The EU's Reform in Rules of Origin and International Trade: Evidence from Cambodia[†]

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Abstract

The European Union (EU) introduced the Everything But Arms (EBA) initiative in 2001 to grant duty-free quota-free access to exports in least developed countries. Since stringent rules of origin (ROO) discouraged exports to EU requesting preferential access, the EU simplified the ROO in 2010. Exploiting the EU's reform as a natural experiment, I estimate the causal effect of simple ROO on garment exports in a beneficiary country, Cambodia, and consequent impacts on imported intermediate input and inward foreign direct investment (FDI). I adopt a difference-in-differences method and provide evidence to support the parallel trends assumption. I find that garment exports from Cambodia to EU markets increased by 112% after 2011. Textile imports from China and inward FDI in garment industry increased sharply after 2011. Thus, the EU's reform produced substantial impacts on trade and FDI in Cambodia.

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1. Introduction

Preferential trade access to developed economies helps to promote export industry in developing economies. By reducing duties on import in developed economies in favor of developing economies, trade preferences may increase export earnings and investment, thereby contributing to poverty reduction and sustainable development. Since the Generalized System of Preferences (GSP) had been introduced in the 1970s, the GSP programs were considered to produce uneven effects on export success in favor of richer developing economies (Brenton, 2003). To support least developing countries (LDCs), the European Union (EU) introduced the Everything But Arms (EBA) initiative in 2001. However, expected benefits were not fully realized at the outset. In 2001, exports to EU from EBA beneficiary countries were 6.18 trillion EURO, but exports to EU requesting preferential access were merely 4.20 trillion EURO. Only 68.0% of exports from EBA beneficiaries requested duty-free access (EUROSTAT).[1]

Stringent rules of origin (ROO) in the EU GSP had been considered as a key reason for the low utilization rate of trade preferences. The cost of complying with the origin requirements may exceed the benefit of using preferential access for the restrictive use of imported inputs from the lowest-cost third countries and the administrative costs of proving origin (Brenton and Manchin, 2003). In 2003, the European Commission (EC) launched consultation processes on origin requirement issues to assess various interests at stake from EU members, private sectors, industry associations, and civil society. Following a series of internal debates with stakeholders, the EC adopted a new regulation to simplify the ROO for the EU GSP on November 18, 2010. The new regulation came into effective on January 1, 2011. Consequently, exports from EBA beneficiaries to EU requesting preferential access increased substantially from 9.41 trillion EURO in 2010 to 13.3 trillion EURO in 2011, with a sharp increase in the utilization rate from 84.3% to 93.7%.

In this paper, I seek to assess the effects of the EU's reform on trade and direct investment in a beneficiary country by addressing three interrelated questions. (i) Do simply ROO has a causal impact on exports to the EU markets? (ii) What is the consequent impact on imports of intermediate inputs? (iii) How did the reform affect inward foreign direct investment (FDI)? These questions are critical to assess the policy objectives in preferential trading arrangements (PTA) because preferential market access is aimed to support developing economies to integrate into the world trading system (Cadot and de Melo, 2007). However, there is limited empirical work to assess how simple ROO in trade preferences promote trade and investment in LDCs. Based on a rigorous econometric framework, this paper provides a formal assessment on the role of ROO in determining the economic effects of PTA on the beneficiary country.

[1] Using the Eurostat data, I aggregate the import of good for final use in the EU eligible for GSP/preferential tariffs from EBA beneficiary countries except for Myanmar and calculate a share of the import actually entered under preferential regimes.

To examine these questions, I focus on garment exports because knitted and woven garments are major export products from EBA beneficiaries to EU markets. For instance, these products accounted for 61.0% of the total exports to EU requesting preferential access in 2010. Moreover, I focus on Cambodia for analysis because the previous ROO would be restrictive for garment exports in Cambodia. In general, the EU GSP rules of origin before the reform stipulates that garment producers in Cambodia must use domestically produced fabric and/or imported fabric from EU/ASEAN countries in certain conditions to qualify for duty-free access to EU markets. Meanwhile, garment producers used mainly imported fabric from China, Hong Kong, Taiwan, and South Korea because domestic textile production was severely limited (Asuyama et al., 2013; Bargawi, 2005; Yamagata, 2006). Under the new ROO, the use of imported fabric produced anywhere was allowed for garment products originating in Cambodia. Because fabric manufacture is not required, the origin requirement was relaxed from two-stage processing to one-stage processing (UNCTAD, 2013). These changes in origin requirements imply significant implications for garment exports in Cambodia. Additionally, the reform processes of origin rules applicable to EU GSP suggest that Cambodia had no direct influence in determining specific revisions in the EU ROO. The reform can be reasonably taken as an exogenous policy change in origin requirements for garment exporters in Cambodia. Thus, the EU's reform provides an ideal natural experiment to identify the causal effect of simple ROO on exports in Cambodia.

My empirical strategy is to adopt a difference-in-differences (DD) method based on a standard gravity model of international trade. For identification, I exploit two sources of variations in garment exports: (i) a difference between exports to EU markets (treatment groups) and exports to non-EU markets (control groups); (ii) a difference in exports before and after the EU's reform in 2011. By comparing changes in exports to EU markets before and after 2011 with changes in exports to non-EU markets before and after 2011, I seek to identify a causal effect of simple ROO on garment exports. The identification for the DD method relies crucially on the assumption that both exports to EU markets and to non-EU markets would exhibit parallel trends in the absence of the reform. Without the reform, export trends would need to move in tandem between treatment and control groups. To assess this assumption, I describe garment export trends for treatment and control groups. In the pre-reform period before 2011, both treatment and control groups exhibit similar export trends. After 2011, the treatment group shows a sharp increase in the export trend whereas the control group does not exhibit any apparent change in the export trend. Thus, the graphical evidence supports the validity of the parallel trends assumption for identification.

To shed light on consequent effects of export expansion driven by the EU's reform, I also examine imported intermediate inputs and inward FDI in Cambodia. In the wake of the reform, garment producers in Cambodia could use imported fabric from any market to qualify for preferential access to EU markets. As described in Natsuda et al. (2010) and Staritz (2011), China

is a key import market for yarn, fabric, and accessories used for garment production in Cambodia. This suggests that the reform could bring about a large expansion of sourcing from highly competitive textile industries in China. To examine this implication, I describe a change in imported textiles in Cambodia and estimate the extent to which textile imports from China increased after 2011.

In terms of investment effects, the EU's reform may encourage foreign investors in a garment sector, but discourage those in a textile sector. The reform improved input sourcing flexibility for garment manufacture in Cambodia to benefit from preferential market access. As discussed in Krishna (2006), the removal of the binding ROO allows producers to use the best mix of inputs to minimize the level of production costs. A decline in the unit cost of local production may strengthen an incentive for foreign investors to produce garment products in Cambodia. On the other hand, the improved sourcing flexibility implies that locally produced textiles need not be used to qualify for preferential access. While the binding ROO provided an incentive for local textile production, the removal of the origin requirement should weaken an incentive for foreign investors to produce textile inputs in a local market. Thus, I predict that inward FDI flows after 2011 would increase for the garment sector and decrease for the textile sector.

Main findings are summarized as follows. First, the total export in knitted and woven garments to the EU markets increased significantly by 112% after 2011. Focusing on the major EU markets, the result shows an increase in garment exports by 219%. Robust to alternative specifications, the results support the positive causal impact of the EU's reform on garment exports in Cambodia. The identification of the causal impact is supported by the graphical assessment of the parallel trends assumption for export trends in treatment and control groups. I also show that redirection of exports to non-EU markets would not account quantitatively for the export expansion driven by the EU's reform. Second, textile imports such as yarn and fabric from China increased significantly by 90% after 2011. The result is consistent with the hypothesis that simplifying ROO in the EU GSP encouraged the use of intermediate inputs imported from third markets to qualify for preferential market access. Additionally, FDI inflows in a garment sector increased by 153% after 2011, whereas FDI inflows in a textile sector decreased by 68%. These results support the hypothesis that greater flexible sourcing to obtain preferential access improves an investment climate for foreign investors in the garment sector, but removes an incentive for foreign investors to engage in local textile production. Taken together, the EU's reform in ROO brought about a substantial impact on international trade and inward FDI in Cambodia.

This paper contributes to related literature in several manners. Prior work on a relationship between ROO and trade flows is closely related to this paper.[2] Augier et al. (2004) exploit the Pan-European Cumulation System (PECS) in 1997 as a natural experiment to estimate the impact of greater sourcing flexibility on textile exports in the southern Mediterranean countries. Augier et al. (2005) adopt a DD method to examine whether the introduction of cumulation rules affects bilateral trade flows in manufacturing and intermediate goods. Additionally, Andersson (2016) exploits the introduction of southern Mediterranean countries in the PECS for the middle 2000s to investigate the impact of better access to foreign intermediate inputs on final-goods export in the southern Mediterranean countries. These studies generally show that more liberal ROO promote trade flows. A plausible concern in these studies is an endogeneity issue because countries and industries with greater economic interests could influence an institutional change in rules of cumulation, which may lead to the overestimated impacts of cumulation rules. By contrast, I argue that Cambodia had no direct influence in the reform processes of origin rules applicable to EU GSP, which enables me to consider the EU's reform as an exogenous policy shock to garment exports in Cambodia. By addressing the endogeneity issue due to a change in ROO, I can identify a causal effect of ROO on trade flows.[3]

An alternative approach in the literature is to measure the restrictiveness of ROO as a categorical index (Estevadeordal, 2000; Estevadeordal and Suominen, 2004). Such an index is constructed at the product level based on the origin-conferring criteria such as change in tariff classification, a regional value content, and technical requirements, with the larger values indicating more stringent origin requirements. Based on this approach, Anson et al. (2005) shows that the ROO index correlates negatively with trade flows. Extending this approach, Conconi et al. (2019) show that the NAFTA ROO on final goods decreased the growth rate of intermediate inputs in Mexico from third countries relative to NAFTA partners. However, Inama (2009) points out difficulties in quantifying the restrictiveness of specific origin requirements because similar drafting styles of rules may imply considerably different levels of restrictiveness for actual production. Specifically, the specific origin requirements may be restrictive for exporting countries that rely heavily on imported inputs, but may be unrestrictive for other countries with extensive domestic supply chains. As compared with these works, I examine a clear change in the origin requirements from two-stage processing to one-stage processing for garment production in Cambodia, where the previous origin rules were binding for limited domestic supply chains. By

[2] Inama (2009) provides a comprehensive account of ROO issues from both academic and policy perspectives. Cadot et al. (2006) provide a collection of related papers on ROO issues in regional trade agreements.

[3] Curran and Nadvi (2015) argue that a change in ROO was a key reason for a sharp increase in garment exports from Bangladesh to EU after 2011. However, their analysis is limited to descriptive statistics.

focusing on garment ROO, this paper does not suffer from possible measurement errors inherently involved in mapping the complex origin-conferring criteria into the categorical index.

My empirical strategy exploiting a change in ROO is similar to the analysis in de Melo and Portugal-Perez (2013), but differs in an important dimension.[4] Specifically, they exploit a difference in ROO between U.S. and EU preferential regimes during the period 1996-2004; some African countries could use fabric of any origin to obtain preferential treatment under the U.S. Africa Growth Opportunity Act (AGOA), but must meet double transformation for preferential access to the EU.[5] However, it is well known that Asian firms made substantial direct investment in African countries to access the U.S. market under the AGOA (Lall, 2005; Phelps et al., 2009). By sourcing inputs from Asia, they export the large volume of simple garment products to improve manufacturing efficiency (Morris and Staritz, 2014). This implies that the difference in preferential regimes may induce an endogenous export response in garment products across exporting countries and destination markets, suggesting that African exporters to the U.S. market may not be a valid control group for counterfactual African exporters to the EU markets. In contrast, I focus on aggregate garment exports in Cambodia to examine a change in ROO under the EU EBA. This research design alleviates a possible endogeneity bias arising from a comparison of different exporters under different preferential regimes.

Taken together, the main contribution of this paper is to identify a causal impact of ROO on trade by exploiting the EU's reform as a natural experiment. My empirical strategy helps to alleviate an endogeneity bias in ROO arising from a political-economy motivation of ROO changes and a measurement error in quantifying the restrictiveness of ROO. Additionally, I extend the literature by demonstrating that the export expansion driven by simple ROO has consequent impacts on intermediate input imports and inward FDI flows in a beneficiary country. Thus, this paper presents credible evidence from Cambodia to assess the policy objectives in PTAs granted by developed countries for development.

The rest of this paper is organized as follows. Section 2 presents background on the EU's reform in ROO, including the EU's trade preferences, the reform processes in ROO for the EU GSP, and implications for garment exports in Cambodia. Section 3 provides an empirical framework to estimate the impact of the EU's reform in ROO on exports. Data sources are also explained. In section 4, I describe export trends in treatment and control groups to check a parallel trends assumption for the identification in a DD method, followed by the main estimation results and robustness checks. Section 5 discusses the impact on imported intermediate inputs for

[4] Hayakawa (2019) exploits relaxing ROO for knitted garments in 2015 under the Japanese GSP to investigate the impact on a share of import flows entered in Japan under multiple preference regimes.
[5] Related studies such as Frazer and Van Biesebroeck (2010) and Ito and Aoyagi (2019) estimate the impact of duty-free access on imports in the U.S. and Japan, respectively. However, they do not explicitly analyze origin requirements.

garment manufacture in Cambodia. Section 6 discusses the impact on inward FDI in Cambodia. Section 7 concludes.

2. Background

This section presents a brief summary of the EU GSP and the origin-conferring criteria for preferential market access. The EU's reform processes in ROO are reviewed to summarize major changes in the EU GSP. Finally, I discuss implications of the reform for garment export in Cambodia.

2.1. The European Union's Trade Preferences

The EU has unilaterally granted developing countries with preferential access to EU markets under the EU GSP since 1971. The provision of preferential market access aimed to promote sustainable development and good governance in developing countries through international trade. To be consistent with a multilateral trading agreement, the GSP was introduced under the Enabling Clause, which allows an exception to the Most-Favored Nation (MFN) principle in the WTO law.

