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**QUY TẮC XUẤT XỨ TRONG KHUÔN KHỔ EVFTA: MỘT RÀO CẢN TIỀM ẨN ĐỐI VỚI CÁC DOANH NGHIỆP VỪA VÀ NHỎ TRONG NGÀNH DỆT MAY VIỆT NAM**

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**Tóm tắt**

Hiệp định Thương mại Tự do Việt Nam - Liên minh châu Âu (EVFTA) quy định mặt hàng xuất khẩu dệt may của Việt Nam phải tuân thủ các Quy tắc xuất xứ (Rules of Origin - RoO). Nghiên cứu này xem xét mối quan hệ giữa các Quy tắc xuất xứ và khả năng tạo lập thương mại của ưu đãi thuế quan theo EVFTA đối với mặt hàng xuất khẩu dệt may của Việt

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Nam sang 27 nước EU, sử dụng dữ liệu bảng trong giai đoạn từ năm 2017 đến năm 2023. Nhóm tác giả áp dụng phương pháp Bình phương tối thiểu tổng quát lặp (Iterative Generalized Least Squares - IGLS) để phân tích sự thay đổi trong hiệu quả xuất khẩu trong hai thời kỳ: trước và sau EVFTA, giữa các mặt hàng chịu sự điều chỉnh của các Quy tắc xuất xứ và các mặt hàng không bị ràng buộc bởi các quy tắc này. Kết quả cho thấy biên độ ưu đãi thuế quan có tác động tích cực tới hiệu quả xuất khẩu của mặt hàng dệt may, trong khi đó mức độ chịu sự tác động của các Quy tắc xuất xứ lớn lại làm giảm hiệu quả của tác động này. Hơn nữa, năng lực thượng nguồn làm giảm thiểu tác động tiêu cực của mức độ chịu sự tác động của các Quy tắc xuất xứ đối với hiệu quả xuất khẩu, đặc biệt là đối với các doanh nghiệp vừa và nhỏ (Small and medium enterprises - SMEs). Dựa vào những phát hiện này, nhóm tác giả đưa ra một đề xuất cho các doanh nghiệp xuất khẩu dệt may của Việt Nam nhằm tuân thủ các Quy tắc xuất xứ liên quan đến nâng cao năng lực thượng nguồn, chỉ dẫn cho quá trình chuyển đổi nguyên liệu đầu vào, tăng cường hợp tác giữa các nhà sản xuất dệt và doanh nghiệp may mặc, cũng như các chính sách hỗ trợ dành cho doanh nghiệp nhỏ và vừa.

**Từ khóa:** EVFTA, quy tắc xuất xứ, ngành dệt may, doanh nghiệp vừa và nhỏ (SMEs), rào cản

## **RULES OF ORIGIN IN THE EVFTA: A HIDDEN BARRIER FOR VIETNAMESE TEXTILE AND GARMENT SMES**

### **Abstract**

The EU-Vietnam Free Trade Agreement (EVFTA) regulates that Vietnam's garment and textile exports are subject to the Rules of Origin (RoO). This paper attempts to study the relationship between Rules of Origin and the trade-creating effects of tariff preferences under the EVFTA for Vietnam's garment and textile exports to 27 EU countries using panel data in the period from 2017 to 2023. The authors employed a panel Iterative Generalized Least Square (IGLS) framework to analyze the changes in export performance in 2 periods: before and after EVFTA, between products under regulation of RoO and products not under this constraint. The results indicate that tariff margin has a positive impact on export performance of garment and textile products, while higher RoO exposure reduces this impact. Moreover, upstream capacity positively mitigates the effects of RoO exposure on export performance, particularly for Small and medium enterprises (SMEs). From these findings, the authors proposed recommendations for Vietnam's garment and textile export firms in compliance with the Rules of Origin regarding upstream capacity enhancement, guidance for transformation process of raw materials, increasing cooperation between textile manufacturers and garment producers and supporting policies for SMEs.

**Keyword:** EVFTA, rules of origin, textile and garment, small-medium enterprises (SMEs), barrier

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### **1. Introduction**

The European Union (EU) has been one of the most important importers of Vietnam's textile and garment industry over the past two decades, which reflects Vietnam's deepening integration into global value chains in labour-intensive manufacturing sectors (World Bank, 2020). The textile and garment sector plays a pivotal part in Vietnam's export structure and

generates employment opportunities, so access to major markets such as the EU can significantly improve export growth. The EU-Vietnam Free Trade Agreement (EVFTA) was signed in August 2020 and recorded as a milestone in Vietnam-EU trade relations. Under the agreement, tariffs on most textile and garment products exported from Vietnam to the EU are gradually being eliminated, thereby improving the price competitiveness of Vietnamese products in the European market (European Commission, 2020). According to the theory, such tariff reductions are expected to generate trade-creating effects by lowering trade costs and expanding export opportunities for Vietnamese producers.

However, the level of tariff preferences for firms depends on compliance with the Rules of Origin (RoO). In other words, RoO are designed to ensure tariff preferences granted only to products genuinely originating within member countries and to prevent trade deflection (Krishna, 2006). In the textile and garment industry, the EVFTA adopts a yarn-forward rule of origin, meaning that the stages of production from yarn onward must be carried out within Vietnam or in partner countries that are eligible under the agreement. This requirement is intended to promote the development of upstream textile industries and encourage the formation of stronger regional supply chains, but it may also create practical difficulties for Vietnamese firms. In reality, many garment producers in Vietnam still depend heavily on imported fabrics and other intermediate materials, particularly from countries outside the EVFTA framework. As a result, complying with the yarn-forward requirement can be challenging for a significant group of exporters. Previous research has shown that when rules of origin are relatively strict, firms may find it difficult or costly to meet these conditions, which in turn can reduce their use of preferential tariffs and weaken the export benefits that trade agreements are expected to deliver (Cadot et al., 2005; Fontagné, Orefice, & Piermartini, 2011). Although the literature on preferential trade agreements and rules of origin has expanded in recent years, empirical studies examining how these requirements interact with tariff incentives under the EVFTA are still relatively scarce.

This study, therefore, aims to examine the relationship between Rules of Origin and the trade-creating effects of tariff preferences under the EVFTA in Vietnam's textile and garment sector. In particular, the study addresses three research questions: (i) whether the tariff margin generated by the EVFTA stimulates the export performance of Vietnamese textile and garment products; (ii) how exposure to origin requirements affects the ability of firms to benefit from tariff preferences; and (iii) whether domestic upstream capacity can mitigate the constraints imposed by yarn-forward rules, particularly for small and medium-sized enterprises (SMEs).

