the World Bank as well

⁷According to Behar (2010), being landlocked increases trade costs by 50%.

⁸The most comprehensive database on NTMs was the UNCTAD TRAINS database, even if it suffers of many issues such as the transparent syndrome. Other inventories of NTMs rely directly or indirectly on concerns or complaints registered by traders such as the EU’s Market Access Database or the United States Trade Representative’s National Trade Estimate. The WTO Trade Policy Reviews (TPRs) combines official information, as collected by the Secretariat and provided by members under review, with concerns of traders expressed indirectly by means of other members’ queries in the review process. Finally, the CoReNTM database of (Martinez et al., 2009) provides a useful assembly of entries gathered from various sources.

⁹Thus, an ambitious scenario of NTM reduction between the USA and the EU would generate short-term real income gains of about US\$ 85 billion and longer-term gains of US\$ 210 billion.

¹⁰Such as ADB (1999), Staples (1998, 2002), Cosgrove-Sacks and Apostolov (2003), Mixe and Lianguang (2004), Orliac (2005), Sengupta (2006), the UN (2008), Kommers (2008, 2009).

as the International Chamber of Commerce, the Global Facilitation Partnership for Transportation and Trade, or the International Maritime Organization. The associations of trade operators, such as the Global Express Association, also contribute to this movement. Many agreements and conventions related to trade facilitation issues have been held by these bodies. Chapter 3 explores such arrangements which encompass some trade facilitation provisions. These organizations also provided dedicated aid programmes to develop trade facilitation policies in developing countries, based on best practices. It was a major concern raised during the WTO negotiations on trade facilitation by the developing countries who were afraid of several implementation costs (Bagai et al., 2004). This led to the aid for trade initiative. According to recent studies such as Helble et al. (2009) and OECD (2009a), trade facilitation seems one of the most efficient programmes¹¹.

1.2.2 Customs and other border agencies

Customs are a focal point in the trade chain. As explained previously, they are under the spotlights today and face a challenging environment (Keen, 2003; Wulf and Sokol, 2005). The following chapters show the heterogeneity of Customs performances around the World, even across the European Customs administrations where, despite common binding rules, we observe some disparities regarding broad and narrow trade facilitation dimensions (Chapter 6). Many factors explain the performance of this administration, from the effectiveness of the Customs policy, to the development of ICT and even the organization of the revenue authorities (Yasui, 2009). However, as stressed by Arvis et al. (2007), Customs performance tends to be better than that of other border agencies¹². Indeed, border issues are not only a matter of Customs diligence, but rely also on other agencies' performance. In addition, as stressed by several reviews, the private sector often attributes some delays to Customs which are directly due to their own operations (such as stock optimization) or other operators inefficiencies such as poor logistic services. These insights have been confirmed by several interviews with Customs officers. It underscores the role of the coordination between border agencies.

Export promotion initiatives, such as trade missions (Head and Ries, 2009) or specific agencies (Gil et al., 2008) provide significant impacts on the participation of firms to international trade. France has developed a wide network of help-desks, from the French Embassy, the Economic Missions or the Chamber of Commerce, to the COFACE, OSÉO and UBIFRANCE which has trade commissions in 47 countries to date (May 2011). According to a recent report of the French Court of Auditors (CC, 2011), almost 15% of the french exporting firms have been actively supported by this network (financial and technical assistance). As stressed by the French case study (section A.3 in the Appendix), french Customs are also active in this area by helping and providing a series of facilities to the major importers as well as recently to SMEs. Despite their great potential, the impact of

¹¹However, according to Delpuech et al. (2010) and Hynes and Hallaert (2010), evaluation reports (and programmes) are not well designed to assess the impact of each programme. Moreover, as explained in section 6.3.2, it is difficult to rely on accurate aid data.