The EC describes three PTAs under the EU GSP as of December 2015 (EC, 2016).[6] First, the standard GSP grants low or lower-middle income countries with duty reductions for 66% of all EU tariff lines. Second, the special incentive arrangement for sustainable development and good governance, the so-called 'GSP+', grants duty-free access in the same 66% tariff lines as the standard GSP for countries with vulnerable economic structures. Beneficiary countries are in return required to follow international conventions such as human and labor rights, environmental protection, and good governance. Third, the EBA arrangement was introduced in 2001 to grant LDCs with duty-free and quota-free access for all tariff lines except for arms and ammunition.[7] Brenton (2003) highlights that trade preferences under the EBA are granted for an unlimited period and not subject to periodic review, thereby substantially improving the certainty of preferential market access for beneficiaries.

While preferential trade access is given only to products originating from beneficiary countries, it may cause trade deflection in which products originating from non-beneficiary countries are transshipped to EU markets through beneficiary countries. Traders can avoid the payment of higher tariffs imposed on products originating from non-beneficiary countries. To prevent such trade deflection, preferential arrangements stipulate the conditions under which a product must meet to qualify for preferential access. ROO are established to address a legitimate

[6] In addition to the GSP regime, the EU has granted trade preferences to African, Caribbean, and Pacific (ACP) countries and Mediterranean countries. See Persson and Wilhelmsson (2016) for a brief review of these regimes.

[7] Liberalization came into effect immediately except for gradual reductions to zero tariffs for bananas in 2006 and for rice and sugar for 2009.

concern of the trade deflection.

Under the EU GSP, there are general conditions to determine origin of products (UNCTAD, 2013). First, products wholly obtained in a beneficiary country are considered as originating in the country. Examples include mineral products extracted from its soil, plants and vegetable products grown there, and live animals born and raised there. Wholly obtained products are produced without using imported input. Second, if products are manufactured using imported inputs, these non-originating materials must be sufficiently worked or processed to satisfy origin-determining criteria. Origin-determining requirements for not wholly obtained products are in general based on change of tariff heading, addition of domestic value, and specific processing requirements. Additionally, rules of cumulation are stipulated to allow beneficiary countries to consider inputs from other countries as originating content.[8]

The previous ROO under the EU GSP had been considered as restrictive, thereby leading to the low utilization rate of EU trade preferences. Brenton and Manchin (2003) argue that product-specific origin requirements are stringent by restricting the use of imported input from the lowest-cost third countries. Such stringent rules may be further complicated by the potentially high costs of proving origin, including documentation procedures and accounting systems. In the case of garment products, the previous ROO stipulated that garment products must be made from domestically manufactured fabric or imported fabric from EU. Although rules of cumulation allow for the use of qualifying inputs from other countries, two-stage processing requirements generally restricts the use of imported fabric from third countries. Thus, stringent origin requirements could substantially increase the cost of complying with the ROO, which may exceed the benefits of using preferential access.

2.2. The EU's Reform in Rules of Origin

In 2003, the EC adopted a Green Paper on 'the future of rules of origin in preferential trade arrangements' to evaluate the issues in the previous ROO. The consultation process was launched to assess various interests at stake from EU members, private sectors, industry associations, and civil society. The findings show that the previous ROO were too complex and restrictive to fit global manufacturing processes, thereby giving a call for simplification and relaxation of the origin rules and procedures. In 2005, the EC adopted a communication on 'the rules of origin in preferential trade arrangements: orientations for the future'. By setting general principles of simplification and development-friendliness, the EC supported a draft regulation for a reform of the ROO in the EU GSP.

[8] Other provisions stipulate the conditions of origin determination related to insufficient working or processing, working or processing outside the territory of beneficiary countries, and non-manipulation principle.

In summarizing the background of the reform processes, Inama (2011) explains that the EC proposed a value-added criterion in the origin-determining criteria as a method to evaluate sufficient processing across the board for most products. This approach was in contrast with the previously used criteria based on change of tariff heading, a maximum allowance of non-originating materials, and specific processing requirements. However, this proposal was met by strong oppositions from stakeholders such as the consulted European Federations representing agricultural and industrial interests. Consequently, the reform processes followed a series of internal debates and discussions with stakeholders for a long period.

On November 18, 2010, the EC adopted a new regulation on the ROO for EU GSP. This regulation came into effective on January 1, 2011.[9] Three major changes in the new regulation are pointed out by Inama (2011). First, product-specific origin requirements are relaxed for a number of products, with more lenient treatment for LDCs than developing beneficiary countries. The tolerance rule is relaxed with an increase from 10% to 15% for agricultural products in term of the weight and for manufacture products in terms of the ex-works price. Second, rules of cumulation include Mercosur and the allocation rule of origin among regional partners is relaxed. Extended cumulation is applied to EU free trade agreement (FTA) partner countries under certain conditions. Finally, the system of registered exporters and self-certification are introduced, which became effective on January 1, 2017.

2.3. Implications for Garment Export in Cambodia

Garment product has been a leading export commodity in the Cambodian economy for recent decades. Garment exports in HS Chapters 61 and 62 accounted for 69.3% of total commodity exports in 2000, which subsequently increased to 77.7% in 2014. The garment exports amounted to 5.31 billion USD in 2014, where the EU and U.S. markets accounted for 40.7% and 34.3% of the total garment exports, respectively (UN COMTRADE).

Cambodia is a beneficiary country under the EBA regime since 2001. In the previous ROO, originating status is given to garment products manufactured using domestically produced fabric in Cambodia. Manufacturing fabric from yarn or natural fibers is required. Although rules of cumulation allowed for the use of imported fabric from EU or ASEAN, garment producers in Cambodia must add the larger value added in garment production than the highest customs value of any of imported materials to benefit from regional cumulation.[10] Since domestic production

[9] For details, see Commission Regulation (EU) No. 1063/2010 of 18 November 2010 amending Regulation (EEC) No. 2454/93 laying down provisions for the implementation of Council Regulation (EEC) No. 2913/92 establishing the Community Customs Code.

[10] The EC granted the derogations from the GSP ROO for certain textile products originating Cambodia, which allowed for the use of woven fabric (woven items) or yarn (knitted items) imported from countries belonging to the South Asian Association for Regional Cooperation (SAARC) or to the African, Caribbean and Pacific (ACP)-EC Partnership Agreement under certain quantitative

capacity of textiles was limited, most garment producers exploited mainly imported materials from major textile exporters such as China, Hong Kong, South Korea, and Taiwan (Bargawi, 2005; Yamagata, 2006). The garment products manufactured from fabric in these countries were not qualified for EU preferential access under the previous ROO.

The new regulation in the ROO came into effective on January 1, 2011. The use of imported fabric produced anywhere is allowed for garment products originating in Cambodia. Because local manufacture of fabric is not required, the origin requirement is relaxed from two-stage processing to one-stage processing (UNCTAD, 2013). These changes are summarized in Table 1. The new ROO in EU GSP imply significant implications for garment exports to EU in Cambodia. As a simple check, Figure 1 presents the utilization rate as measured by a share of duty-free import in the total import that entered EU markets under duty-free and MFN rate (EUROSTAT). The utilization rate increased sharply from 72% in 2010 to 89% in 2011 for knitted garments, whereas it also sharply increased from 56% in 2010 to 89% in 2011 for woven garments.

[Table 1 and Figure 1 here]

Another implication for analysis is that Cambodia played little role in the reform process of origin rules applicable to EU GSP. While the low utilization of EU trade preferences in export from developing countries provided a motivation for the reform, it is documented that domestic stakeholders in the EU yielded a dominant influence on the reform process, as described in Inama (2011). Cambodia could not yield a strong political influence on policy-making processes in the EU, and thus played a little role in the reform processes in the EU ROO. This view is indeed reflected in the policy report by the Royal Government of Cambodia (2014, p. 44) as follows. "The rules of origin applicable to GSP and DFQF (duty-free quota-free) programs are determined unilaterally by the countries offering Cambodia those programs. Cambodia has no influence over these rules."

Moreover, the reform in product-specific origin requirements is not confined to garment products in HS chapters 61 and 62, which are the most significant export commodities in Cambodia. Origin-conferring criteria are also relaxed for other products, including fishery products, leather products, electrical machinery, motorcycles, and bicycles. In this respect, it is reasonable to consider that Cambodia had no direct influence in determining the product-specific origin requirements in EU GSP. Thus, I argue that the EU's reform in ROO is an exogenous policy shock to garment exports in Cambodia, providing an ideal natural experiment to identify a causal effect of simple ROO on exports.

restrictions. For details, see the Commission Regulations (EU) No 1063/2010 of 18 November 2010.

3. Empirical Framework

In this section, I discuss a relationship between liberal origin requirements and export, and describe an empirical framework to assess the causal impact of the EU's reform in ROO on garment exports from Cambodia. Finally, data sources are explained.

3.1. Liberal Rules of Origin and Export

To examine a linkage between liberal ROO and export, a starting point is to distinguish between non-binding and binding ROO for garment export in the pre-reform period. Under the non-binding ROO, garment producers can satisfy the ROO to qualify for duty-free access to the EU markets. This implies that simplifying ROO in the post-reform period would not affect export decisions. As explained previously, the non-binding case would not apply to garment manufacture in Cambodia.

Specific origin requirements in the pre-reform period are binding for garment producers when they are prevented from using the most competitively priced inputs from third markets. As discussed in Krishna (2006), the binding ROO constrain the choice of inputs used in garment manufacture. When the choice of inputs is not restricted, garment producers can use the best mix of inputs to minimize the level of production costs. By restricting the use of inputs, the unit cost of production must increase with the restrictiveness of the specific origin requirements. Additionally, garment producers must obtain a certificate of origin to prove that their garment products satisfy the specific origin requirements. This procedure involves documentation of sourcing to keep track of the origin of inputs and their usage. Thus, the binding ROO would generally increase the production costs for garment producers.

In the binding case, the decision to export to EU markets under preferential treatment depends not only on the cost of meeting ROO, but on the margin of preference for garment products in the EU markets, i.e., the absolute difference between the MFN rate of duty and the preferential rate of duty.[11] As is formally modelled in Demidova et al. (2012), exporters can choose not to use preferential access, but to pay the MFN tariff. While they do not need to incur the costs of meeting ROO, they do not benefit from the preferential margin. If the costs of meeting ROO exceed the benefit of the preferential margin, they simply pay the MFN tariff to export. As a result, simplifying ROO in the post-reform period would induce a higher fraction of potential exporters to use preferential access.[12]

These discussions suggest that liberal ROO after the EU's reform in 2011 allowed garment producers to use the most competitively priced inputs from third markets, thereby reducing

[11] As the average tariff rates on garment products in the EU are 11.5%, duty-free access implies the preferential margin of 11.5%.

[12] Since firm-destination-level data on export in Cambodia are not available, this paper does not evaluate trade adjustments at the extensive and intensive margin.

production costs of garment manufacture in Cambodia. Because garment producers in Cambodia were likely to face the binding origin requirements in the pre-reform period, simplifying ROO should increase garment exports from Cambodia to EU markets under duty-free treatment, as is observed in the sharply increased the utilization rate of duty-free access for garment imports in EU markets from Cambodia after 2011 in Figure 1.

3.2. Empirical Specification

To formally estimate the impact of the EU's reform on export, I specify a following model for export market *i*, export product *j*, and year *t*:

$$\ln Exp_{ijt} = \beta_1 EU_i \times Post_t + \boldsymbol{Z'}_{it}\boldsymbol{\beta}_2 + f_i + f_{jt} + \varepsilon_{ijt} \quad (1)$$

where Exp_{ijt} is the value of knitted or woven garment exports from Cambodia to export market i. EU_i is a dummy variable that takes on unity for EU markets, and zero otherwise. $Post_t$ is a dummy variable that takes on unity after the year 2011, and zero otherwise. An interaction term between EU_i and $Post_t$ takes on unity for EU markets after 2011, and zero otherwise. $\boldsymbol{Z'}_{it}$ is a vector of variables on export-market characteristics, such as GDP, GDP per capita, and product-specific tariff rates. Since Cambodia participated in regional trade agreements (RTAs) during the sample period, a dummy variable for new RTAs is included.[13] f_i is a country-level fixed effect to control for unobserved time-invariant country characteristics. f_{jt} is a time-varying product-level fixed effect to control for time-varying product-specific unobserved characteristics and aggregate shocks of global and domestic economies on exports across years. Finally, ε_{ijt} is an error term.

The coefficient of the variable $EU_i \times Post_t$, β_1 is of main interest. As explained previously, the EU introduced new ROO in 2011 to grant duty-free access to EU markets for garment producers in beneficiary countries that manufacture garment products using imported fabric from anywhere. Given that imported fabric from the lowest-cost markets helps to reduce the cost of garment manufacture in Cambodia, the change in EU ROO is predicted to increase garment exports from Cambodia. Thus, β_1 should be positive in sign.

To identify the impact of simplifying ROO on export, my specification is based on a standard difference-in-differences (DD) method. Specifically, I exploit two sources of variations in exports from Cambodia. The first is a difference between exports to EU markets (a treatment group) and exports to non-EU markets (a control group). The second is a difference in exports before and after the 2011 reform in ROO. By comparing changes in exports to EU markets before and after the year 2011 with changes in exports to non-EU markets before and after the year 2011, the DD method allows me to estimate the causal impact of origin-rules liberalization on exports from

[13] These include ASEAN-Australia-New Zealand in force from 2010, ASEAN-India in force from 2010, ASEAN-Japan in force from 2008, and ASEAN-Korea RTAs in force from 2010.

Cambodia. Additionally, potential confounding factors are controlled for in my empirical model by including time-varying country characteristics, country fixed effects, and time-varying product fixed effects. These control variables help to isolate a variety of confounding factors from the impact of the reform on exports. Finally, the identification strategy relies on the assumption that both exports to EU markets and to non-EU markets would exhibit parallel trends in the absence of the EU's reform in 2011. In section 5, I provide a graphical assessment to support the validity of the parallel trends assumption.