This study contributes to the theoretical background in several ways. First, it provides empirical evidence on the interaction between tariff preferences and Rules of Origin in the context of the EVFTA, focusing on a sector where origin requirements are particularly binding. Second, the analysis adopts a product-level empirical framework that captures variation in exposure to origin rules across textile and garment products. Third, the study introduces upstream capacity as a moderating factor that may alleviate the constraints imposed by yarn-forward rules.

This study adopts a quantitative panel-data approach to examine the impact of fabric-forward Rules of Origin (RoO) under the EVFTA on Vietnam's textile and garment

export performance. The empirical analysis applies an Iterative Generalized Least Squares (IGLS) estimator with product and year fixed effects to control for unobserved heterogeneity and time-specific shocks. Interaction terms are incorporated to assess whether RoO exposure weakens the trade-creating effect of tariff margins and whether upstream capacity mitigates this constraint. The dataset consists of HS 4-digit product-level exports from Vietnam to the EU-27 during the period 2017-2023, enabling a comparison between the pre- and post-EVFTA implementation periods for textile and garment products.

## **2. Literature Review and Research Gap**

### **2.1. Literature Review**

#### *2.1.1. Rules of Origin in Preferential Trade Agreements*

Rules of Origin (RoO) constitute a core component of preferential trade agreements because they determine whether a product qualifies for tariff preferences and thereby ensure that the benefits of liberalisation accrue to member countries. By defining the economic nationality of goods, RoO are primarily designed to prevent trade deflection, whereby exports from non-member economies are routed through the member country with the lowest external tariff (Krishna, 2006; Anson et al., 2005). However, a growing body of recent literature highlights that RoO extend beyond a purely administrative function and exert significant influence on firms' production and sourcing decisions. On the one hand, appropriately designed RoO can promote regional integration by incentivising firms to source inputs within the trade bloc, thereby fostering the development of regional value chains and strengthening intra-regional linkages (Baldwin & Freeman, 2022; Mattoo, Rocha, & Ruta, 2020). On the other hand, increasingly stringent and complex origin requirements may impose substantial compliance costs, particularly for small and medium-sized enterprises, and can reduce firms' flexibility in organising globally efficient production networks (Cadot & Ing, 2016; Conconi et al., 2018). Recent empirical evidence also suggests that restrictive RoO may distort sourcing patterns by encouraging firms to substitute away from more competitive external suppliers toward less efficient regional ones, potentially undermining the welfare gains typically associated with trade liberalisation (Hayakawa, Laksanapanyakul, & Urata, 2019; Crivelli & Inama, 2020).

#### *2.1.2. Rules of Origin and Export Performance*

A substantial body of empirical research has examined the relationship between Rules of Origin and export performance, with particular attention to firms' actual use of preferential tariffs under free trade agreements. While preferential tariff reductions are expected to enhance export competitiveness by lowering prices in destination markets, these benefits are conditional on firms' ability to comply with origin requirements. Recent evidence consistently shows that the restrictiveness and complexity of Rules of Origin play a decisive role in shaping preference utilization and trade flows. When origin requirements become more demanding, firms are less likely to claim preferential treatment and may instead opt to export under Most Favoured Nation tariff rates to avoid compliance costs (Cadot, Carrère, de Melo, & Tumurchudur, 2006; Conconi et al., 2018). At the same time, Rules of Origin influence firms' production structures and sourcing strategies by incentivizing the use of

regional inputs, which can alter export patterns and firm-level competitiveness (Fontagné, Orefice, & Piermartini, 2011; Hayakawa et al., 2019).

At the micro level, complying with origin requirements entails both administrative and operational costs, including certification procedures, documentation, and adjustments to supply chains. These costs are not trivial and tend to disproportionately affect smaller firms, which often face constraints in managerial capacity and financial resources. More recent studies highlight that such compliance burdens generate a selection effect in which only more productive or better-organized firms are able to utilize trade preferences effectively (Cherkashin, Demidova, Kee, & Krishna, 2015; Crivelli & Inama, 2020). This creates a threshold mechanism similar to that described in earlier literature, where firms must reach a certain scale to benefit from preferential access. Consequently, the impact of tariff liberalization on export performance is far from automatic and depends critically on firms' ability to meet Rules of Origin, suggesting that overly stringent requirements may significantly dilute the trade-enhancing effects of free trade agreements (Hoekman & Shepherd, 2017; Mattoo, Rocha, & Ruta, 2020).

### *2.1.3. Rules of Origin in the Textile and Garment Industry*

The textile and garment industry is widely recognized as one of the sectors most sensitive to the design and implementation of Rules of Origin in preferential trade agreements, largely because these rules are often formulated to promote upstream industrial development and deepen regional value chains. In many agreements, including those involving major apparel exporters, origin requirements such as yarn forward or fabric forward rules condition tariff preferences on the location of key production stages, thereby encouraging investment in spinning and weaving activities within member economies (Krishna, 2006; Cadot & de Melo, 2008; Anson et al., 2005). More recent studies further emphasize that these provisions are not merely technical criteria but strategic policy tools that shape the geography of production and influence firms' integration into regional and global value chains (Baldwin & Freeman, 2022; Mattoo, Rocha, & Ruta, 2020). However, the effectiveness of such rules is highly context dependent, particularly in an industry characterized by fragmented and internationally dispersed supply chains. Empirical evidence shows that apparel producers often rely on globally sourced inputs to maintain cost efficiency and product competitiveness, and restrictive origin requirements can limit this flexibility by compelling firms to substitute toward regional inputs that may be more expensive or less competitive (Gereffi & Frederick, 2010; Conconi et al., 2018; Hayakawa et al., 2019). As a result, compliance with stringent Rules of Origin frequently entails both administrative and production-related costs, which may discourage firms from utilizing preferential tariffs despite their availability (Estevadeordal & Suominen, 2009; Crivelli & Inama, 2020).