¹²On average, Customs clearance accounts for a third of import time. In addition, as pointed out by Arvis et al. (2010), there is a generally higher level of satisfaction with Customs than with other border agencies.

such export promotion agencies are rarely taken into account in trade facilitation studies, either for definition or technical issues. Indeed, it raises the question of their measurement as well as endogeneity issues¹³. However, it stresses the role of the cooperation between border agencies and economic operators as well as the impact of the availability of information.

1.2.3 Economic operators

Transparency and predictability are key issues for private operators (Engman, 2005b). According to Arvis et al. (2007) *“professionals view the friendliness of border processes primarily in terms of the transparency and the predictability of clearance procedures”*¹⁴. They estimated the impact of unpredictability over logistics costs to 30% of factory price. Many trade facilitation policies aim to reduce such unpredictability by improving information availability (publications, advance rulings, trader involvement), fighting corruption (automation, code of conduct) and being consistent with international standard and conventions. Customs try to run smoothly their procedures too, by favoring pre-arrival information. Transparency is also an important factor for reducing compliance issues which are still a hot topic. Recent studies, surveys (Findlay, 2009; Dios, 2009a) and even compliance reports (Customs, 2009a) show that there remains many issues. Main concerns are related to classification and valuation issues¹⁵. It is confirmed by the review of the European trade facilitation policy done in Chapter 6. Finally, as stressed previously, the cooperation between each border agency and operator is essential, particularly to develop efficient clearance systems, such as the Single Windows concept. The performance of the supply chain depends also on the quality of services delivered by the private sector. That is why, most professionals remain concerned about the quality of physical infrastructure and logistic issues.

1.3 Costs and benefits of trade facilitation

As stressed previously, Customs and administrative procedures are still cited as barriers (OECD, 2005a). Several surveys pointed out the costs of regulation burdens, such as a recent review of Allen (2009) which evaluated that the burden of administering regulation in international trade costs to UK businesses £1.25 billion each year. Many studies have identified various trade facilitation needs across developing countries, such as Ghemar and Iotsova (2004), OECD (2005b,a,d), Moisé (2005), Duval (2006c). The Chapters 4, 5 and 6 show that developed countries also require some improvements, even if their needs are different. If trade facilitation policies generate substantial gains (see below), they also require implementation costs. Moisé (2004, 2005, 2006), and Djankov (2007) have shown that these induced costs may be significant in some cases. Another study of Duval (2006c), based on the replies of private experts who were asked to rank the most important

¹³There is a correlation between the geographic implementation of such agencies and the volume of existing trade flows or specific cultural links, such as former colonial ties.

¹⁴Note that the LPI measure predictability as the dispersion in time to import/export (Delivering on schedule).

¹⁵See Rosenow and O’Shea (2010) for a review of valuation history and methods. Note that even between the OECD countries, it remains differences in this area about the CIF/FOB basis, the availability of information or air transport discount rates.

barriers to the efficient movement of goods, provides additional information on the types of costs and the sequencing of several trade facilitation policies. It appears that Single Windows initiatives, risk management and post-audit policies were the most costly to implement. However, some policies are not so costly such as the availability of information. Moreover, each trade facilitation policy is expected to generate substantial gains in terms of trade, security and even revenue.

Indeed, despite such implementation costs, trade facilitation policies lead to considerable benefits, both for traders and Customs (Hellqvist, 2003). A growing literature has evaluated such gains. A review of past attempts can be found in Staples (1998), Hellqvist (2002), Wilson et al. (2002) or the OECD (2003a). This latter review stressed that trade facilitation components account between 1 and 10% of trade costs, according to the scope and the methodology of the studies. It also underscores the difficulty of comparing over time such studies due to the improvement of ICT and the different methodologies used. In addition to the net gains of trade facilitation policies, there are also costs of “non-trade facilitation”, *i.e.* the costs of being outside the trade facilitating trend, either for countries with poor Customs performances or traders identified as weak links in the supply chain. In this section I review the trade facilitation literature over the last decade, following a chronological order. As the empirical literature relies on various methodologies, I sum up the main points and results in the following table 1.1.