3.3. Data Sources

Data on export in Cambodia come from the UN Comtrade Database. I use trade statistics reported by Cambodia. Data on GDP and GDP per capita come from the World Development Indicator by the World Bank. Data on simple average tariff rates are taken from UNCTAD TRAINS database. From the World Integrated Trade Solution (WITS) database by the World Bank, I use data on effectively applied tariff rates, which are the lowest available tariffs such as preferential tariff rates. Otherwise, the MFN applied tariff rates are used. Information on RTAs are taken from the RTA database by the World Trade Organization (WTO).

4. Estimation Results

This section presents the estimation results for exports in Cambodia. I start to describe export trends in treatment and control groups to check a parallel trends assumption. I discuss the main estimation results and robustness checks.

4.1. Export Trends in Treatment and Control Groups

By employing a DD method in a regression model, I can disentangle a variety of confounding factors from a causal impact of the EU's reform in 2011. Nevertheless, the identification strategy relies crucially on the assumption that both exports to EU markets and to non-EU markets would exhibit parallel trends in the absence of the EU's reform. Without the EU's reform, export trends would need to move in tandem between treatment and control groups. If export trends are different between treatment and control groups in the absence of the EU's reform, the DD method may not produce a valid estimate because export trends in non-EU markets may not well represent counterfactual export trends in EU markets that would have prevailed in the absence of the EU's reform. Although the parallel trends assumption is critical for the DD method, it is not possible to prove the validity of the assumption because the counterfactual export trends in EU markets are not observable.

To assess the empirical validity of the parallel trends, it is useful to describe export trends in treatment and control groups. We plot trends in total garment exports from Cambodia between

treatment and control groups, which are normalized to take on a value of 100 in year 2010. Figure 2 shows export trends for knitted garments in HS chapter 61. Before the EU's reform in 2011, both treatment and control groups exhibit similar export trends during the period 2007-2010. After 2011, the treatment group shows a sharp increase in the export trends over time. Although the control group also shows an upward export trend after 2011, the export growth is substantially higher in the treatment group than in the control group only after 2011. Additionally, Figure 2 presents export trends for woven garments in HS chapter 62. Before 2011, there is no apparent difference in export trends between both treatment and control groups. After 2011, the treatment group exhibits a substantially larger increase in the export trend than the control group does. Taken together, the graphical analysis lends considerable support for the parallel trends assumption, suggesting that export trends should be likely to move in tandem between treatment and control groups in the absence of the EU's reform.

[Figures 1 and 2 here]

A plausible critique is that the export trends may simply capture an unobserved positive shock to imported consumer goods in EU markets after 2011. If there were unobserved shocks to consumers' tastes for apparel goods or consumer movements to buy import products from developing economies, these shocks might sharply increase garment exports to EU markets from Cambodia after 2011. To check this issue, I show export trends for footwear products in HS chapter 64. Since garment and footwear products are similar consumer goods, the unobserved positive shocks in EU markets should also affect Cambodian footwear exports. On the other hand, the EU's reform made little change in the product-specific origin-conferring criteria for footwear, implying that the EU's reform should not have any discernable impact on footwear exports. Thus, I can use footwear exports as a fake treatment group to check the presence or absence of the unobserved positive shocks.

Figure 3 shows trends in footwear exports to EU and non-EU markets, respectively. If there were unobserved positive shocks to similar consumer goods in EU markets, footwear exports would exhibit a sharp increase in EU markets only after 2011. An alternative prediction is that export growth would be higher in EU markets than in non-EU markets after 2011. Figure 3 shows that footwear exports appear to move in tandem for the period 2007-2010. After 2011, the treatment group exhibits an upward export trend, but does not show a sudden rise over time. Moreover, the export growth is smaller in the treatment group than in the control group after 2011. These findings are not consistent with the hypothesis that unobserved positive shocks in EU markets brought about a sharp increase in imported consumer goods such as garments and footwear. While garment exports from Cambodia to EU markets sharply increased after 2011, the observed export patterns would not be driven by the unobserved positive shocks to imported consumer goods in EU markets. Thus, the export trends in footwear goods provide supportive

evidence for the parallel trends assumption in garment exports.

[Figure 3 here]

4.2. Main Results

This section presents the results of equation (1) estimated by an Ordinary Least Squares (OLS) method. The summary statistics of the sample for garment exports are provided in Panel A of Table 2. The baseline sample includes 28 EU countries in a treatment group and 85 non-EU countries in a control group. A list of these countries is presented in Appendix Table 1. I report standard errors that are corrected for clustering within the export market.

Column (1) of Table 3 shows the baseline result for knitted and woven garment products. The coefficient of $EU_i \times Post_t$ is significant and positive, consistent with the hypothesis that simplifying ROO in the EU GSP promoted significantly exports from a beneficiary country. The estimated coefficient suggests that garment exports to EU markets increased by 112% after 2011.[14] The impact of the EU's reform is substantially large in magnitude. Additionally, the coefficient of real GDP is not significant, but the coefficient of GDP per capita is significant and positive. The coefficient of tariff rates in export markets is significant and negative. The coefficient of RTAs is significant and positive. These results imply that garment exports are larger in higher income markets with RTAs and lower tariff rates.[15]

[Table 3 here]

Among EU member countries in the sample, Croatia participated in the EU for 2013. Since exports from Cambodia to Croatia may capture the effects of the EU membership, I exclude Croatia from the sample. The result in column (2) shows that the coefficient of $EU_i \times Post_t$ is significant and positive. Next, there might be a potential attrition issue caused by the differential loss of export observations between treatment and control groups. In column (3), I remove the observations in which export data are missing at least one year in each country and product pair. The specification is estimated for only country and product pairs with non-missing export data. The coefficient of $EU_i \times Post_t$ remains significant and positive. Additionally, some small EU markets do not appear to support the parallel trends assumption.[16] In column (4), I estimate the specification by excluding these small EU markets from the sample. The coefficient of $EU_i \times Post_t$ remains significant and positive, suggesting that garment exports increased by 219% in the rest of EU markets. As the equality of the coefficients of $EU_i \times Post_t$ is statistically rejected between columns (1) and (2), the EU's reform would have the larger positive impact on exports

[14] A marginal effect in percentage changes is calculated by $100 \times (\exp(0.75) - 1)$.

[15] The results are robust to using trade-weighted tariff rates, as reported in Appendix Table 2.

[16] These countries include Luxembourg, Netherlands, Ireland, Greece, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, and Bulgaria. Their export trends are shown in Appendix Figures 1 and 2. These markets accounted for 8.3% of total garment exports from Cambodia to EU in 2010.

to the larger EU markets that imported a majority of garment products from Cambodia. Taken together, the main results support the positive impact of the EU's reform on garment exports in Cambodia.[17]

Table 4 shows the estimation results for exports by product. Specifically, I distinguish between knitted and woven garments and estimate the regression model separately for these products. Column (1) for knitted garments shows that the coefficient of $EU_i \times Post_t$ is significant and positive, suggesting that knitted garment exports to EU increased by 166% after 2011. Column (2) for woven garments indicates that the coefficient of $EU_i \times Post_t$ is significant and positive, suggesting that woven garment exports to EU increased by 310% after 2011. Although the parameter equality of these estimated coefficients between columns (1) and (2) is not rejected, the larger marginal effect for woven garments is consistent with the prior finding that woven exports to EU in Bangladesh increased more rapidly than knitted garments (Curran and Nadvi, 2015).

[Table 4 here]

As discussed previously, a possible concern is that the positive impact of the EU's reform on garment exports may capture unobserved positive shocks to imported consumer goods in EU markets, possibly leading to the positive coefficient of $EU_i \times Post_t$. To address this issue, I estimate the regression model for footwear exports, which were not affected by the EU's reform in terms of origin requirements. Column (3) shows that the coefficient of $EU_i \times Post_t$ is not significant, implying that footwear exports to EU markets did not increase significantly after 2011. Additionally, I estimate the model for cereal products such as rice, which are major agricultural export products in Cambodia. Since the EU's reform made little change in origin requirements for wholly obtained products such as domestically produced rice, agricultural exports should not be affected by the EU's reform. Column (4) shows that the coefficient of $EU_i \times Post_t$ is positive, but not significant. Taken together, these results support that the positive impact of the EU's reform on garment exports is not likely to represent unobserved positive shocks in EU markets.

4.3. Robustness Checks

For a robustness check, I estimate the impact of the EU's reform using triple difference-in-differences (TD). An endogeneity critique may be made for a standard DD method to exploit only country-by-country differences in exports for unobserved determinants of garment imports in EU (Besley and Case, 2000). By carefully documenting the EU's reform processes, I argue that the policy change is plausibly exogenous to garment producers in Cambodia. Nevertheless, it is useful to check the robustness of main results to alternative specifications.

[17] The results are robust to including country-product-level dummy variables, as reported in Appendix Table 3.

Specifically, I estimate a following model for export market *i*, export product *j*, and year *t*:

$$\ln Exp_{ijt} = \gamma_1 EU_i \times Garment_j \times Post_t + f_{ij} + f_{it} + f_{jt} + \varepsilon_{ijt} \quad (2)$$

where $Garment_j$ is a dummy variable that takes on unity for knitted and woven exports, and zero otherwise. f_{ij} is country-product-level fixed effects. f_{it} and f_{jt} are time-varying country and product fixed effects, respectively.[18] While garment exports are treated products, similar consumer products in HS chapters 63 and 64 are included as unaffected products in terms of ROO changes in the EU's reform. The coefficient of the triple interaction term, γ_1, measures a change in garment exports to EU markets after 2011 as compared to a baseline level of country-by-product exports for the pre-reform period.

Column (1) of Table 5 shows that the coefficient of the triple interaction is significant and positive. A marginal effect of the reform for garment exports is 84%. In column (2), I estimate equation (2) for the sample excluding small EU markets, as explained above. The result shows that the coefficient of the triple interaction remains significant and positive. Consistent with the results in Table 3, garment exports to the larger EU markets increased more significantly after 2011. Taken together, I find that the baseline results are robust to a wide range of unobserved determinants of garment exports from Cambodia across products, export markets, and years.

[Table 5 here]

The previous results measure the average effect of the EU's reform during the post-reform period. By interacting a dummy variable for EU markets with year dummy variables in equation (1), I can examine the timing of the effects. Column (3) shows that the coefficients of the interaction between EU markets and year dummies are positive, and also significant for 2013, 2014, and 2015. In column (4), small EU markets are excluded from the sample. The coefficients of the interaction terms remain positive, and also significant after 2012. Comparing the magnitude of the effects across years, the results indicate that the positive impacts grow significantly over time. Column (4) shows that the positive impact increases from 148% in 2012 to 381% in 2015.

4.4. Trade Substitution Effects

An implicit assumption in a DD method is that there is no interference between units (Rosenbaum, 2007). Specifically, it is assumed that the EU's reform did not affect Cambodian exports to non-EU markets, implying that exports to EU markets were not replaced by exports to non-EU markets in the wake of the reform. If there were substitution effects, an increase in exports to EU markets might partly originate from redirection of exports to non-EU markets. As a result, the estimated impact of the reform measures a causal impact of ROO changes on exports to EU markets as well as the substitution effects of exporting between EU and non-EU markets. From

[18] As product-specific tariff rates in export markets are found to be insignificant, they are excluded from the specification.

an assessment perspective, this issue indicates that the estimated impact should be interpreted more broadly.[19] However, it still raises a question of whether trade substitution effects are quantitatively important.

I address this question in two ways. First, prior surveys on garment exporters in Cambodia show that exporters were not likely to shift their export markets over time, as shown in Appendix Table 4 (Asuyama et al., 2013; Yamagata, 2006). Any firm exporting to only Europe in 2002 did not export to North America in 2008, whereas any firm exporting to only North American in 2002 did not export to Europe in 2008. Alternatively, firms exporting to multiple markets might shift the relative volume of their exports between markets for a boom in demand. Given that capacity constraints were binding, they might replace product orders across markets to increase profits. However, the capacity expansion was unlikely to be binding because of small-scale capital investment in garment factories and an abundant supply of unskilled workers in Cambodia. Thus, firm-level surveys suggest that the EU's reform would not strongly induce exporters to eliminate their product orders from non-EU markets.

A second approach is to test the hypothesis that garment exports from Cambodia to non-EU markets would decrease after the EU's reform in 2011. Specifically, I estimate a following model for export market *i*, export product *j*, and year *t*:

$$\ln Exp_{ijt}^{nonEU} = \delta_1 Post_t + \delta_2 Trend_t + \boldsymbol{Z'}_{it}\boldsymbol{\delta}_3 + f_i + f_j + \varepsilon_{ijt} \quad (3)$$

where Exp_{ijt}^{nonEU} is the value of garment exports from Cambodia to non-EU export market *i*. $Post_t$ is a dummy variable that takes on unity after the year 2011, and zero otherwise. $Trend_t$ is a time-trend variable.[20] If there were substitution effects, redirection of exports from non-EU to EU markets should lead to a relative decrease in exports to non-EU markets after 2011. This suggests that the coefficient of $Post_t$, δ_1, should be negative in sign.

Table 6 presents the estimation results of equation (3). In column (1) for knitted and woven garments, the coefficient of $Post_t$ is positive, but not significant. The coefficient of $Trend_t$ is significant and positive, implying that exports to non-EU markets increased generally over time. Column (2) for knitted garments shows that the coefficient of $Post_t$ is not significant. In column (3) for woven garments, the coefficient of $Post_t$ is negative, but not significant. These results suggest that exports to non-EU markets did not decline significantly after 2011. Taken together, I conclude that a sharp increase in garment exports to EU after 2011 should not be caused importantly by the redirection of exports that had been previously going to non-EU markets.

[19] In a similar sense, other EBA beneficiary countries affected by the EU reform might influence competition effects in EU markets for garment exports from Cambodia, implying that such effects should be included in the measured impact on Cambodia.

[20] This specification is similar to an empirical strategy in Heilmann (2016) to examine trade substitution effects of boycott.