This tension is particularly evident in the case of Vietnam, where the garment sector has achieved strong export performance while remaining structurally dependent on imported fabrics and intermediate inputs, especially from non-member economies such as China and South Korea (World Bank, 2020; OECD, 2021). With the implementation of the EU-Vietnam Free Trade Agreement, the introduction of yarn forward requirements has significantly altered the conditions under which Vietnamese exporters can access tariff preferences in the

European market. Firms that previously relied on globally optimized sourcing strategies now face incentives to reconfigure their supply chains toward domestic or regional suppliers in order to meet origin criteria. Recent empirical analyses suggest that such adjustments are uneven across firms, depending on their scale, technological capacity, and position within the value chain, leading to heterogeneous impacts on export performance and preference utilization (Hayakawa et al., 2022; Nguyen & Vu, 2023). Consequently, while Rules of Origin under the EVFTA have the potential to stimulate upstream development, they may also constrain short term export gains if firms encounter difficulties in meeting the required conditions.

#### *2.1.4. Upstream Capacity and Firms' Compliance with Rules of Origin*

Another important determinant of firms' ability to comply with Rules of Origin lies in the availability and depth of domestic upstream industries, particularly in sectors such as textiles and garments where intermediate inputs like yarn and fabric are central to origin criteria. A well-developed domestic supply base allows firms to source inputs locally while still meeting the requirements attached to preferential tariffs, thereby lowering compliance costs and increasing the likelihood of preference utilization. Recent research on global value chains highlights that countries with stronger domestic production linkages and higher levels of vertical integration tend to capture greater benefits from trade agreements, as firms can combine cost efficiency with regulatory compliance more effectively (Gereffi, 2018; World Bank, 2020; OECD, 2021). In contrast, in economies where upstream capacity remains limited, firms are often reliant on imported intermediates from non-member countries, which complicates their ability to satisfy origin rules embedded in free trade agreements.

Empirical studies increasingly show that in such contexts, firms may be required to adjust sourcing strategies, restructure supplier networks, or even alter production processes in order to meet origin conditions, all of which involve non-negligible adjustment and coordination costs (Cadot, Carrère, de Melo, & Tumurchudur, 2006; Conconi et al., 2018; Hayakawa et al., 2019). These costs can reduce the attractiveness of preferential tariffs, especially when margins of preference are relatively small. Access to domestic inputs therefore plays a critical role in mitigating these burdens and facilitating compliance. This issue is particularly pronounced for small and medium sized enterprises, which typically face tighter financial constraints and possess less diversified supplier networks compared to larger firms. Recent firm-level evidence suggests that such firms are less able to absorb the fixed costs associated with Rules of Origin compliance, resulting in lower utilization rates of trade preferences (Borin, Mancini, & Taglioni, 2018; Crivelli & Inama, 2020). Consequently, the development of domestic upstream industries not only supports industrial upgrading but also enhances the inclusiveness of trade agreements by enabling a broader range of firms to access export opportunities generated by tariff liberalization (Mattoo, Rocha, & Ruta, 2020).

## **2.2. Research Gap**

Despite a substantial body of literature on Rules of Origin, important gaps remain in understanding their firm-level implications, particularly in the context of the EU-Vietnam Free Trade Agreement and the textile and garment sector. Most existing studies focus on aggregate trade flows or preference utilization, which tend to mask heterogeneous firm responses shaped by differences in size, productivity, and integration into global value chains.

While recent research emphasizes that trade policies generate uneven effects across firms, empirical evidence on how origin requirements directly influence export performance at the firm level in developing countries such as Vietnam is still limited (Cherkashin et al., 2015; Conconi et al., 2018; Crivelli & Inama, 2020). Moreover, the interaction between tariff incentives and compliance costs has not been sufficiently examined. In agreements like the EVFTA, where significant tariff reductions coexist with relatively stringent origin rules, the overall effect on exports remains ambiguous, yet most studies continue to analyze these factors separately rather than jointly (Hayakawa et al., 2019; Mattoo et al., 2020).

Another critical gap concerns the role of domestic upstream capacity in shaping firms' ability to comply with Rules of Origin. Although policy discussions and global value chain literature highlight the importance of local input availability, there is limited empirical evidence on whether and to what extent upstream capacity can mitigate compliance costs, especially for small and medium sized enterprises. This is particularly relevant for Vietnam, where the textile and garment industry remains dependent on imported intermediates despite its strong export performance. Given that SMEs often face higher relative compliance burdens and more constrained sourcing options, it remains unclear whether Rules of Origin under the EVFTA function as a catalyst for upgrading or as a hidden barrier that limits their access to preferential markets (Borin et al., 2018; OECD, 2021; World Bank, 2020).

### **3. Theoretical background & Hypothesis development**

#### ***3.1. Theoretical background***

The first theory used in this model is the trade cost theory in the gravity framework. The theory states that bilateral trade flows of goods and services have a negative relationship with trade cost, and the larger the economic size of the trading partner is, the more significant this effect becomes. James E. Anderson and Eric van Wincoop (2003) concluded that rising trade costs from higher trade barriers, mainly through tariff barriers, significantly increases the cost of trade, thus reducing the trade volume between partners. Later, Keith Head and Thierry Mayer (2014) found out that even non-tariff barriers like implicit costs resulting from regulatory requirements and compliance mechanisms can negatively impact the flow of trade. In this context, Rules of Origin are considered as a form of non-tariff trade barrier, where exporting firms must spend extra costs in administration and operation to comply with the origin standards set by the partners. As a result, although EVFTA is supposed to promote trade between Vietnam and the EU, the introduction of Rules of Origin can hinder Vietnam's ability to capitalize on the reduction in tariff in the agreement. This implies that trade creation effects like tariff reductions do not unconditionally increase trade volume, but it also depends on any extra compliance costs that exporters must follow by implementing the trade agreement

The second theory this study uses is the Heterogeneous Firm Trade Theory. The founder of the theory, Marc J. Melitz (2003), found that only firms with high productivity can have sufficient resources to mitigate the effects of rising trade costs. Therefore, trade liberalization from trade agreements does not affect every firm in the same way or at the same scale, but rather, it disproportionately benefits larger and more productive firms while creating burdens on smaller enterprises. For this study, Rules of Origin act as additional variable costs that exporters must face. As a result, smaller to medium-sized enterprises,

which are already facing more constraints in allocating their capital and resources, will struggle to absorb the impact of new requirements. Sectors with larger participation from SMEs may exhibit heterogeneous responses to trade liberalization, especially when strict origin requirements are imposed. These reactions suggest that export performance depends on both external trade conditions and environment, but also on the internal structure of exporting firms ( Crinò & Ogliari, 2023 )