If Maskus and Wilson (2001) addressed some empirical methods and challenges in quantifying the gains of trade facilitation in the area of harmonized regulations, the first attempt to quantify the impact of trade facilitation on trade has been done by Wilson et al. (2003). In a series of papers Wilson et al. (2002, 2003, 2004) studied the environment in which transaction takes place. Thus, they quantified the impact of several indicators such as Port efficiency, Customs environment, Regulatory environment and E-business on trade flows by using a gravity augmented model. In their latter contribution, they show that trade facilitation generates huge benefits (about US\$ 377 billion) and stress the importance of port efficiency. Hellqvist (2002) described the gains of trade facilitation in terms of transparency and predictability, time, business opportunity, security and last but not least, financial gains. Moreover, Hellqvist (2003) stressed that gains are generated by chain effects, with a multiplicative impact. Following the WTO discussions on Trade facilitation, around the availability of information, advance rulings, consultation, and appeal procedures, Moïsé (2002) explored the issue of transparency at the borders. In the same time, in order to support the current negotiations at the WTO, the OECD (2002, 2003b,c,a) provided a series of comprehensive surveys of different costs and benefits estimates about trade facilitation, their studies show that such benefits vary with country-specific differences, sector-specific differences and also trader specific differences. They detailed the composition of transaction costs, between direct and indirect costs. Using a CGE model, they estimated the total gains from trade facilitation improvements (measured as a 1% reduction of transaction costs) to world economy of about US\$40 billion, with no losers.

Then, Kim et al. (2004) proposed a methodology for benchmarking the trade facilitation status in an economy and explored various possible indicators of trade facilitation in order to translate each measure into financial terms. Based on the methodology followed by Wilson et al. (2004), they find that an improvement of trade facilitation components by 10% could boost intra-APEC imports from 0.5% to 1.5%, according to the area¹⁶. Moïsé (2004, 2006) explored the costs of implementing trade facilitation policies (based on the WTO definition) and stressed that countries face different situations and present various implementation capacities. The OECD (2005b,a) studied the importance of non-tariff barriers and stressed that customs and administrative procedures are still an important trade impediment. Engman (2005a,b) reviewed a series of Customs issues such as unnecessary delays. He showed that trade facilitation has a significant positive impact on trade flows as well as on the collection of trade taxes and FDI. He also studied the different types of Customs fees and noted that they were often disconnected to the cost of the services rendered. The same year, the OECD (2005c) reviewed the impact of ICT on trade facilitation through the level of automation in WTO members. Finally, by studying the experience of four developing countries, Moïsé (2005) showed that reducing inspection rate lead to higher revenue collected by Customs authorities.

As the WTO negotiations on trade facilitation progressed, Finger and Wilson (2006) reviewed some implementation issues and Duval (2006a,b) provided a seminal work on compliance costs and sequencing issues related to trade facilitation dimensions based on the WTO framework. He also studied the role of trade agreements (Duval, 2007, 2011), focusing on the issues of rule of origin and Customs valuation. The same year Fliess and Busquets (2006) pointed out the SMEs constraints and stressed the role of the border agencies in assisting them and enhancing cooperation with traders. If the literature relied mainly on case studies and surveys, a new series of empirical papers, mainly gravity based, were provided since. Thus, Iwanow and Kirkpatrick (2007) using a broad definition of trade facilitation¹⁷ showed that a 10% improvement in trade facilitation would generate an increase in exports of about 5%. They also underlined the need of complementary policies. Using the new metrics provided by Doing Business, Wilson (2007a) examined the impact of trade procedures and delays¹⁸. He showed that a reduction of 1 to 4 days at the border could lead to an increase up to 10% of trade. Helble et al. (2007) explored transparency which is a common dimension of trade facilitation measures. They proposed a way to measure it and showed that improving it in APEC economies can lead to 7.5% increase in intra-regional trade¹⁹. While Hoekman and Nicita (2008) showed the importance of non-tariff measures in the distribution of trade by using an augmented gravity model including the World Bank's Logistic Performance Index, Doing Business indicators and a Trade Facilitation Index based on secondary sources, following the Wilson et al. (2003) methodology. They found that the quality of the regulatory environment matters for trade performance with an important part played by the Trade Facilitation Index. Albuero and Yi-Xun (2008) reviewed the