5. The Impact on Imported Intermediate Inputs

Discussions up to this point have demonstrated that Cambodian garment exports to EU markets significantly increased after the EU's reform in ROO for 2011. A main channel is considered as the flexible use of intermediate inputs imported from any market, which should reduce the costs of garment manufacture in Cambodia to obtain EU preferential treatment. This finding raises a question of how the EU's reform affects international sourcing patterns of intermediate inputs for garment manufacture in Cambodia. This section sheds light on this issue.

5.1. Descriptive Analysis

I start to describe an import pattern of textiles in Cambodia. Table 7 presents the value of textile imports to Cambodia from major exporters, including China, Hong Kong, South Korea, Taiwan, ASEAN, and EU. Among these markets, China accounted for the largest textile imports in Cambodia. For instance, fabric imports from China increased from 695 million USD in 2010 to 2,161 million USD in 2015. The share of fabric imports from China increased from 42.1% in 2010 to 62.6% in 2015. Also, the share of yarn imports from China increased from 24.9% in 2010 to 76.3% in 2015. As Staritz (2011) argues that Cambodia depends largely on imported textiles, China is a key market for imported intermediate inputs used to manufacture clothing in Cambodia. On the other hand, there is an increase in fabric imports from other markets such as Hong Kong, South Korea, and Taiwan. However, the relative importance of these markets declined over time, suggesting that textile industries in China might be more competitive in supplying textile inputs in terms of price, quality, and lead time.

[Table 7 here]

The findings suggest that the EU's reform in 2011 would bring about a sharp increase in textile imports from China. In the previous ROO, duty-free access to EU markets had also been granted in certain conditions to garment products manufactured using imported textiles from EU and ASEAN markets. The reform in ROO should have a weak impact on textile imports from these markets. By contrast, preferential treatment is granted to garment products manufactured using imported textiles from third markets such as China. Thus, a sharp increase in garment exports to EU markets would lead to a larger increase in textile imports from China than those from other markets applicable to rules of cumulation.

To check this implication, I plot trends in textile imports to Cambodia, with the value of imports being normalized at a value of 100 in 2010. Figure 5 shows import trends for fabric. Fabric imports from China increased sharply after the EU's reform in 2011. This change is in stark contrast with a moderate change in fabric imports from Hong Kong, South Korea, Taiwan, and ASEAN. Additionally, Figure 6 shows a rapid increase in yarn imports from China. While the EU's reform should reduce a demand for yarn imports to produce textiles at a local plant, an

increase in yarn imports may be due to the fact that yarn and fabric are jointly used to manufacture clothing. Taken together, the descriptive analysis suggests that the EU's reform would lead to a substantial increase in textile imports from China.

[Figures 5 and 6 here]

5.2. Regression Analysis

To formally assess the role of China in textile imports for Cambodia, I estimate a following model for import market *i*, textile product *j*, and year *t*:

$$\ln Imp_{ijt} = \sum_m \theta_1^m D_i^m + \sum_m \theta_2^m D_i^m \times Post_t + \boldsymbol{X'}_{it}\boldsymbol{\theta}_3 + Fabric_j + f_t + e_{ijt} \quad (4)$$

where Imp_{ijt} is the value of imports in Cambodia from import market *i*; *m* indicates major import markets including (i) China, (ii) Hong Kong, South Korea, and Taiwan, (iii) ASEAN, and (iv) EU. D_i^m is a dummy variable that takes on unity for import market *m*. $Post_t$ is a dummy variable that takes on unity after 2011. $\boldsymbol{X}_{it}$ is a vector of variables on import-market characteristics, including GDP, GDP per capita, RTAs, geographic distance, and geographic contiguity. $Fabric_j$ is a dummy variable that takes on unity for fabric goods, and zero for yarn goods. f_t is a year fixed effect. Finally, e_{ijt} is an error term.

The coefficients of interest are θ_1^{China} and θ_2^{China}. The former measures the relative size of textile imports from China, and the latter measures a change in textile imports from China after 2011. Table 4 presents the results of equation (4) estimated by OLS for the sample period 2007-2015, with standard errors corrected for clustering in the import market. Appendix Table 5 presents the summary statistics of textile imports. Column (1) shows that the coefficient of D_i^{China} is significant and positive. The coefficient of the interaction term $D_i^{China} \times Post_t$ is also significant and positive. These results implies that China is a key market for textile imports in Cambodia and accounted for a significant increase in textile imports after the EU's reform in 2011. The coefficient of the import market dummy for Hong Kong, South Korea, and Taiwan is significant and positive, but the coefficient of the interaction term $D_i^{HKT} \times Post_t$ is not significant. As the coefficients of the interactions for other markets are not significant, textile imports from other markets did not increased significantly after 2011.

[Table 8 here]

Columns (2) and (3) present the results separately for fabric and yarn goods. The coefficients of D_i^{China} and $D_i^{China} \times Post_t$ are significant and positive in both specifications. The estimated coefficients suggest that fabric and yarn imports from China increased by 90% and 348% after 2011, respectively. Taken together, I find that imported textiles from China significantly increased after 2011. The results are consistent with the hypothesis that simplifying ROO in the EU GSP encouraged the use of intermediate inputs imported from third markets such as China to qualify for preferential market access.

6. The Impact on Inward FDI

The previous analysis highlights a sharp expansion of garment exports from Cambodia to EU markets after the EU's reform in 2011. The export expansion can be driven not only by existing garment factories before 2011, but by newly-opened garment factories after 2011. Given that many garment factories were owned by foreign investors (Yamagata, 2006), it is a crucial question whether the reform attracted inward FDI flows and how the impacts differ by sectors. This section sheds light on the response of inward FDI in Cambodia.

6.1. Descriptive Analysis

The EU's reform in ROO for 2011 removed restrictions on intermediate input sourcing for garment manufacture in Cambodia. Garment producers could exploit a wide range of intermediate inputs imported from most efficient markets after 2011. Since more flexible use of sourcing should improve an investment climate in Cambodia, the reform would attract foreign investors in garment sector. On the other hand, the previous ROO generally required the use of locally manufactured fabric from yarn to qualify for preferential access, although rules of cumulation allowed for the use of imported fabrics from certain markets such as EU and ASEAN. The content requirement for local inputs provided an incentive for foreign investors to manufacture textiles at a local production plant in Cambodia. However, the removal of the local input requirements should reduce an incentive for foreign producers to invest in a textile sector. Consequently, simplifying ROO should produce two contrasting effects on inward FDI flows across these sectors; (i) FDI inflows should increase in the garment sector after 2011, and (ii) FDI inflows should decrease in the textile sector after 2011.

To examine whether these hypotheses are consistent with a pattern of FDI inflows in Cambodia, I use data on the factory registration by the Cambodian Ministry of Industry and Handicraft. There is information on registered factories after the year 1994, including main products, the year of establishment, location, country of investors, and capital. Figure 7 presents a trend in FDI flows for the period 2007-2015. The total amount of capital investment by foreign investors is shown for garment and textile sectors, respectively. As a benchmark, I also show the average capital investment in all manufacturing sectors. As compared with the average FDI inflows, FDI inflows in the garment sector increased sharply after 2011. By contrast, FDI inflows in the textile sector remained at a lower level after 2011 than the average FDI inflows. These findings are consistent with the predicted impacts of the reform on inward FDI.

[Figure 7 here]

6.2. Regression Analysis

To estimate the impact of the EU's reform on inward FDI flows in garment and textile sectors,

I specify a following model for sector *s*, parent country *p*, and year *t*:

$$\ln FDI_{spt} = \rho_1 G_s \times Post_t + \rho_2 T_s \times Post_t + \rho_3 MW_{st} + f_s + f_{pt} + u_{spt} \quad (5)$$

where FDI_{spt} is the value of foreign capital inflows in sector s from parent country p to Cambodia in year *t*. G_s is a dummy variable that takes on unity for a garment sector. $Post_t$ is a dummy variable that takes on unity after 2011. T_s is a dummy variable that takes on unity for FDI flows in a textile sector. MW_{st} is the level of statutory minimum wages for workers in sector *s* for year *t*. f_s is an industry-level fixed effect, and f_{pt} is a time-varying parent-country fixed effect. Finally, u_{spt} is an error term.

Data on minimum wages in Cambodia are taken from the *Cambodian Garment and Footwear Sector Bulletin* by the International Labour Organization (ILO, 2016, Table 1). Cambodia's minimum wages apply only to textile, garment, and footwear manufacturing sectors. The minimum wages were introduced in 1997 at 40 USD per month and have been adjusted several times. In January 2015, the minimum wages increased to 128 USD per month. Because the minimum wages do not apply to other sectors, I set a value of zero in MW_{it} for the other sectors.

The coefficients of interest are ρ_1 and ρ_2. I predict a positive sign for ρ_1 if foreign investors in a garment sector had responded positively to the EU's reform. I predict a negative sign for ρ_2 if foreign investors in a textile sector had done negatively. Table 9 presents the estimation results of equation (5) by OLS, with the summary statistics of the sample given in Appendix Table 6. The sample includes the registered investment projects by foreign investors from 29 parent countries in 21 manufacturing sectors for the period 1994-2015. I report standard errors corrected for clustering in sector and parent country.

[Table 9 here]

Column (1) shows that the coefficient of the interaction term, $G_s \times Post_t$, is significant and positive, suggesting that FDI inflows in a garment sector increased by 86% after 2011. By contrast, the coefficient of the interaction, $T_s \times Post_t$, is significant and negative, implying that FDI inflows in a textile sector decreased by 75% after 2011.[21] Consistent with the hypothesis, these results show that simplifying ROO in the EU GSP encouraged FDI flows in the garment sector, but discouraged foreign investors in the textile sector to engage in local production. Additionally, the coefficient of minimum wage is negative, but not significant, suggesting that a gradual increase in sector-specific minimum wages had little effect on FDI inflows.

As the previous section highlights a large role of China in textile imports in Cambodia, a related question is whether Chinese investors responded more strongly to the reform.[22] To

[21] Estimating a specification with an interaction term of leather/footwear-sector dummy and $Post_t$, I found the insignificant coefficient of the interaction, consistent with the fact that the EU reform made little change in ROO for leather and footwear products.

[22] Appendix Figure 3 shows the total amount of capital investment in a garment sector by foreign investors for major parent countries.

address this question, I re-specify an empirical specification in equation (5) by including triple interaction terms, $G_s \times Post_t \times China_p$ and $T_s \times Post_t \times China_p$, separately in the specification; $China_p$ is a dummy variable for Chinese investors. To account for other determinants of FDI inflows by Chinese investors, I drop f_s and f_{pt} from the specification, and include the following variables: G_s, T_s, $China_p$, $China_p \times Post_t$, $G_s \times China_p$, and $T_s \times China_p$.

Column (2) shows the result for the specification with an interaction, $G_s \times Post_t \times China_p$. The coefficient of $G_s \times China_p$ is significant and positive. The estimated coefficient suggests that Chinese direct investment in a garment sector is significantly larger by 371% as compared with other investors from different nationalities. However, the coefficient of $G_s \times Post_t \times China_p$ is not significant, implying that the response of Chinese investors to the reform was not pronounced among parent countries. Additionally, column (3) presents the result for the specification with an interaction, $T_s \times Post_t \times China_p$. The coefficient of $T_s \times China_p$ is negative and insignificant. The coefficient of $T_s \times Post_t \times China_p$ is positive, but not significant. The estimated coefficient suggests that Chinese direct investment in a textile sector is not significantly larger as compared with other investors. There is little evidence to indicate Chinese investors in the textile sector strongly and negatively responded to the EU's reform for 2011. Taken together, I find that textile imports increased significantly only from the Chinese market after 2011, but there was not a pronounced surge in Chinese FDI inflows in the garment sector. This finding suggests that both Chinese and other countries' investors established new garment factories and would use imported textiles from China to obtain duty-free access to the EU markets.

7. Conclusion

Stringent origin requirements in the EU GSP had been considered as a key reason for the low utilization rate of trade preferences for beneficiary countries because imported inputs from the lowest-cost third markets are generally restricted to obtain preferential treatment. After the EC adopted a new regulation to simplify ROO for the EU GSP on November 18, 2010, there was a sharp increase in exports from beneficiaries to EU requesting preferential access. This paper seeks to evaluate the impact of the EU's reform in ROO on international trade and FDI in a beneficiary country, Cambodia. Specifically, this paper focuses on a clear change in origin-conferring criteria for garment products in LDCs from two-stage to one-stage processing, which should produce a significant influence on garment sectors in Cambodia that largely relied on imported textiles for the limited domestic supply capacity.

The empirical analysis demonstrates that garment exports from Cambodia to EU markets increased significantly by 112% after 2011. The positive impact is larger for garment exports to

the major EU markets. Textile imports such as yarn and fabric from China increased significantly by 90% after 2011, suggesting that simplifying ROO in the EU GSP encouraged the use of competitively priced inputs from third markets to qualify for preferential market access. Moreover, the expansion of garment exports was likely to be driven not only by existing garment factories before 2011, but by newly-opened garment factories after 2011. As FDI inflows in a garment sector increased by 86% after 2011, more flexible use of sourcing should improve an investment climate for foreign investors in the garment sector. However, FDI inflows in a textile sector decreased by 75%, suggesting that the EU's reform removes an incentive for input suppliers to engage in local textile production. Taken together, the EU's reform in ROO brought about a substantial impact on international trade and inward FDI in Cambodia.

The findings provide crucial policy implications for preferential trade access given by developed economies to promote an export industry in developing economies. While duty-free access is a key element to support the rapid growth of manufactured exports in developing economies, specific origin requirements in preferential schemes would have a significant impact on whether developing economies can use preferential access. Specifically, origin-conferring criteria should be liberal for beneficiary countries with limited domestic supply capacity. To deliver the expected benefits of preferential access, policy makers must carefully design origin requirements to reflect local and global supply chains involved in an export industry. However, liberal ROO may also produce a negative impact on local supplying industry by removing an incentive to use locally produced inputs. It is crucial to take into account a negative consequence on a local industry for setting appropriate origin requirements in preferential schemes.

References

Anson, J., Cadot, O., Estevadeordal, A., de Melo, J., Suwa-Eisenmann, A., Tumurchudur, B. 2005. Rules of origin in North-South preferential trading arrangements with an application to NAFTA. *Review of International Economics*, 13 (3), 501-517.