The third theory that this study employs is the Rules of Origin as forms of implicit protection. Cadot et al. (2006) and Conconi et al. (2018) discussed that, beyond the administrative function, Rules of Origins have a strong influence over production and sourcing options for exporters because the requirements restrict firms' access to many higher cost-efficient global suppliers. For Vietnamese exporters, by imposing restrictions at certain chains in the production process, such as fabric processing, they have to find efficient and credible suppliers of domestically or regionally produced intermediate goods. While Rules of Origins can foster the development of upstream industries, they simultaneously impose extra compliance costs on producers, especially downstream exporters. In economies that consist mostly of upstream exporters, these requirements do not have a significant effect on trade costs as they can easily comply with them while also enjoying the extra benefits from trade liberalization. However, in weaker upstream supply chain economies, the Rules of Origin act as a large constraint in limiting export performance. These effects highlight the impact of the Rules of Origin as only conditional, depending on the level of domestic upstream development

### **3.2. Export performance**

Export performance,  $EP_{it}$ , is the dependent variable that represents the export performance of product  $i$  in year  $t$ . In this study, it is calculated by natural logarithm of export value of a specific 4-digit HS Code product (52-55 and 61-62) from Vietnam to 27 European Union's countries from 2017 to 2023.

According to former research from Vu Ngoc Tram, Trinh Minh Hang, Ngo Minh Tung(2025), using logarithm transformation is a standard econometric method to linearize the relationship between variables and reduce the influence of outliers in the data. This variable is chosen to measure the actual effect of EVFTA on Vietnam's garment export. Tracking the result over time for different products, the model can capture how changes in tariff margin and Rules of Origin requirement affect export volume.

### **3.3. Independent variables**

#### **3.3.1. Upstream Capacity**

In this research model, Upstream Capacity will be an explained variable that demonstrates the effect of Vietnam's ability to self-suffice fabric for domestic production. To create this variable, the study takes the total export divide to the total import of fabric materials (HS code 52-55) from 2017 to 2023.

$$UpstreamCapacity = \frac{VN \text{ exports of yarn/fabric to world}}{VN \text{ imports of yarn/fabric from world}}$$

The reasoning behind it is that the higher the export/import ratio becomes, it means that Vietnam's ability to produce those goods to satisfy the domestic market has also

increased, giving enterprises more choices to satisfy the RoO requirement. Calculation for this variable was created based on Antràs and Chor (2013), emphasizing that an economy's internal "backward linkages" determine its ability to capture value in global trade.

### **3.4. Explanatory variable**

#### **3.4.1. RoO Exposure**

RoO is a dummy variable created to demonstrate whether or not a product can apply the favorable tariff if they meet the RoO requirement. The variable will equal to 1 if the specific product  $i$  (4-digit HS Code, 52-55 and 61-62) is subjected to a favorable tariff at year  $t$  if it can satisfy the strict requirement, and 0 otherwise.

In 2020, EVFTA had officially taken effect, and for the duration of 6 years, started applying favorable tariffs on Vietnam's garment export. In the period, however, the time when each product was applied the favorable tax was different, so this dummy variable was created to account for that fact, demonstrating the direct effect of EVFTA tax on the export product.

Calculation and hypothesis of this variable was created according to Estevadeordal, A. (2000). In the research, it is suggested that the technical requirement, which is "fabric-forward" or "yarn-forward" rules, to be the most challenging forms of RoO.

#### **3.4.2. SME Exposure**

SME exposure is an explanatory variable created to evaluate the industry's firm size structure on export performance. From the OECD (2017) literature, this variable demonstrates the proportion of small to medium enterprises in the garment sector for a specific product during the research period.

In the context of international trade, the size of enterprises of a sector can affect its ability to respond to trade liberalization. While giant corporations possess economies of scale and global networks to flexibly adapt to changes in regulations, SMEs often face a higher fixed cost to enter a new market and meet changing standards.

Formula for SME Exposure calculation is the natural logarithm of export value divided by the export quantity of product  $i$  (4-digit HS Code) in year  $t$ . According to OECD (2017), SMEs often occupy small, specific niche products with higher prices due to its nature of small production. By calculating the ratio of value to quantity, this variable captures the "price footprint" of the products. A higher value for this variable often means a higher concentration of SMEs (or high-value-added products), which may face more difficulties to comply with EVFTA's regulations.

$$\ln \ln \left( \frac{ExportValue_{it}}{ExportQuantity_{it}} \right)$$

### **3.5. Controlling variable**

#### **3.5.1. Tariff Margin**

This is an explained variable that demonstrates the margin between a Most Favored Nation tariff and EVFTA preferential tariff. EVFTA gives enterprises a huge advantage in preferential tariff, but also moderated by the costs to comply with the Rule of Origins. If the compliance cost exceeds the cost advantages tariff brings, then this variable will have a

negative impact on export performance. However, if enterprises manage to satisfy EVFTA with lower cost than the value from tariff, the variable will have a positive effect.

Tariff Margin will be calculated by taking Most Favoured Nation tariff subtract to EVFTA's new tariff applied on product  $i$  (4-digit HS Code) in year  $t$  (2017-2023, the period of the research).

$$TariffMargin_{it} = MFN_{EU,h,t} - EVFTA_{h,t}$$

This variable is a reference to Cipollina, M., & Salvatici, L. research in 2010. In the research, they define the "preference margin" as the difference between the duty applied to non-preferred exporters (MFN) and the duty applied to the preferred partner (FTA).