¹⁶Customs procedures (0.5%), standards and conformity (0.6%), business mobility (1.1%), and information and communication technology (1.5%).

¹⁷Note that in addition to the traditional indicators they build a business regulatory index.

¹⁸He also introduced a weighted distance with time in its model.

¹⁹They use factor analysis to generate indicators.

European and American integrated border management and pointed out the role of coordination to facilitate trade. A compilation of the most recent research of this period was provided by the UNESCAP (2008) and Moisé (2009a).

More recently, Duval and Utoktham (2009) underline that achieving similar performance levels across the range of trade and business facilitation dimensions could significantly increase trade competitiveness. They find that a 5% increase of trade facilitation performance could increase trade by 4 to 7%, according to the area. Shepherd and Wilson (2009); Shepherd (2010) show that ASEAN countries should improve their trade facilitation efforts on non-tariff trade costs. They also stress the need to develop clearer metrics against which progress can be assessed. They show that improving port facilities in the region could increase trade by up to 7.5% (US\$ 22 billion). Lesser and Moisé-Leeman (2009) stress the impact of trade facilitation on informal trade by diminishing the costs of formal trade and enhancing compliance levels. The research on trade facilitation has also been oriented toward SMEs particularities. Thus, Yang (2009) studies the impact of trade facilitation policies and particularly ICT on SMEs in Korea, showing that SMEs face various implementation issues regarding IT programmes. This ambiguous impact of IT on SMEs is also noted by Wijayasiri and Jayaratne (2009), Chaturvedi (2009), Hossain et al. (2009), Dios (2009b), Alburo (2010) even if it remains huge potentials for SMEs²⁰. Based on the World Bank Enterprises Surveys, Li and Wilson (2009b) show that trade facilitation increases the probability that SMEs export and point out the importance of the “soft” part of trade facilitation. Weerahewa (2009) and Ramasamy (2010) study the impact of trade facilitation using traditional indicator in a gravity models, pointing out the importance of ICT and several differences across raw indicators. In a case study on India, De (2011) uses a Business Process Analysis (BPA) and argues that bottlenecks in domestic transportation and customs clearance are key issues. In addition, these new case studies provide new insights such as the variable attitude of the official deployed for the custom clearance or the laboratory issues. Kharel and Belbase (2010) explore the impact of trade facilitation on landlocked developing countries and show that trade facilitation could generate benefits. Another group of studies investigate the impact on homogenous and differentiated products (Márquez-Ramos and Martínez-Zarzoso, 2008; Dat and Tien, 2010), while based on the methodology of Dennis and Shepherd (2007), Persson (2010) investigate the issue of the extensive/intensive margin by counting the number of exported products for differentiated and homogeneous. Persson find that a reduction of 1% of transaction costs would increase the number of exported differentiated goods by 0.7% and homogeneous products by 0.4%. Persson and Bourdet (2010) also study the impact of trade facilitation in the European Union through the “true” completion of the EU Customs Union. Finally, Moisé (2011) provides new insights on transparency mechanisms and Non-Tariff Measures.

²⁰See Alburo and Duval (2010) for a compilation on IT issues.