Asuyama, Y., Chhun, D., Fukunishi, T., Neou, S. Yamagata, T. 2013. Firm dynamics in the Cambodian garment industry: firm turnover, productivity growth and wage profile under trade liberalization. *Journal of the Asia Pacific Economy*, 18 (1), 51-70.

Augier, P, Gasiorek, M., Lai-Tong, C. 2004. Rules of origin and the EU-Med partnership: the case of textiles. *The World Economy*, 27 (9), 1449-1473.

Augier, P, Gasiorek, M., Lai-Tong, C. 2005. The impact of rules of origin on trade flows. *Economic Policy*, 20 (43), 568-624.

Andersson, A. 2016. Export performance and access to intermediate inputs: the case of rules of origin liberalisation. *The World Economy*, 39 (8), 1048-1079.

Bargawi, O. 2005. Cambodia's garment industry: origins and future prospects. ESAU Working Paper 13, Overseas Development Institute, London.

Besley, T. J., Case, A. 2000. Unnatural experiments? estimating the incidence of endogenous policies. *Economic Journal*, 110 (467), F672-F694.

Brenton, P. 2003. Integrating the least developed countries into the world trading system: the current impact of EU preferences under Everything But Arms. Policy Research Working Paper 3018, the World Bank, Washington, D.C.

Brenton, P., Manchin, M. 2003. Making EU trade agreements work: the role of rules of origin. *The World Economy*, 26 (5), 755-769.

Cadot, O, Estevadeordal, A., Suwa-Eisenmann, A., Verdier, T. (Eds.) 2006. *The Origin of Goods: Rules of Origin in Regional Trade Agreements*. Oxford University Press. Oxford.

Cadot, O., de Melo, J. 2007. Why OECD countries should reform rules of origin. *World Bank Research Observer*, 23 (1), 77-105.

Conconi, P., García-Santana, M., Puccio, L., Venturini, R. 2018. From final goods to inputs: the protectionist effect of rules of origin. *American Economic Review*, 108 (8), 2335-2365.

Curran, L., Nadvi, K. 2015. Shifting trade preferences and value chain impacts in the Bangladesh textiles and garment industry. *Cambridge Journal of Regions, Economy, and Society* 8 (3), 459-474.

de Melo, J., Portugal-Perez, A. 2013. Preferential market access design: evidence and lessons from African apparel exports to the United States and the European Union. *The World Bank Economic Review*, 28 (1), 74-98.

Demidova, S., Kee, H. L., Krishna, K. (2012) Do trade policy differences induce sorting? Theory and evidence from Bangladesh apparel exporters. *Journal of International Economics*, 87 (2), 247-261.

Estevadeordal, A. 2000. Negotiating preferential market access. *Journal of World Trade*, 34 (1), 141-166.

Estevadeordal, A., Suominen, K. 2004. Rules of origin in FTAs in Europe and in the Americas: issues and implications for the EU-Mercosur inter-regional association agreement. INTAL-ITD Working Paper 15, Washington, D.C.

European Commission. 2016. Report on the generalized scheme of preferences covering the period 2014-2015. Brussels.

Frazer, G., Van Biesebroeck, J. 2010. Trade growth under the African growth and opportunity act. *Review of Economics and Statistics*, 92 (1), 128-144.

Hayakawa, K. 2019. Multiple preference regimes and rules of origin. IDE Discussion Papers No. 738, Institute of Developing Economies, Japan External Trade Organization, Chiba.

Heilmann, K. 2016. Does political conflict hurt trade? evidence from consumer boycotts. *Journal of International Economics*, 99, 179-191.

International Labour Organization (ILO). 2016. Cambodian Garment and Footwear Sector Bulletin, Issue 3. Geneva.

Inama, S. 2009. *Rules of Origin in International Trade*. Cambridge University Press. Cambridge.

Inama, S. 2011. The reform of the EC GSP rules of origin: per aspera ad astra? *Journal of World Trade*,

45 (3), 577-603.
Ito, T., Aoyagi, T. 2019. Did the least developed countries benefit from duty-free quota-free access to the Japanese market? *Japan and the World Economy*, 49, 32-39.
Krishna, K. 2006. Understanding rules of origin. In: Cadot, O., Estevadeordal, A., Suwa-Eisenmann, A., Verdier, T. (Eds.), *The Origin of Goods: Rules of Origin in Regional Trade Agreements* (p. 19-34). Oxford University Press. Oxford.
Lall, S. 2005. FDI, AGOA, and manufactured exports by a landlocked, least developed African economy: Lesotho. *Journal of Development Studies*, 41 (6), 998-1022.
Morris, M., Staritz, C. 2014. Industrialization trajectories in Madagascar's export apparel industry: ownership, embeddedness, markets, and upgrading. *World Development*, 56, 243-257.
Natsuda, K., Goto, K., Thoburn, J. 2010. Challenges to the Cambodian garment industry in the global garment value chain. *European Journal of Development Research*, 22 (4), 469-493.
Persson, M., Wilhelmsson, F. 2016. EU trade preferences and export diversification. *The World Economy*, 39 (1), 16-53.
Phelps, N. A., Stillwell, J. C. H., Wanjiru, R. 2009. Broken chain? AGOA and foreign direct investment in the Kenyan clothing industry. *World Development*, 37 (2), 314-325.
Rosenbaum, P. R. 2007. Interference between units in randomized experiments. *Journal of the American Statistical Association*, 102 (477), 191-200.
Royal Government of Cambodia. 2014. Cambodia Trade Integration Strategy 2014-2018. Phnom Penh.
Staritz, C. 2011. Making the cut? low-income countries and the global clothing value chain in a post-quota and post-crisis world. World Bank Study, the World Bank, Washington, DC.
United Nations Conference on Trade and Development (UNCTAD). 2013. Handbook on the Rules of Origin of the European Union. Geneva.
Yamagata, T. 2006. The garment industry in Cambodia: its role in poverty reduction through export-oriented development. *Cambodian Economic Review*, 2, 81-136.

Table 1. Rules of Origin under EU GSP for Cambodia's Garment Products

	Old Rules	New Rules
Periods to apply new regulation	1st January 2011	
Origin requirements		
Products	Garment products in HS chapters 61 and 62	
Beneficiary country	Cambodia (Least developing country status)	
Processing stages	Two stages	Single stage
Manufacture of yarn	Not required	Not required
Manufacture of fabric	Required	Not required
Manufacture of clothing	Required	Required
Use of imported fabric		
From European Union	Conditionally allowed	No restriction on the use of imported textiles from any markets
From ASEAN	Conditionally allowed[(a)]	
From other markets	Not allowed	
China		
Hong Kong		
Taiwan		
South Korea		

Notes: (a) indicates rules of regional cumulation, which allow for the use of imported textiles if garment producers in Cambodia add the larger value than the highest customs value of input fabric originating in any one of the other countries in ASEAN, except for Myanmar; the EC granted the derogations from the GSP ROO for certain textile products originating from Cambodia, which allowed for the use of woven fabric (woven items) or yarn (knitted items) imported from countries belonging to the South Asian Association for Regional Cooperation (SAARC) or to the African, Caribbean and Pacific (ACP)-EC Partnership Agreement under certain quantitative restrictions.

Source: Author's compilation based on UNCTAD (2013) and Commission Regulations (EU) No 1063/2010 of 18 November 2010.

Table 2. Summary Statistics of Garment Exports

Variable	No. of Obs.	Mean	Std. Dev.	Min	Max
Log Export	1,169	6.08	3.30	0	14.48
EU × Post	1,169	0.20	0.40	0	1
Log Real GDP	1,169	5.51	1.73	0.16	9.72
Log GDP per capita	1,169	9.58	1.19	5.74	11.63
Tariff rates	1,169	8.31	11.75	0	50
Regional trade agreements	1,169	0.05	0.21	0	1

Table 3. Estimation Results of Garment Exports

Dependent variable: log of exports

	(1)	(2)	(3)	(4)
EU × Post	0.75*	0.71*	0.81*	1.16**
	(0.32)	(0.32)	(0.35)	(0.34)
Log Real GDP	-0.14	0.33	2.62	-0.97
	(2.04)	(2.08)	(2.15)	(1.99)
Log GDP per capita	3.54+	3.29	1.32	3.57*
	(1.95)	(1.99)	(2.01)	(1.76)
Tariff rates	-0.035**	-0.035**	-0.038**	-0.036**
	(0.012)	(0.012)	(0.011)	(0.012)
Regional trade agreements	1.36**	1.37**	1.39**	1.33**
	(0.35)	(0.35)	(0.34)	(0.35)
Country dummy	Yes	Yes	Yes	Yes
Product-year dummy	Yes	Yes	Yes	Yes
No. of observations	1,169	1,156	850	1,043
R-squared	0.88	0.88	0.89	0.89
Sample	All	Excluding Croatia	Excluding panel units with missing exports	Excluding small EU markets

Notes: Garment exports include knitted and woven garment products in HS chapters 61 and 62; small EU markets include Luxembourg, Netherlands, Ireland, Greece, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, and Bulgaria; parentheses report standard errors corrected for clustering in export markets; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

Table 4. Estimation Results of Exports by Product

Dependent variable: log of exports

	(1)	(2)	(3)	(4)
Sample	Knitted Garment	Woven Garment	Footwear	Cereal
HS Chapter	61	62	64	10
EU × Post	0.98*	1.41**	-0.55	0.51
	(0.39)	(0.48)	(0.34)	(0.69)
Log Real GDP	0.27	-1.32	5.00*	2.72
	(2.96)	(2.83)	(2.46)	(6.69)
Log GDP per capita	1.61	4.76*	-4.24+	-2.49
	(2.78)	(2.19)	(2.49)	(7.81)
Tariff rates	-0.038**	-0.032	-0.0095	-0.0065
	(0.010)	(0.023)	(0.025)	(0.011)
Regional trade agreements	0.93**	1.77**	-0.029	-0.031
	(0.25)	(0.55)	(0.55)	(1.45)
Country dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
No. of observations	591	452	568	279
R-squared	0.94	0.88	0.88	0.82

Notes: Columns (1) and (2) exclude small EU markets, including Luxembourg, Netherlands, Ireland, Greece, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, and Bulgaria; parentheses report standard errors corrected for clustering in export markets; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

Table 5. Estimation Results of Alternative Specifications

Dependent variable: log of exports

	(1)	(2)	(3)	(4)
HS Chapter	61-64	61-64	61, 62	61, 62
EU × Garment × Post	0.61+	0.97*		
	(0.35)	(0.39)		
EU × Year 2011			0.43	0.59
			(0.36)	(0.41)
EU × Year 2012			0.57	0.91*
			(0.36)	(0.38)
EU × Year 2013			1.05**	1.60**
			(0.37)	(0.36)
EU × Year 2014			0.85*	1.51**
			(0.40)	(0.41)
EU × Year 2015			1.06**	1.57**
			(0.36)	(0.40)
Control variables			Yes	Yes
Country dummy			Yes	Yes
Country-product dummy	Yes	Yes		
Country-year dummy	Yes	Yes		
Product-year dummy	Yes	Yes	Yes	Yes
No. of observations	2,145	1,962	1,169	1,043
R-squared	0.94	0.94	0.88	0.90
Sample	All	Excluding small EU markets	All	Excluding small EU markets

Notes: Control variables include GDP, GDP per capita, tariff rates, and new RTAs; parentheses report standard errors corrected for clustering in export markets; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

Table 6. Estimation Results of Export Substitution Effects

Dependent variable: log of exports to non-EU markets

	(1)	(2)	(3)
HS Chapter	61, 62	61	62
Post	0.041	0.10	-0.029
	(0.18)	(0.12)	(0.40)
Time Trend	0.17**	0.15*	0.18*
	(0.048)	(0.059)	(0.080)
Log Real GDP	-0.36	1.28	-1.26
	(2.27)	(3.44)	(3.00)
Log GDP per capita	3.47+	0.75	5.83*
	(1.94)	(3.04)	(2.37)
Tariff rates	-0.035**	-0.039**	-0.028
	(0.013)	(0.011)	(0.026)
Regional trade agreements	1.25**	0.92**	1.55**
	(0.33)	(0.25)	(0.50)
Country dummy	Yes	Yes	Yes
Product dummy	Yes		
No. of observations	767	442	325
R-squared	0.89	0.95	0.87

Notes: Parentheses report standard errors corrected for clustering in export markets; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

Table 7. Textile Imports in Cambodia

Textile Type	Fabric		Yarn	
Exporter	2010	2015	2010	2015
China	694.5	2,161.2	36.0	174.3
	(42.1)	(62.6)	(24.9)	(76.3)
Hong Kong	325.4	383.9	71.3	19.0
	(19.7)	(11.1)	(49.2)	(8.3)
South Korea	69.6	104.3	1.0	1.5
	(4.2)	(3.0)	(0.7)	(0.6)
Taiwan	267.0	375.0	14.1	4.0
	(16.2)	(10.9)	(9.8)	(1.7)
ASEAN	225.1	302.7	8.3	19.6
	(13.6)	(8.8)	(5.7)	(8.6)
EU	10.0	27.1	0.6	2.0
	(0.6)	(0.8)	(0.4)	(0.9)
Total	1,650.8	3,449.7	144.8	228.5

Notes: Figures indicate the value of imports in million USD; parentheses show a percentage share of the corresponding import in the total import; fabric indicates the commodities in HS 5208-12, 5309-11, 5407-08, 5512-16, 56, 57, 58, 59, and 60; yarn includes the commodities in HS 50, 51, 5201-07, 5301-08, 5401-06, and 5501-11.