### **3.6. Research hypothesis development**

#### **3.6.1. Tariff preferences, Rules of Origin exposure and Export Performance.**

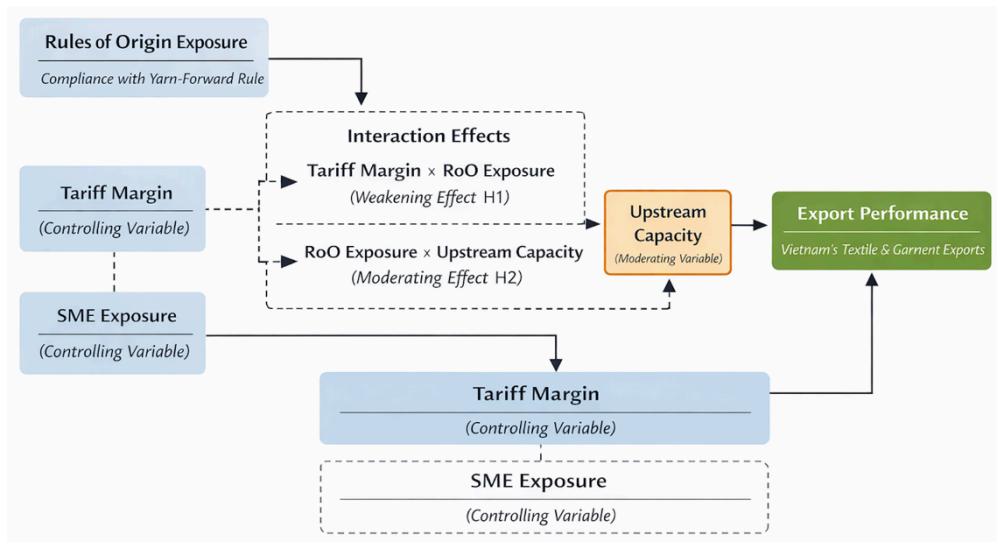
Based on discussion from previous literature, this study focuses on how Rules of Origin (RoO) influence the effectiveness of preferential tariffs under the EVFTA, rather than on the sole question of whether they are barriers to trade. In the case of Vietnam's textile and garment exports, a key empirical issue is whether exporters fully benefit from the preferential tariff margin supported by the agreement when their products are more subjected to yarn-forward origin requirements. Therefore, this study tries to argue that RoO's obstacle-like nature may not be immediately conspicuous and they rather act as a conditional constraint on the realization of tariff benefits. For better understanding, their primary effects can be witnessed via interaction with tariff incentives and not an independent direct impact on export performance. Tariff margin is still expected to support export performance, yet this positive effect may be weakened where exposure to RoO is higher. The following hypothesis is presented under this logic:

***H1: Tariff margin has a positive effect on export performance, but this effect decreases as firms' exposure to Rules of Origin increases.***

#### **3.6.2. Upstream capacity, Rules of Origin and SME Export Performance**

The second concern of this study involves the role of upstream capacity. While established literature demonstrates that domestic upstream linkages play crucial parts in assisting firms to deal with origin criteria, this study aims to further strengthen this argument by treating upstream capacity as moderating device within the EVFTA framework. Specifically, better upstream capacity is expected to alleviate the constraining effect caused by exposure to RoO and to enhance firms' capability to transfer preferential tariff to actual export performance. Furthermore, on the ground that smaller firms generally possess a weaker ability to adjust in coping with strict sourcing and compliance requirements, this mitigating mechanism will be likely to stay relevant in product lines with greater SME exposure in particular. Upstream capacity may ease the restrictive effect of RoO on export performance. In this light, the following hypothesis is proposed:

***H2: Upstream capacity positively moderates the relationship between RoO exposure and export performance, particularly for SMEs.***



**Figure 1.** Conceptual framework

## 4. The European-Vietnam Free Trade Agreement (EVFTA)

### 4.1. Garment and textile industry's conditions pre-EVFTA

In the pre-EVFTA period, Vietnam already secured a steady position as an exporter in textile and garment industries. As can be seen in Better Work Vietnam's 2019 report, the sector grew by more than 7.5% and reached US\$39 billion in export value. Garment and textile have been crucial products of Vietnam's export economy (Better Work Vietnam, 2020).

However, there is uneven development across the value chain. Textile and garment exports increased from US\$8 billion in 2007 to US\$31 billion in 2017, but more than 80% of exports were garments, while yarns and fabrics accounted for only 11% and 4%, correspondingly (Pham et al., 2019). From these statistics, it can be inferred that Vietnam's advantage is mainly downstream garment production rather than upstream textile manufacturing.

Moreover, the industries are shown to be heavily dependent on imported inputs. The foreign value-added share in Vietnam's textile and garment exports rose from 42% in 2005 to 45% in 2016, while direct domestic added value dropped from 48% to 42% (Pham et al., 2019). Better Work Vietnam also adds that the sources for imported materials and accessories are particularly China and Korea (Better Work Vietnam, 2020). As a result, before the EVFTA, Vietnam's export base was potential enough but its upstream capacity to meet origin compliance remained limited.

Upon its entry, Vietnam was a competitive garment and textile exporter, albeit strongly dependent on foreign inputs. Under such conditions, tariff preferences appeared to be a promising opportunity for export promotion. Nevertheless, the extent to which firms could utilize such an opportunity lied on their ability to adapt their supply chains to the agreement's rules of origin (European Commission, 2020; Pham et al., 2019).

### 4.2. Analysis of the EVFTA regulations

Under the EVFTA, tariff liberalization for textile and garment is implemented in accordance with a product-specific schedule rather than uniformly across all lines, hence

different timing and extent of preferential treatment across those products. This implies that the effective tariff advantage available to exporters also differs across product categories. This regulatory feature serves as a fundamental basis for analysis of variation in tariff margins across HS product lines.

For textile and garment products, an even stricter regulatory issue is the agreement's origin requirement. Preferential treatment depending not only on export to the EU, but also on whether the product meets the required transformation criteria under the agreement renders origin compliance a practical sourcing issue rather than a merely legal formality. It is significantly more taxing for firms relying heavily on imported intermediates, especially in upstream stages, to comply with the rules than for firms with stronger domestic or regional supply chains that qualify. In this sense, the agreement regulates both market access and the production structure through which firms can legitimately obtain that access. This is particularly relevant to the study in that it explains why RoO are expected to be a condition, rather than an accompaniment to the export effect of preferential tariffs.

Additionally, the EVFTA also obligates firms to satisfy procedures in order to claim preferences in practice. Proof of origin, compliance documents and custom procedures all affect the conversion of legal tariff preferences into an actual commercial benefit for firms. Furthermore, although cumulation provisions may partially enhance sourcing flexibility, they do not remove the hidden barrier of having to conform with the EVFTA's origin framework. Therefore, the agreement may be viewed as a regulatory package consisting of tariff incentives, origin conditions and compliance procedures combined. For textile and garment exporters, the realised advantage of the agreement relies upon the interaction of these three elements with existing supply chain structures.

## 5. Research methodology

### 5.1. Proposed model

Based on some theories and the prior studies, to assess how Rules of Origin influence Vietnam's export performance to the EU and examine whether these requirements may function as an implicit constraint on trade, we propose a research model as follows:

$$EP_{it} = \beta_0 + \beta_1 TariffMargin_{it} + \beta_2 RoOExposure_{it} + \beta_3 UpstreamCapacity_{it} + \beta_4 SMEEExposure_{it}$$

In which:

- $i$  = product (HS 4-digit)
- $t$  = year (2017-2023)
- $EP_{it}$  is the natural logarithm of export value of product  $i$  in year  $t$ .
- $TariffMargin_{it}$  measures the preferential tariff advantage under EVFTA.
- $RoOExposure_{it}$  is a dummy variable indicating whether product  $i$  is subject to yarn-forward origin requirements.
- $UpstreamCapacity_{it}$  proxies the strength of domestic intermediate textile production.