Table 1.1: Review of empirical studies on trade facilitation over the last decade

Papers	Geo Cov.	Time Cov.	Sector(s) Cov.	Rauch	TF Def.	TF Sources	RTA	Tariffs	Zero*	Robust Std. Err.	Panel FE/RE	Rem. FE/RE	Impact of TF improvement(s) on trade
Wilson and al. (2004)	75	2000	SITC, 1-digit (cat. 5 to 8**)	no	Broad	GCR	yes	yes	OLS	no	no	no	(1) add \$377.06 billion (+9.7%)
Kim and al. (2004)	15 (APEC)	1988-1999	<i>na.</i>	no	Broad	GCR	yes	yes	GLS	yes	yes	RE	(2) boosts intra-APEC imports between 0.5 and 1.5%
Wilson N. (2007a)	<i>na.</i>	2004	SITC (cat. 07, 65, 84)	no	Broad	DB	yes	no	OLS?	no	yes	FE	(3) increase trade flows by 10%
Iwanow and Kirkpatrick (2007)	78	2000-2004	SITC Rev.2 (cat. 5 to 8**)	no	Broad	GCR, DB, Kauffman	yes	yes	Heckman	yes	yes	Rem. FE	(2) raises manuf. exports by 6%
Helble and al. (2007)	APEC	2004	HS 2-digit	yes	Broad	LPI, DB, GCR, UN E-Gov	no	yes	PPML	yes	no	FE	Improving transparency add \$148 billion (+7.5%)
Dennis and Shepherd (2007)	118	2005	HS 2-8 digits	no	Broad	DB	no	yes	OLS+PPML	yes	no	FE	(4) with an export diversification gain of 0.3% or 0.4% respectively.
Hoekman and Nicita (2008)	104-115	2006	HS 6-digit	no	Broad	DB, LPI, WCY	no	no	PPML	no	no	Rem.	(5) Increases imports by 12.6%
Li and Wilson (2009b)	Asian			no	Broad	WBES			Probit			FE	Predictability and ICT are the most effective measures for SMEs
Duval and Utoktham (2009)	37	2006	no	no	Broad	BD, BtB	no	yes	OLS	no	no	no	Improved TP by 5%
Shepherd and Wilson (2009)	12 (Asian)	2000-2005	BEC 1-digit	no	Broad	GCR, DB	no	yes	OLS	yes	yes	FE	Port facilities could expand trade by up to 7.5% or \$22 billion.
Weerahewa (2009)	Asian	2005	HS cat. 1-24	no	Broad	GETR	yes	no	OLS	yes	no	no	(6) decrease trade costs by 17%
Kharel and Belbase (2010)	26 (LLDCs)	2008	SITC cat. 6	no	Broad	LPI, Kauffman	no	yes	OLS	yes	no	FE	(7) of LLDCs and transit countries increase exports by 3% and 1% various impacts of TFIs according the type of good
Dat and tien (2010)	East Asia	2006-2008	HS 4-digit	yes	Broad	DB, GCR	no	yes	HMR	yes	yes	Taylor	(8) would rise by 0.7% and 0.4% the number of exported products
Persson (2010)	EU25	2005	CN 8-digit	yes	Broad	DB	no	yes	OLS+PPML	yes	no	Rem.	Complete the EU customs union increase exports by 20%
Persson and Bourdet (2010)	EU27	2006-2008	no	no	Broad	DB	no	no	PPML	yes	yes	FE	natural (time-invariant) and non-tariff policy-related trade cost
Duval and Utoktham (2011)	92	2004-2007	no	no	Broad	LPI, UNCTAD, GETR	no	yes	OLS	yes	yes	FE	

All papers rely on gravity specifications with traditional core variables. They could encompass various specifications and robustness checks TF stands for Trade Facilitation, FE for Fixed Effect, RE for Random Effect, Rem. for Remoteness, and Taylor for Taylor's series for bilateral resistance. Data sources are detailed in chapter 2. Time coverage could include TF variables from different date according to their availability.