Source: UN COMTRADE and Taiwan Trade Statistics Search

Table 8. Estimation Results of Textile Imports

Dependent variable: log of imports

	(1)	(2)	(3)
Sample	Fabric & Yarn	Fabric	Yarn
China	3.86**	5.04**	2.43**
	(0.86)	(1.17)	(0.87)
China × Post	0.95**	0.64*	1.50*
	(0.28)	(0.32)	(0.66)
HKG/KOR/TWN	3.97**	5.08**	2.55**
	(0.65)	(0.74)	(0.90)
HKG/KOR/TWN × Post	-0.27	-0.029	-0.26
	(0.41)	(0.37)	(0.84)
ASEAN	-1.06	-0.20	-2.30*
	(0.97)	(1.29)	(1.08)
ASEAN × Post	0.25	0.80	-0.15
	(0.45)	(0.52)	(0.92)
EU	-0.47	-0.76	0.27
	(0.67)	(0.83)	(0.97)
EU × Post	0.49	0.98	-0.55
	(0.58)	(0.61)	(1.31)
Control variables	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Fabric dummy	Yes		
No. of observations	679	455	224
R-squared	0.56	0.57	0.62

Notes: Parentheses report standard errors corrected for clustering in import markets; control variables include log real GDP, log GDP per capita, RTAs, geographic distance, and geographic contiguity; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

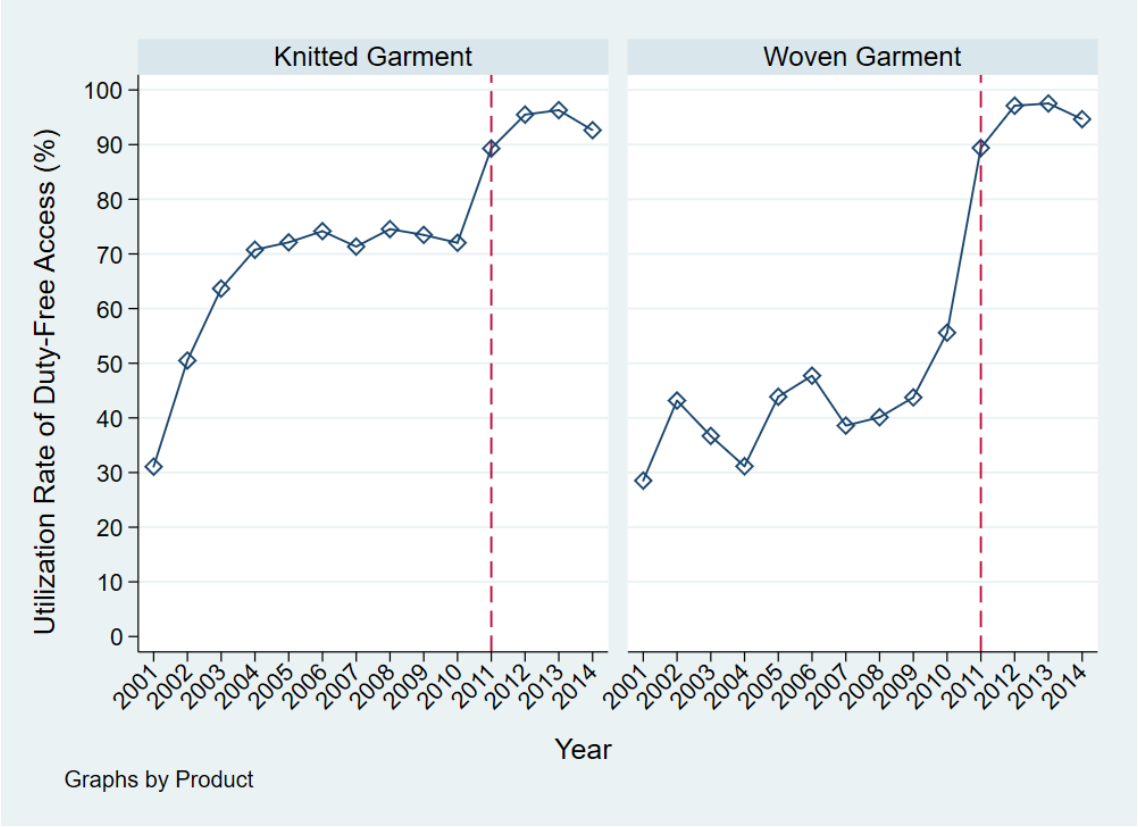
Table 9. Estimation Results of Inward FDI

Dependent variable: log of capital

	(1)	(2)	(3)
Garment × Post	0.62+	0.61+	0.53+
	(0.36)	(0.32)	(0.31)
Textile × Post	-1.39*	-0.70*	-0.72+
	(0.62)	(0.33)	(0.37)
China		-0.22	0.52
		(0.25)	(0.41)
China × Post		0.92*	0.40
		(0.37)	(0.37)
Garment		0.054	0.32
		(0.25)	(0.26)
Garment × China		1.55**	
		(0.30)	
Garment × Post × China		0.24	
		(0.45)	
Textile		-0.36	-0.22
		(0.25)	(0.29)
Textile × China			-0.72
			(0.46)
Textile × Post × China			0.28
			(0.49)
Minimum wage	-0.0014	0.0062+	0.0063+
	(0.0096)	(0.0037)	(0.0037)
Sector dummy	Yes		
Country-year dummy	Yes		
Year dummy		Yes	Yes
No. of observations	456	456	485
R-squared	0.61	0.29	0.25

Notes: Parentheses report standard errors corrected for clustering in sector and country; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

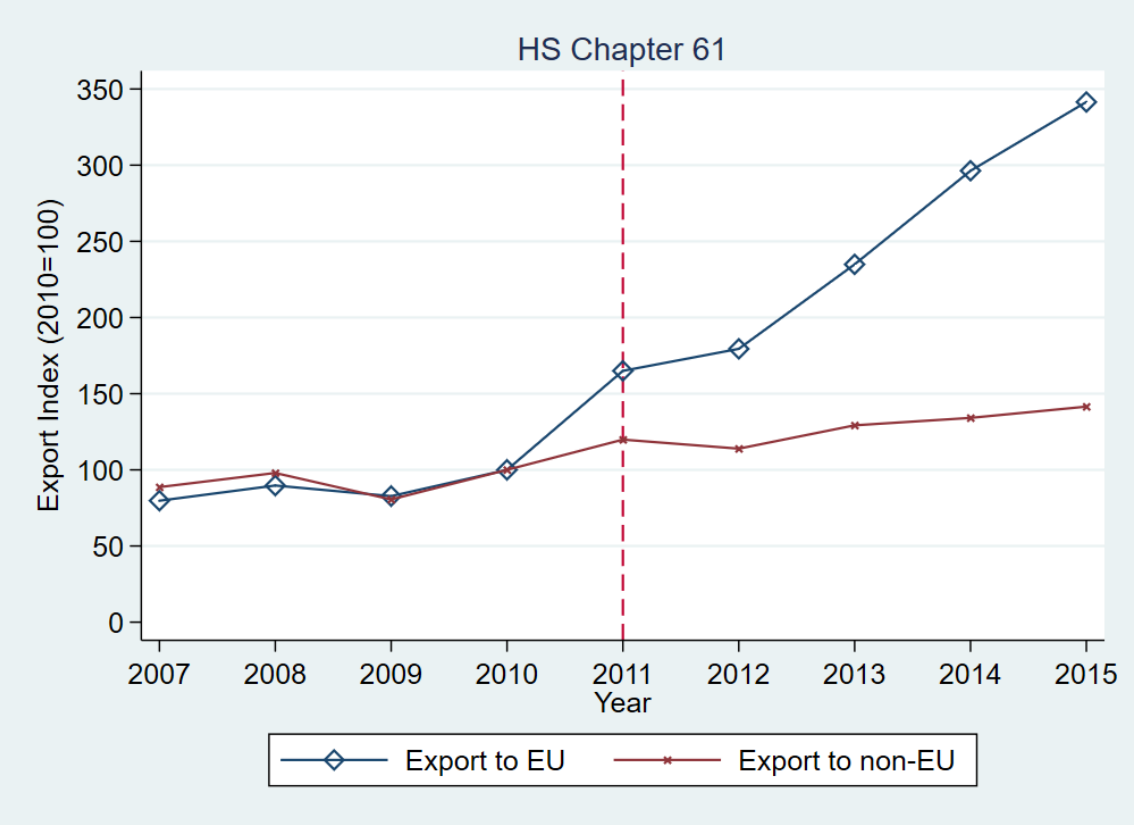
Figure 1. Utilization Rate of Duty-Free Garment Imports in EU from Cambodia



Notes: Knitted and woven garments indicate the garments in HS chapters 61 and 62, respectively; the utilization rate is computed as a share of duty-free import in the total import that entered EU markets under duty-free and MFN rate.

Source: EUROSTAT

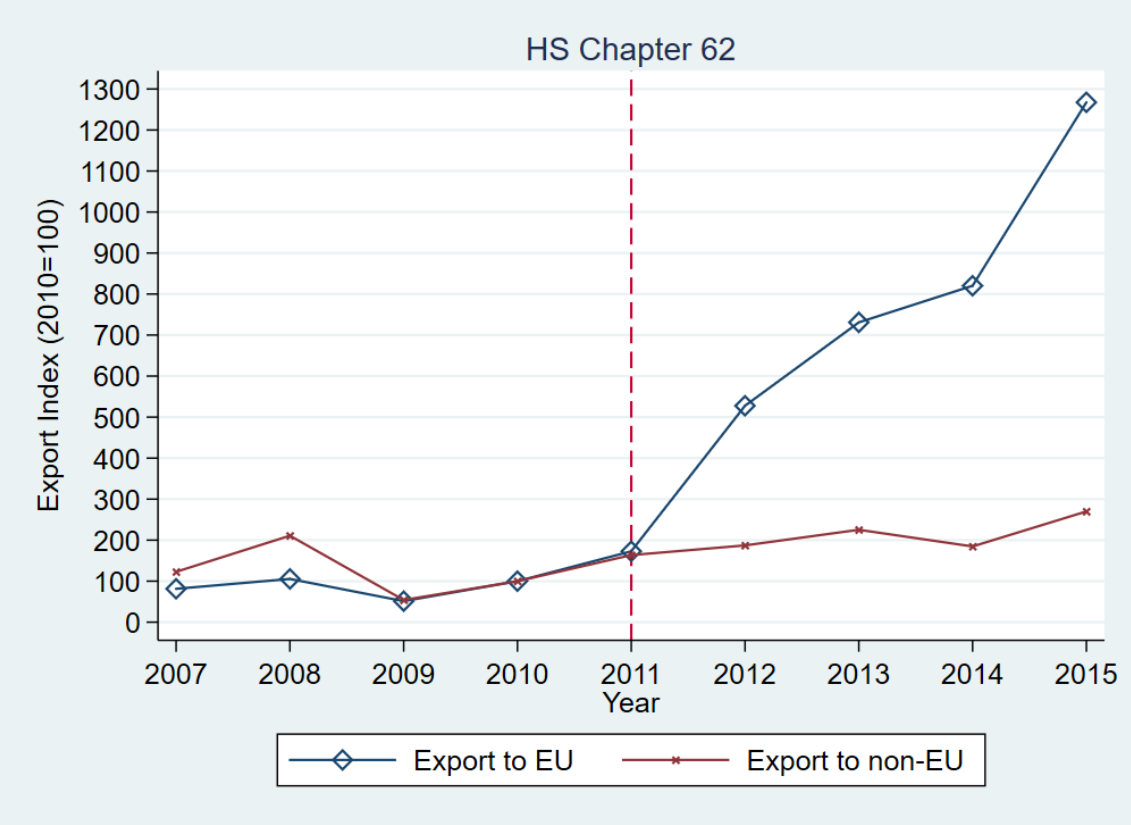
Figure 2. Export Trends in Knitted Garments



Notes: The value of knitted garment exports is normalized to take a value of 100 for 2010; the total exports from Cambodia to EU markets and non-EU markets are shown, respectively.

Source: UN COMTRADE and Taiwan Trade Statistics Search

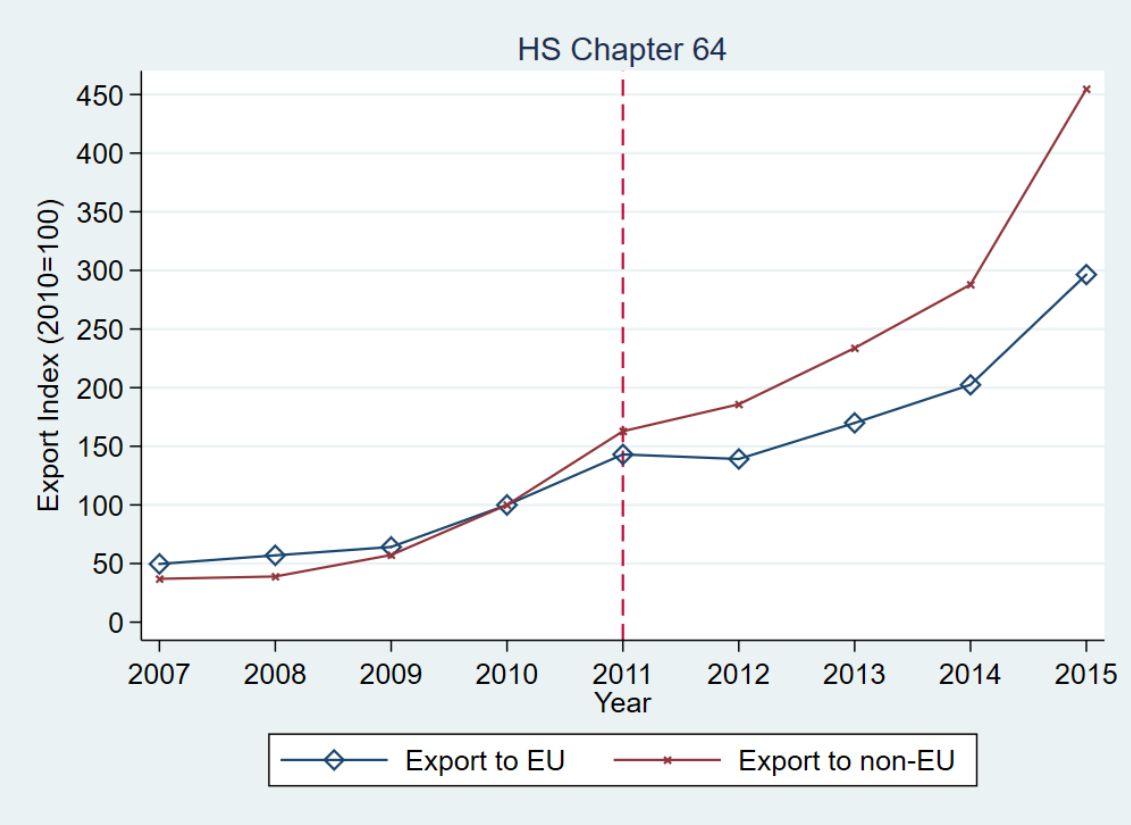
Figure 3. Export Trends in Woven Garments



Notes: The value of woven garment exports is normalized to take a value of 100 for 2010; the total exports from Cambodia to EU markets and non-EU markets are shown, respectively.