- $SMEExposure_{it}$  measures the relative dominance of small and medium enterprises in the product category.
- $\delta_i$  represents product fixed effects, controlling for time-invariant structural characteristics such as comparative advantage and technological intensity.
- $\lambda_t$  represents year fixed effects, capturing common macroeconomic shocks, including demand fluctuations and global supply chain disruptions.
- $\varepsilon_{it}$  is the error term.
- The interaction term  $TariffMargin_{it} \times RoOExposure_{it}$  tests Hypothesis 1, examining whether restrictive RoO weakens the positive effect of tariff preferences.
- The interaction term  $RoOExposure_{it} \times UpstreamCapacity_{it}$  tests Hypothesis 2, evaluating whether stronger domestic supply-chain capacity mitigates the restrictive impact of RoO.

## 5.2. Research methodology

To evaluate the effect of RoO on export performance and whether RoO acts as a hidden barrier to trade for Vietnam to the EU, the study employs a panel Iterative Generalized Least Squares ( IGLS ) framework to analyze changes in export performance in 2 periods: before and after EVFTA, between products under regulation of RoO and products not under this constraint.

This model was based on 3 theories: trade cost theory and gravity framework, Heterogeneous Firm Trade Theory, and RoO as implicit protection. Regarding the first theory, the structure of the model interprets tariffs, non-tariff barriers, and compliance costs as components of trade costs which predicts that bilateral trade flows depend negatively on trade costs and positively on economic size (Anderson and van Wincoop, 2003; Head and Mayer, 2014). Therefore, the RoO is understood as a non-tariff barrier as firms will have to comply with such rules and make expenses to meet the origin requirements. For the second theory, Melitz (2003) concluded that productivity is different for every firm, and that trade liberalization affects firms asymmetrically. Higher trade costs disproportionately affect less productive firms, which are often small and medium-sized enterprises (SMEs). Under this context, RoO will be interpreted as additional trade cost which may reduce export performance, particularly for SME dominated sectors. Lastly for the third theory, Cadot et al., 2006; Conconi et al., 2018 argue that restrictions regarding characteristics of the items function as implicit protection, which favour upstream domestic industries by increasing compliance costs for downstream exporters. Therefore, the impact of RoO may depend on the strength of domestic upstream production capacity. Consequently, the interaction between RoO exposure and upstream capacity is included to examine whether stronger domestic textile input industries can mitigate the restrictive effects of yarn forward rules. Additionally, Cadot et al., 2006; Conconi et al., 2018 also argue that RoO can limit the ability of exporters to benefit off tariff reduction. As a result, the interaction between tariff margin and RoO exposure can show if RoO weakens the positive effect of tariff reduction from trade liberalization.

The empirical study is carried out using the Iterative Generalized Least Squares (IGLS), which control time-invariant product characteristics such as technology intensity, structural competitiveness, and macroeconomic shocks. The model will be analysed in the following sequence: Organizing the data collected into panel data at HS4 level from 2017 to 2023; Diagnosis testing for the model, including: panel structure analysis of variation in export performance (descriptive analysis to ensure the accuracy when importing data), correlation analysis, heteroskedasticity (using Breusch-Pagan/Wooldridge test), and multicollinearity (using the Variation Inflation factor - VIF); and Analysis of the model using the IGLS.

### 5.3. Data collection and sampling

The data collects information of products from HS4 52 to HS4 55 and HS4 61 to HS4 62 traded from Vietnam to 27 members of the EU (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden) through the UN Comtrade website (for trade related data), and WTO tariff database for MFN and tariff rates from 2017 to 2023. Forming the panel data structure allows the authors to observe the variation across different product types and time periods (before and after the implementation of EVFTA)

**Table 1.** Variables description, symbols and sources

| Variable  | Symbol                                      | Unit   | Data source            |
|---|---|--|------------------------|
| Export performance                                | $EP_{it}$                                   | Natural logarithm of export value                  | UN Comtrade            |
| Tariff Margin                                     | $TariffMargin_{it}$                         | Percentage   | WTO Tariff Database    |
| Rule of Origin Exposure                           | $RoOExposure_{it}$                          | Dummy variable (1 = subject to RoO; 0 = otherwise) | Rules of Origin Annex  |
| Domestic Upstream Production Capacity             | $UpstreamCapacity_{it}$                     | Share of domestic input supply (%)                 | UN Comtrade            |
| Small and Medium-sized Enterprise export exposure | $SMEExposure_{it}$                          | Share of SMEs in sector (%)                        | UN Comtrade            |
| Interaction between tariff margin and             | $TariffMargin_{it} \times RoOExposure_{it}$ | Interaction term                                   | Constructed by authors |

|   |   |                  |                        |
|---|---|------------------|------------------------|
| rule of origin exposure   |   |                  |                        |
| Interaction between upstream capacity and rule of origin exposure | $RoOExposure_{it} \times UpstreamCapacity_{it}$ | Interaction term | Constructed by authors |

## 6. Result analysis

### 6.1. Descriptive statistics and correlation analysis

Descriptive statistics table presents the descriptive statistics for the variables, including export performance, tariff margin, rules of origin exposure, upstream capacity, and SME exposure. It reports on the mean, maximum, and minimum values for each variable and highlights their distribution and range.

**Table 2.** Descriptive statistics

| Variable           | Observations | Mean   | Std. Dev. | Min    | Max    |
|--------------------|--------------|--------|-----------|--------|--------|
| Export Performance | 452          | 14.714 | 3.771     | 6.215  | 20.222 |
| Tariff Margin      | 452          | 4.415  | 3.481     | 0      | 12     |
| ROO Exposure       | 452          | .502   | .500      | 0      | 1      |
| Upstream Capacity  | 452          | .463   | .046      | .413   | .559   |
| SME Exposure       | 452          | -2.544 | 1.408     | -9.616 | 4.554  |

**Source:** Author's calculation

Correlation Matrix table reports on the correlation between independent variables. The results from the table show that there are weak to moderate correlations among independent variables, with the highest correlation being between Tariff Margin and Upstream Capacity equalling 0.462. In terms of the relation between independent variables and the dependent variable, most of the independent variables show a low level of linear correlation, with the exception of RoO exposure, which has a relatively strong correlation with export performance of 0.7408, indicating a potential association between the application of rules of origin and export outcomes in the sample.