* Specification used to take into account of zero trade flows (OLS means that it is not taken into account)

** Except category 68

(1) Bring Below-Average Members Half-way up to the Global Average

(2) Improved TF by 10%

(3) Reduce time at the border by 1 to 4 days

(4) 1% reduction in the cost of exporting or transport is associated

(5) Convergence by low income countries to middle income average (TFI)

(6) Improving trade costs and time delays in South Asian countries up to the average values of best performer

(7) A 1% improvement in the LPI score

(8) A decline by 1% of transaction costs

Duval and Utoktham (2011) gave an important contribution to future trade facilitation research providing insights on the impact of trade facilitation components on a comprehensive measure of the non-tariff policy related trade costs in ASEAN countries. They show that access to information and communication technology facilities is essential to reducing trade costs. Finally, some researchers are started to study the effectiveness of aid for trade facilitation following the aid for trade initiative (OECD, 2009a; Helble et al., 2009; Hoekman and Wilson, 2010; Cali and te Velde, 2011). It appears that trade facilitation is one of the most effective and useful programmes.

Beyond surveys and general reviews, two models are commonly used by researchers to evaluate the impact of trade facilitation on trade flows and trade costs: the gravity model and the Computable General Equilibrium (CGE) model. Each model has its advantages and disadvantages: the gravity model is favoured for its simple data requirements while GCE models are more powerful for analyzing direct and indirect long run effects of policy measures. Whatever the theoretical framework of the model, the quality of the outcomes crucially depends on collecting good data. The gravity model is described in Chapter 4 and its widely used due to its simplicity. It usually relies on the Anderson and van Wincoop (2003, 2004) specification. This broader approach breaks down trade costs into various components and estimates their impact on trade. Recently, following the seminal work of Novy (2008) and Chen and Novy (2009), several studies have evaluated a comprehensive measure of trade costs (Miroudot et al., 2010) and the impact of trade facilitation on it (Shepherd, 2010; Duval and Utoktham, 2011). This measure of trade costs is theory-based and goes beyond the direct calculation of trade costs as calculated by Pomfret and Sourdin (2009, 2010a,b), by using cif and fob data. The CGE models, as used by the OECD (2003a), Francois et al. (2003) or recently Zaki (2010), are well suited “*to capture the full flavor of causal linkages*”, Minor and Tsigas (2008). However, they encompass several limitations. The models do not include specific trade facilitation components. Rather the shocks induced are associated with technical progress in transport sector, an increase of productivity or an iceberg parameter between fob and cif prices. In addition, some studies may refer to gravity estimates of ad-valorem equivalent of trade facilitation dimensions.

As showed in table 1.1, the majority of study rely on gravity analysis. However, the methodology adopted in each paper varies on several points. Firstly, the definition of trade facilitation is more or less broad (even if never narrow), covering *at* and *behind* the border measures. In addition, the trade facilitation indicators are not the same even if they are often based on the same providers, *i.e.* the Global Competitiveness Report, Doing Business or the Logistic Performance Index. Secondly, some papers refer only on aggregated trade flows whereas it seems that the impact of trade facilitation varies across sectors. Moreover, adopted sectors vary across studies. Thirdly, the econometric methodology differs by using various “augmented” variables²¹ and estimation techniques. Thus, some studies refer on panel analysis and others on cross section, while some issues such as zero trade flows, bilateral resistance, colinearity or endogeneity are not taken into account in the same way.

²¹In addition to distance, augmented gravity models include a series of traditional variable such as contiguity, language, RTAs, tariffs, colony ties...

Fourthly the counterparts also rely on various scenarios. Last but not least, the availability of data leads to various hypothesis²², and each study covers a different set of countries and period. All these issues make comparison difficult.

1.4 The remainder of the thesis

There are various definitions of trade facilitation and therefore, many ways to measure it. The first issue when studying trade facilitation is to establish an agreed upon definition and to access of reliable and accurate data. In the past decade, several indicators have been created in order to assess the development, needs and impacts of various components of trade facilitation. Researchers, but also governments, can choose from numerous indicators or proxies when measuring trade facilitation. However, not all of these measures encompass the same dimensions of trade facilitation. In fact, even the indicators which aim to measure the same area, *e.g.* time to import, have different assumptions and can provide conflicting results when analyzing their impact on trade facilitation policies.