Source: UN COMTRADE and Taiwan Trade Statistics Search

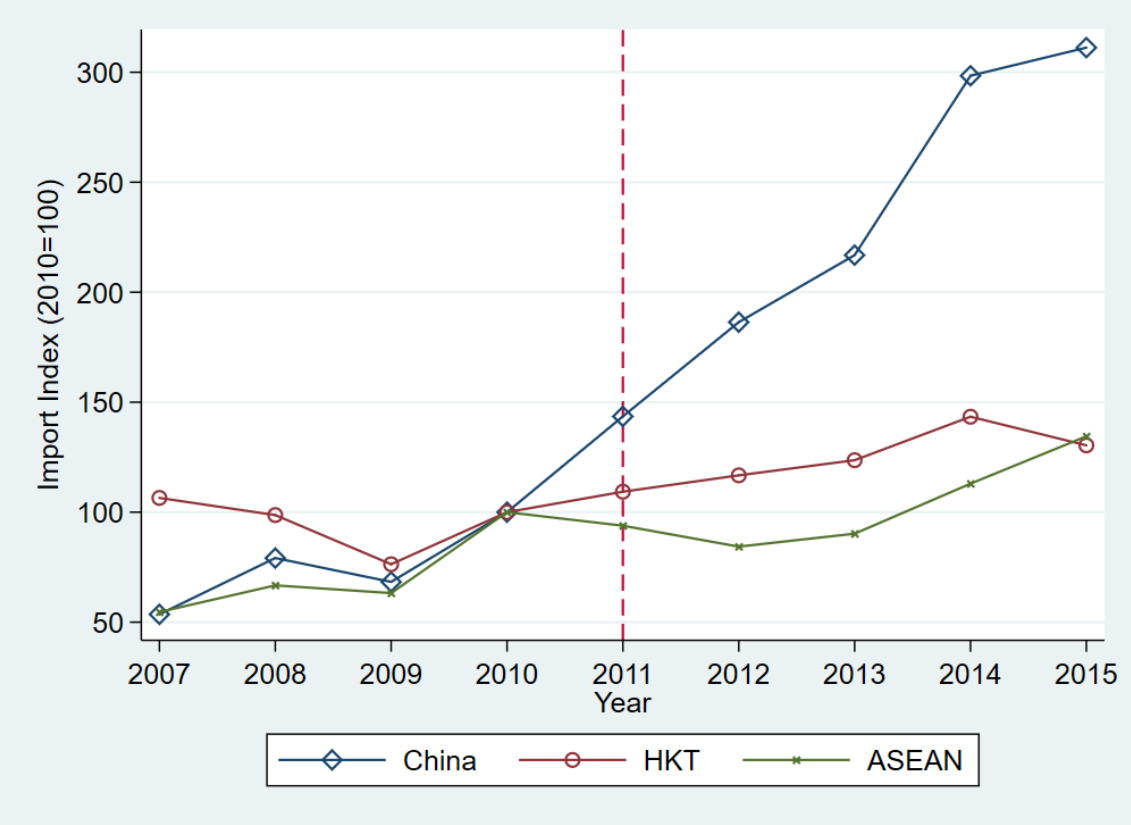
Figure 4. Export Trends in Footwear



Notes: The value of footwear exports is normalized to take a value of 100 for 2010; the total exports from Cambodia to EU markets and non-EU markets are shown, respectively.

Source: UN COMTRADE and Taiwan Trade Statistics Search

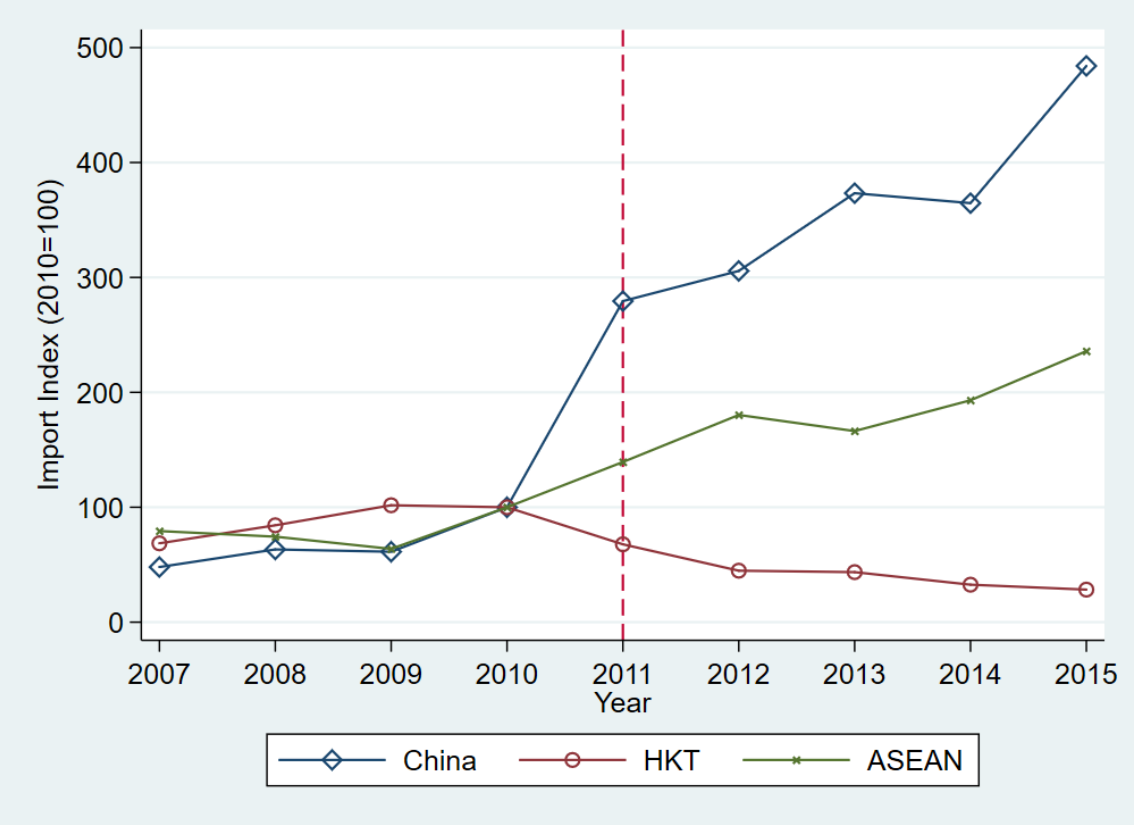
Figure 5. Import Trends in Fabric



Notes: Fabric includes the commodities in HS 5208-12, 5309-11, 5407-08, 5512-16, 56, 57, 58, 59, and 60; the value of fabric imports are normalized to take a value of 100 for 2010; HKT indicates the total fabric imports from Hong Kong, South Korea, and Taiwan.

Source: UN COMTRADE and Taiwan Trade Statistics Search

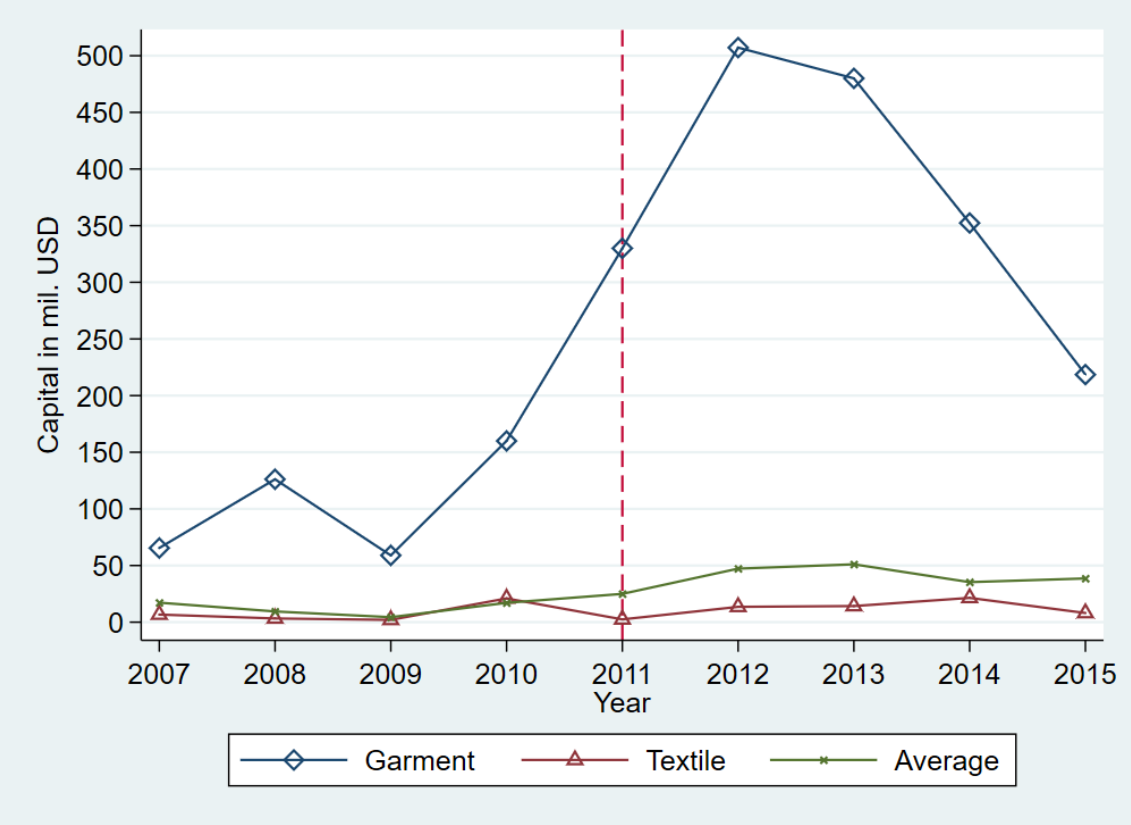
Figure 6. Import Trends in Yarn



Notes: Yarn includes the commodities in HS 50, 51, 5201-07, 5301-08, 5401-06, and 5501-11; the value of yarn imports are normalized to take a value of 100 for 2010; HKT indicates the total fabric imports from Hong Kong, South Korea, and Taiwan.

Source: UN COMTRADE and Taiwan Trade Statistics Search

Figure 7. Trends in Inward FDI Flows



Notes: Capital is measured in millions of U.S. dollars; garment and textile indicate the total amount of capital by foreign investors in garment and textile sectors, respectively; Average indicates the average amount of capital by foreign investors in all manufacturing sectors.

Appendix

Appendix Table 1. List of Sample Countries

Afghanistan	Czech Republic	Kuwait	Qatar
Albania	Denmark	Latvia	Romania
Algeria	Dominican Republic	Lebanon	Russian Federation
Angola	Ecuador	Lesotho	Saudi Arabia
Antigua and Barbuda	Egypt, Arab Rep.	Lithuania	Sierra Leone
Argentina	El Salvador	Luxembourg	Singapore
Armenia	Estonia	Macao	Slovak Republic
Australia	Ethiopia (excludes Eritrea)	Macedonia, FYR	Slovenia
Austria	Finland	Madagascar	South Africa
Azerbaijan	France	Malaysia	Spain
Bahrain	Germany	Malta	Sri Lanka
Belarus	Greece	Mauritius	Suriname
Belgium	Guatemala	Mexico	Swaziland
Belize	Haiti	Moldova	Sweden
Benin	Honduras	Mongolia	Switzerland
Bolivia	Hong Kong, China	Morocco	Taiwan, China
Bosnia and Herzegovina	Hungary	Nepal	Thailand
Brazil	Iceland	Netherlands	Tunisia
Brunei	India	New Zealand	Turkey
Bulgaria	Indonesia	Nicaragua	Ukraine
Cameroon	Ireland	Norway	United Arab Emirates
Canada	Israel	Pakistan	United Kingdom
Chile	Italy	Panama	United States
China	Jamaica	Papua New Guinea	Uruguay
Colombia	Japan	Paraguay	Venezuela
Congo, Rep.	Jordan	Peru	Vietnam
Costa Rica	Kazakhstan	Philippines	
Croatia	Kenya	Poland	
Cyprus	Korea, Rep.	Portugal	

Appendix Table 2. Estimation Results for Weighted Tariff Rates

Dependent variable: log of exports

	(1)	(2)	(3)	(4)
EU × Post	0.75*	0.71*	0.81*	1.16**
	(0.32)	(0.32)	(0.35)	(0.34)
Log Real GDP	-0.14	0.33	2.61	-0.97
	(2.05)	(2.08)	(2.15)	(2.00)
Log GDP per capita	3.57+	3.32+	1.37	3.60*
	(1.95)	(1.99)	(2.01)	(1.77)
Trade-weighted tariff rates	-0.034**	-0.034**	-0.036**	-0.035**
	(0.011)	(0.011)	(0.010)	(0.011)
Regional trade agreements	1.37**	1.39**	1.41**	1.34**
	(0.35)	(0.35)	(0.34)	(0.35)
Country-product dummy	Yes	Yes	Yes	Yes
Product-year dummy	Yes	Yes	Yes	Yes
No. of observations	1,169	1,156	850	1,043
R-squared	0.88	0.88	0.90	0.89
Sample	All	Excluding Croatia	Excluding the markets with missing exports	Excluding small EU markets

Notes: Garment exports include knitted and woven garment products in HS chapters 61 and 62; parentheses report standard errors corrected for clustering in export markets; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

Appendix Table 3. Estimation Results for Additional Fixed Effects

Dependent variable: log of exports

	(1)	(2)	(3)	(4)
EU × Post	0.80*	0.77*	0.81*	1.18**
	(0.32)	(0.32)	(0.36)	(0.35)
Log Real GDP	0.31	0.85	2.61	-0.12
	(2.17)	(2.17)	(2.22)	(2.23)
Log GDP per capita	2.92	2.62	1.37	2.69
	(2.07)	(2.09)	(2.07)	(1.95)
Tariff rates	-0.034*	-0.034*	-0.037**	-0.036**
	(0.013)	(0.013)	(0.012)	(0.013)
Regional trade agreements	1.34**	1.35**	1.39**	1.34**
	(0.37)	(0.37)	(0.35)	(0.38)
Country-product dummy	Yes	Yes	Yes	Yes
Product-year dummy	Yes	Yes	Yes	Yes
No. of observations	1,169	1,156	850	1,043
R-squared	0.92	0.92	0.93	0.93
Sample	All	Excluding Croatia	Excluding the markets with missing exports	Excluding small EU markets

Notes: Garment exports include knitted and woven garment products in HS chapters 61 and 62; parentheses report standard errors corrected for clustering in export markets; constant is not reported; **, *, and + denote significance at the 1%, 5%, and 10% level, respectively.