**Table 3.** Correlation Matrix

| Variable | Export performance | Tariff Margin | ROO Exposure | Upstream Capacity | SME Exposure |
|----------|--------------------|---------------|--------------|-------------------|--------------|
|----------|--------------------|---------------|--------------|-------------------|--------------|

|                    |         |         |         |        |        |
|--------------------|---------|---------|---------|--------|--------|
| Export performance | 1.0000  |         |         |        |        |
| Tariff Margin      | 0.2207  | 1.0000  |         |        |        |
| ROO Exposure       | 0.7048  | 0.3207  | 1.0000  |        |        |
| Upstream Capacity  | 0.0077  | 0.4623  | 0.0021  | 1.0000 |        |
| SME Exposure       | -0.1777 | -0.2726 | -0.4594 | 0.0134 | 1.0000 |

**Source:** Author's calculation

## 6.2. Diagnosis tests and regression results

The authors begin the analysis of the model by running descriptive statistics and correlation analysis to examine the characteristics of the dataset and the relationships among variables. Then diagnosis tests are carried out to identify potential issues in the model, mainly addressing heteroskedasticity and multicollinearity. The authors use the Breusch-Pagan test to measure the model for heteroskedasticity. The result from the table shows that the model is heteroskedastic. As a result, the authors implement the Iterative Generalized Least Squares (IGLS) estimation method, measured by running the Feasible Generalized Least Squares (FGLS) procedure, which can account for heteroskedasticity across panels and provides more reliable coefficient estimations.

**Table 4.** Heteroskedasticity Test

| Test                                  | Chi <sup>2</sup> | p-value | Conclusion                  |
|---------------------------------------|------------------|---------|-----------------------------|
| Breusch-Pagan Heteroskedasticity Test | 34.09            | 0.0000  | Heteroskedasticity detected |

**Source:** Author's calculation

To assess potential multicollinearity among the explanatory variables, the authors conducted the Variance Inflation Factor (VIF) test. The results show that all variables have VIF values well below the commonly accepted threshold of 10. These values indicate that the independent variables do not exhibit strong linear relationships with one another.

**Table 5.** Multicollinearity Test

| Variable          | VIF  | 1/VIF    |
|-------------------|------|----------|
| Tariff Margin     | 1.51 | 0.661982 |
| ROO Exposure      | 1.36 | 0.737045 |
| Upstream Capacity | 1.33 | 0.754390 |
| SME Exposure      | 1.31 | 0.763329 |

|          |      |  |
|----------|------|--|
| Mean VIF | 1.38 |  |
|----------|------|--|

**Source:** Author's calculation

Regarding the first variable, since p-value = 0.314, this means that the reduction of tariff from EVFTA compared to MFN tariffs does not have a clear statistically significant effect on export performance.

The next variable ROO exposure has a coefficient of 4.351128 with p-value of 0.004. Since ROO exposure is measured as a dummy variable, the coefficient reflects the difference in export performance between ROO-regulated products and non-regulated products. This suggests that, statistically at 1% level, products that are subjected to Rules of Origin tend to have higher export values compared with products not subjected to Rules of Origin.

For Upstream Capacity, the estimated coefficient is 9.402 and p-value of 0.042, meaning that a percentage increase in the share of domestic upstream production capacity will statistically lead to 9.4 percent increase in export value at 5% significance level

For SME Exposure, the estimated coefficient is 0.472 and p -value of 0.000, indicating that, statistically, a percentage increase in the share of SMEs in the sector leads to an approximately 0.47% increase in export value at 1% significance level . This result suggests that sectors with stronger SME participation are significantly associated with export performance.

Regarding the interaction variables, the coefficient of the variable RoO Exposure × Tariff Margin is -0.160 and p-value is 0.002, which indicates that for products subjected to Rules of Origin, a percentage increase in tariff margin reduces export value by approximately 0.16% relative to products not exposed to RoO at the 1% level. This result supports Hypothesis 1, which proposes that Rules of Origin weaken the positive effect of tariff preferences.

For the interaction term RoO Exposure × Upstream Capacity, the coefficient is 6.365 and p-value equals 0.06, meaning that, statistically, for products exposed to Rules of Origin, a percentage increase in upstream capacity increases export value by approximately 6.37%, significant at the 10% level This result supports Hypothesis 2, which suggests that stronger domestic upstream industries may mitigate the restrictive effects of RoO.

**Table 6.** IGLS Regression result

| Variables                    | Coefficient | Std.Error | z     | P-value | 95% Conf.Interval |            |
|------------------------------|-------------|-----------|-------|---------|-------------------|------------|
| Tariff Margin                | 0.0501356   | 0.0497979 | 1.01  | 0.314   | -0.0474665        | 0.1477377  |
| ROO Exposure                 | 4.351128    | 1.491728  | 2.92  | 0.004   | 1.427395          | 7.274862   |
| Upstream Capacity            | 9.402131    | 4.628231  | 2.03  | 0.042   | 0.3309655         | 18.4733    |
| SME Exposure                 | 0.4723848   | 0.0393359 | 12.01 | 0.000   | 0.3952879         | 0.5494817  |
| ROO Exposure × Tariff Margin | -0.1602828  | 0.0505754 | -3.17 | 0.002   | -0.2594088        | -0.0611567 |

|                                  |            |           |       |       |            |            |
|----------------------------------|------------|-----------|-------|-------|------------|------------|
| ROO Exposure × Upstream Capacity | 6.364887   | 3.381153  | 1.88  | 0.060 | -0.2620511 | 12.99183   |
| Year 2018                        | 0.2663986  | 0.1798848 | 1.48  | 0.139 | -0.0861691 | 0.6189664  |
| Year 2019                        | -0.2643612 | 0.1652256 | -1.60 | 0.110 | -0.5881974 | 0.0594751  |
| Year 2020                        | -0.3542246 | 0.154     | -2.30 | 0.021 | -0.6560514 | -0.0523978 |
| Year 2021                        | -1.555254  | 0.4091603 | -3.80 | 0.000 | -2.357193  | -0.7533143 |
| Year 2022                        | 0.6369103  | 0.1850648 | 3.44  | 0.001 | 0.2741899  | 0.9996308  |
| Constant                         | 8.271948   | 2.060124  | 4.02  | 0.000 | 4.23418    | 12.30972   |

**Source:** Author's calculation

## 7. Result discussions and policy implications

### 7.1. Result discussions

As observed from the regression results, the coefficient on Tariff Margin is insignificant, while the interaction term between Tariff Margin and RoO exposure is significantly negative. This implies that the effect of tariff preferences under the EVFTA does not remain automatic, but conditional, thereby unable to secure stronger export performance by itself. Moreover, RoO does play a restrictive role in weakening the beneficial effects of preferential tariffs in export. In this sense, yarn-forward RoO actually becomes a hidden barrier for garment exporting firms in Vietnam, for they indirectly curb firms' ability to convert tariff preferences into actual export gains.