Chapter 2 explores these main traditional indicators of trade facilitation, and details some of their key assumptions and limitations. It also covers some specific tools, such as Customs reports or Time Release Studies, which are particularly useful to provide precious insights on the narrow definition of trade facilitation, despite their limited geographical scope.

Chapter 3 studies the main international agreements related to trade facilitation. A growing number of arrangements include trade facilitating provisions either under trade agreements, conventions, or guidelines. This information is rarely taken into account in gravity models, even if many trade facilitation areas rely on such international arrangements. I build a series of databases which can be used in gravity models or to create dedicated indicators.

Chapter 4 aims to fill a gap in the literature by evaluating the impact on trade of the narrow components of trade facilitation. Several studies have explored the broad dimensions of trade facilitation, but only few rely on the narrowest approach of trade facilitation. Beyond the seminal work of Duval (2006c), I construct a composite indicator of trade facilitation which encompasses the different components under negotiations at the WTO. These Trade Facilitation Indicators (TFIs) are drawn on ninety-nine variables and cover twenty six OECD countries. Undertaken at the OECD with Evdokia Moïsé, this work provides several insights on trade facilitation issues related to public prerogatives and aims to become a baseline standard to measure *narrow* trade facilitation performance. First, it underlines that several disparities remain across OECD countries and even across the EU Members. Second, it shows that information availability, advance rulings and formalities have an important impact on trade. Third, it confirms the impact of these dimensions on trade costs using the recent development of Novy (2008). Fourth, it stresses that the impact of trade facilitation varies across

²²Different tricks are used, such as making average, dropping variables (and so maybe a crucial information), or supposed constant a variable for “empty” years, etc.

sectors, being stronger under the manufacturing sectors.

Chapter 5 provides an overview of trade facilitation performance around the world using the questionnaire developed by the Global Exchange Association (GEA). Regarding the TFIs, these surveys which follow closely the framework of the WTO negotiations, increase the geographic coverage as well as variability of trade facilitation proxies across Customs administrations. This world review points out some major differences between the developed countries and the developing countries, and underlines the necessity to extend the TFIs to a larger set of countries. For that purpose, I propose two extended indicators drawn from the GEA data. The first indicator follows the restricted Customs Services Index created by the Global Enabling Trade Report. This indicator seems consistent with various traditional indicators but covers complementary dimensions. The second indicator, the Extended Trade Facilitation Indicator, is an extension of the TFIs. I suggest several new proxies to develop it in a simple way, including question specific to the GEA questionnaire. However, these new TFIs may require reshaping vis a vis the original OECD TFIs.

Chapter 6 explores the effectiveness of Customs administrations across the European Union and studies the trade facilitation policies of the EC. Despite the fact that the European Union is one of the most developed regions in terms of trade facilitation policies, has a leading role in WTO negotiations, and has common and binding border regulations among its Members, many disparities between members' Customs administrations remain. This can be attributed to differences in trade patterns, implementation schedules, political will or Customs efficiency. The study of the European characteristics has also underlined a series of trade facilitation components such as compliance issues, appeal mechanisms, advance rulings or the recent security issues, and showed that the EU Customs administrations are still in fierce competition with each other to be the most attractive place to traders. The impact of such a lack of uniformity on several trade facilitation components is a hot topic for the Commission that has recently launched a programme to assess the trade facilitation performance at each border of its Member States. However, it should be noted that even within single countries, these disparities can still be observed. Therefore the discussion of trade facilitation policies should consider the multitude of Customs in each country and not simply refer to each country as a single Customs administration. Finally, I give some insights to evaluate the European trade facilitation performance.