Appendix Table 4. The Number of Garment Exporters by Destination Markets

Destination markets in 2002	Destination markets in 2008					
	North America	North America Europe	North America Other	Europe	Europe Other	Other
North America	9	3	0	0	0	0
North America Europe	6	10	0	1	0	2
North America Other	0	0	0	0	0	0
Europe	0	1	0	1	0	0
Europe Other	0	0	0	0	0	0
Other	1	0	0	0	0	0

Notes: Figures indicate the number of sample firms that can be linked between 2003 and 2009 and show information on their export destination markets for these years; 164 and 122 firms were surveyed in 2002 and 2008, respectively.

Source: Asuyama et al. (2013) and Yamagata (2006).

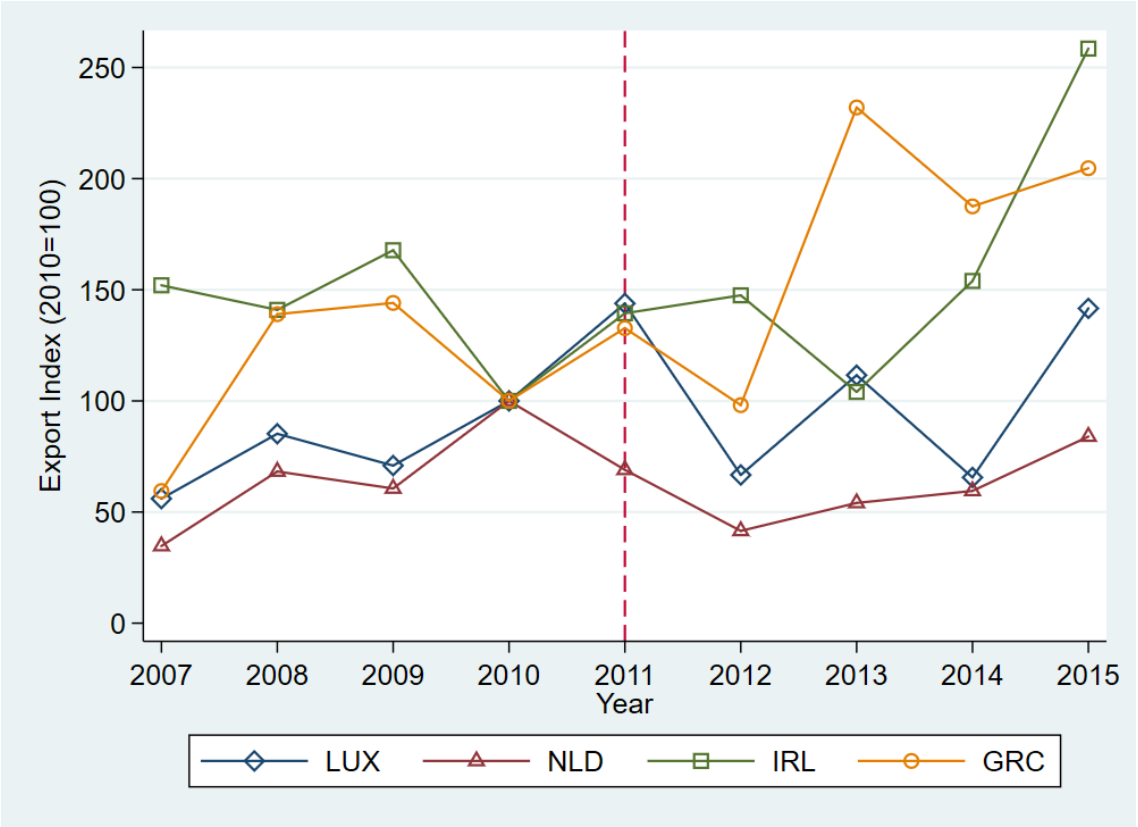
Appendix Table 5. Summary Statistics of Textile Imports

Variable	No. of Obs.	Mean	Std. Dev.	Min	Max
Log Import	679	-1.38	3.61	-10.64	7.68
China	679	0.03	0.16	0	1
China × Post	679	0.01	0.12	0	1
HKG/KOR/TWN	679	0.08	0.27	0	1
HKG/KOR/TWN × Post	679	0.04	0.21	0	1
EU	679	0.26	0.44	0	1
EU × Post	679	0.16	0.37	0	1
ASEAN	679	0.19	0.39	0	1
ASEAN × Post	679	0.10	0.30	0	1
Log Real GDP	679	5.67	1.95	-0.40	9.72
Log GDP per capita	679	9.31	1.49	5.93	11.63
Log Distance	679	8.41	0.96	6.25	9.89
Geographic contiguity	679	0.06	0.25	0	1
Regional trade agreements	679	0.07	0.25	0	1
Fabric dummy	679	0.67	0.47	0	1

Appendix Table 6. Summary Statistics of Inward FDI

Variable	No. of Obs.	Mean	Std. Dev.	Min	Max
Log capital	456	15.45	1.30	9.90	19.19
Garment × Post	456	0.12	0.33	0	1
Textile × Post	456	0.03	0.18	0	1
China	456	0.20	0.40	0	1
China × Post	456	0.13	0.33	0	1
Garment	456	0.32	0.47	0	1
Garment × China	456	0.04	0.21	0	1
Garment × Post × China	456	0.01	0.10	0	1
Textile	456	0.07	0.25	0	1
Textile × China	456	0.02	0.14	0	1
Textile × Post × China	456	0.01	0.10	0	1
Minimum wage	456	31.47	35.74	0	128

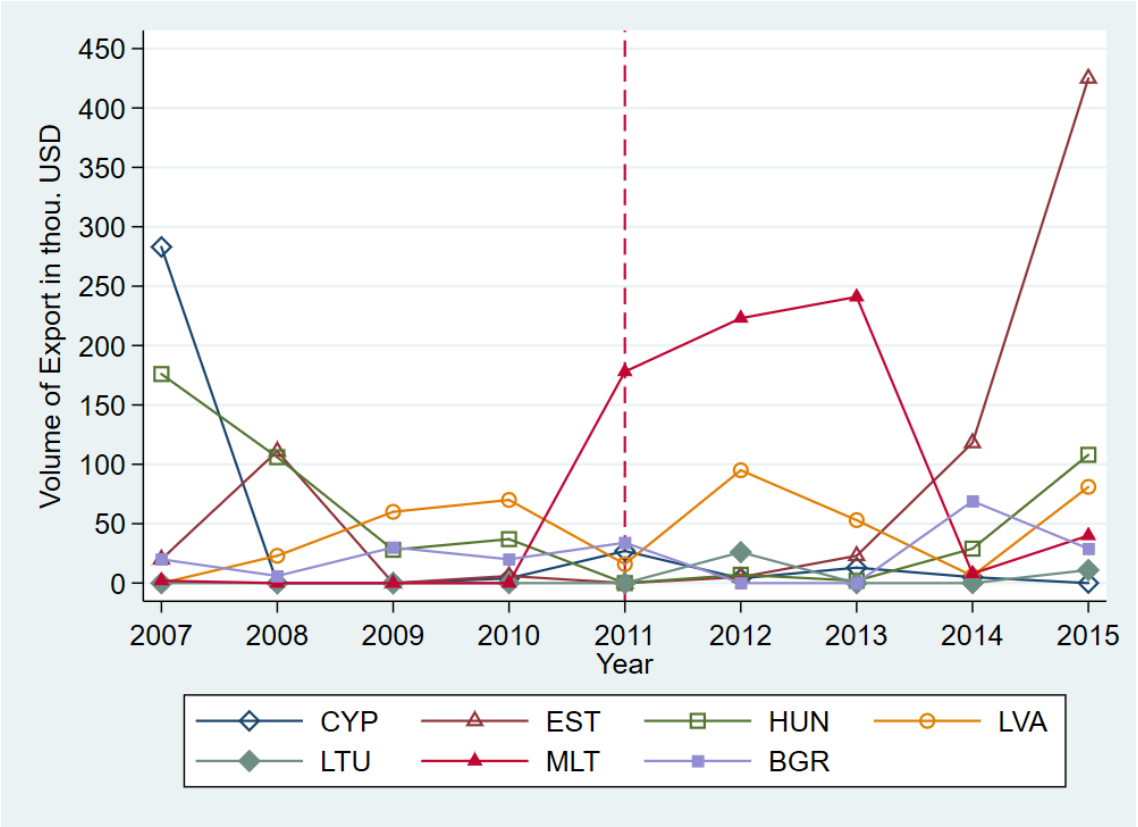
Appendix Figure 1. Garment Export Trends for Small EU Markets



Notes: The value of garment exports are normalized to take a value of 100 for 2010; the total exports from Cambodia to Luxembourg, Netherlands, Ireland, and Greece are shown.

Source: UN COMTRADE and Taiwan Trade Statistics Search

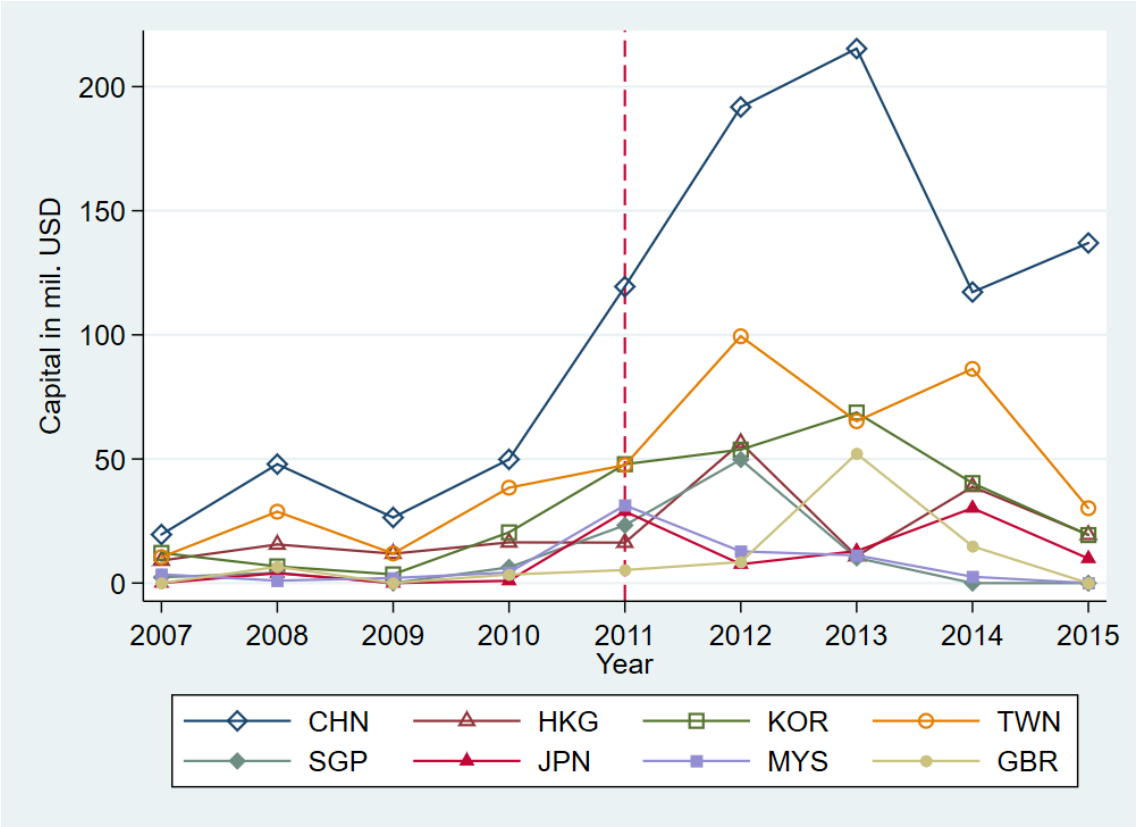
Appendix Figure 2. Garment Export Trends for Very Small EU Markets



Notes: The value of garment exports are measured in thousand USD; the total exports from Cambodia to Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, and Bulgaria are shown.

Source: UN COMTRADE and Taiwan Trade Statistics Search

Appendix Figure 3. FDI Flows in Garment Sector from Major Countries



Notes: Capital is measured in millions of U.S. dollars; major parent countries for inward FDI in garment sector accounted for 97.9% of the total capital investment during the period 1994-2015.

Reference

Asuyama, Y., Chhun, D., Fukunishi, T., Neou, S. Yamagata, T. 2013. Firm dynamics in the Cambodian garment industry: firm turnover, productivity growth and wage profile under trade liberalization. *Journal of the Asia Pacific Economy*, 18 (1), 51-70.

Yamagata, T. 2006. The garment industry in Cambodia: its role in poverty reduction through export-oriented development. *Cambodian Economic Review*, 2, 81-136.