For the variable RoO exposure, the authors attempt to interpret its significantly positive effects with caution, since this coefficient does not represent the overall effect of RoO in every case, provided that there are interaction terms in the model. RoO exposure may effectively capture the difference between products exposed and those not exposed to RoO, depending on the value of interaction terms included. One reasonable explanation for this phenomenon is that textile and garments export lines account for many parts in the sector of products under RoO and garments and textile exporting firms already possess relatively decent performance (Ministry of Industry and Trade, 2022). In this light, the positive coefficient does not mean that RoO are inherently trade-promoting.

Next, greater upstream capacity is proved to link with better export performance. A higher export-import ratio indicates stronger domestic supply of intermediate inputs, which aids firms in satisfying yarn-forward standards and rids them from over-reliance on non-originating imported materials.

On the other hand, the interaction term between RoO and upstream capacity confirms the argument that the restrictive effect of RoO can be mitigated by domestic upstream capacity. In other words, the negative constraint associated with RoO exposure is diminished where Vietnam has stronger upstream textile capacity. In the context of the EVFTA, this result is plausible, considering that yarn-forward rules are more likely to be binding for firms relying on inputs imported from suppliers who are not qualified for the agreements. Meanwhile, it is significantly easier for firms to meet the requirements of RoO if local or

qualifying regional inputs are more available. However, due to modest significance level at 10%, this result is suggestive rather than definitive.

Although SME exposure has a positive impact at 1% significance level, it does not essentially support the conclusion that SMEs encounter fewer difficulties than big firms, but rather reflects the central roles of SMEs in Vietnam's export structure: a large number of SMEs participate in product categories that are key labour-intensive export segments in Vietnam's garment industry. This interpretation is consistent with the wider trade literature, which generally states that smaller firms are more severely affected by compliance costs (Melitz, 2003).

## ***7.2. Policy implications***

Vietnam government should strengthen domestic textile upstream capacity as a strategic priority to reduce the heavy dependence on the imported fabrics and intermediate inputs. This is because it helps Vietnam textile and garment companies meet the Rules of Origin embedded in the EVFTA which can prevent from structural difficulties. Therefore, expanding domestic production of textiles, particularly in fabric manufacturing, dyeing, and finishing, can enable Vietnamese firms intervene deeply in the textile and garment value chain. This would facilitate compliance with yarn-forward origin requirements and increase the ability of Vietnamese exporters to benefit from preferential treatments to the European market.

Secondly, the substantial transformation in raw material sources plays an important role in improving firms' capacity to comply with Rules of Origin in the EVFTA. Under the EVFTA, preferential tariffs are granted only when products undergo sufficient production processes within the FTA region. In reality, many Vietnamese textile firms are struggling in interpreting how production stages translate into origin qualification, especially small and medium enterprises. As a result, Vietnamese policymakers should provide specific guidance related to the substantial transformation requirements under EVFTA Rules of Origin, including practical instructions on qualifying production stages, documentation requirements, and origin certification procedures. Simultaneously, Vietnamese firms should be encouraged to join technical training programs as well as apply digital information platforms, and advisory services to understand how to upgrade their production processes in ways that meet the EVFTA 's Rules of Origin.

Thirdly, government should foster cooperation programs between upstream textile producers and downstream garment manufacturers to strengthen domestic supply chain. In other words, encouraging closer integration within the textile and garment value chain would result in higher compliance with EVFTA origin requirements.

Finally, targeted support policy efforts are necessary for small and medium-sized enterprises (SMEs) to guarantee that the EVFTA preferential treatment would be broadly shared across firms. When facilitating SMEs' access to financing, technology upgrading, and trade information platforms, the Vietnamese textile and garment would be improved to the higher levels to participate in international markets and comply with increasingly complex trade regulations.

## **8. Conclusion and Limitation**

### **8.1. Conclusion**

Since the EVFTA establishment, there have been many preferential tariffs created to promote trade between Vietnam and 27 countries in the European Union. However, the strict “fabric-forward” Rules of Origin function as a critical filter, limiting firms from transferring it into economical advantages. From the result of the study, preferential tariffs do have a positive effect on Vietnam's garment export. The effects, however, were heavily diminished due to strict Rules of Origin. This proves the “fabric-forward” requirement as a constraint that can limit or outweigh the financial benefits of tariff reduction.

The study also shows the moderating role of domestic upstream capacity. The study findings indicate that the negative pressure of RoO exposure is significantly neglected in product categories backed by robust domestic supplies of yarn and fabric. This effect is particularly pronounced for Small and Medium Enterprises (SMEs), as they are reliant on local production to meet the origin criteria. Therefore, a conclusion can be reached that the development of midstream production in textile industries are mandatory for Vietnam's garment export to meet EVFTA's Rules of Origin.

### **8.2. Limitations**

This research explores the interaction between factors of trade liberalization, especially RoO and Tariff Margin. However, certain limitations remain. The study period (2017-2023) is heavily impacted by the disruption of COVID-19 pandemic, which introduces disturbance in the supply chain, resulting in inaccuracy in the study. Another limitation is that this study considers all products with the same 4-digit HS Code the same, they contain hundreds of different products, with different quality, price range and composition. Thus, there can be errors in our estimation for RoO impact on the products.

### **8.3. Future research direction**

From the limitations of this study, we suggest future research to seek and utilize firm-level data to examine the costs firms incur when switching from non-compliance to compliance suppliers of EVFTA's origin criteria. Additionally, further investigation about Foreign Direct Investment in the upstream sector. The question is whether foreign-owned textile mills support domestic garment exporters to meet RoO, or if they only serve their own internal supply chains.

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