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ORIGINAL ARTICLE

The determinants of creative goods exports: evidence from Vietnam

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Abstract

Using the analysis framework of gravity model, the purpose of this study is to investigate determinants of creative goods exports from Vietnam—a developing country to the world. Over the years, Vietnam has rapidly enlarged creative goods exports to the globe, with a high concentration on developed economies and design sector. We found Vietnam's creative goods exports, at aggregate level, are principally positively affected by economic scale and market development of both Vietnam and trading partners as well as trading partners' higher education. There is the heterogeneity among the parameter estimations in different types of creative sector and different sub-sectors of design industry. We found Vietnam is subject to export-agglomeration economies in the creative sector but its impacts are not the same among the all creative sectors intra and inter. Vietnam's creative exports, at both aggregate and sectoral levels, are negatively impacted by cultural distance, except performing arts. In future, there is a significant room for enhancing Vietnam's creative goods exports to external countries. Nevertheless, it would need Vietnam to implement appropriate policies with the focus on increasing access to foreign markets; fostering the establishment of industrial zones; improving higher educational institutions; and promoting linkages between local suppliers and foreign enterprises.

Keywords Creative goods exports · Gravity model · Trade potential · Vietnam

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1 Introduction

The debates on the creative economy or creative industries particularly regarding its concepts and classifications have been significantly made in many countries over recent decades. Despite existing divergences, there is a high consensus between international scholars and researchers that creative industries are increasingly contributing to the trade and economic growth of the world, especially in developed nations. For example, according to Global Database of United Nations Conference on Trade and Development (UNCTAD), world trade in creative goods and services reached 624 billion US dollar (US$) in 2011, which was more than double the value in 2002, with the average annual growth rate during that period amounting to 8.8 percent. Looking at specific countries, a report on creative economy by UNCTAD (2008) revealed that creative industries maintain relatively a vital role in the USA, the United Kingdom (UK), Singapore and Canada with its share to gross domestic product (GDP) of these economies in turn accounting for 11.1 percent, 7.9 percent, 5.7 percent and 4.5 percent, respectively.

It is undeniable that advanced economies enjoy their own advantages such as abundant capital stock, skilled labor force, modern technology and well-managed institutions to develop creative industries and promote export of creative products to other countries. Nevertheless, this has also led to a crucial question on whether only advanced economies but not developing countries could have huge potential and ability to develop creative industries and export creative goods. Several studies have tried to show great achievements accomplished by few developing countries in building creative industries and enhancing export of creative products to the world market such as cases of China, Thailand and Malaysia (UNIDO 2006; ERIA 2014), but little research has approached this theme from the quantitative angle. In other words, there is a lack of empirical analyses on the development and determinants of creative goods exports from developing nations. As next efforts in dealing with such a fascinating challenge, Vietnam—a developing economy—is chosen as a case study that is induced by several following causalities. Firstly, since the beginning of the so-called *Doi Moi (renovation)* policy based on market principles from the mid-1980s, Vietnam has taken a deep progress into regional and international economic integration that is evidently manifested through its participation in numerous bilateral and multilateral free trade agreements (FTAs). The proportion of total trade to Vietnam's GDP has remained very high in recent years, at about 170 percent. Secondly, Vietnam has been at the golden stage of socioeconomic fundamental factors to help develop creative industries and foster creative goods exports as well. These elements include an educated young manpower, the rapid growth of information industry, significant flow of foreign direct investments (FDIs) into high-tech sectors as well as its central position in one of the fastest growing areas in the globe. Thirdly, facing the faded-away comparative advantage of rich natural resources and cheap labor, the Vietnamese government has increasingly paid attention to developing creative industries and promoting export of creative products.

However, creative industry is relatively a new definition and has not yet been classified in officially statistical documents in Vietnam (Vo et al. 2012). By contrast, the most common used term perhaps is cultural industry, which mainly concentrates on cultural aspect particularly products belonging to tourism sector. Historically, from the 1990s the Vietnamese government had proposed to develop four central high technology areas, namely technology, biotechnology, new materials and automation, which targeted at creating technological engines to boost the competitiveness of key products (Phan 2015). In 2008, the British Council introduced the concept of biotechnology in the event 'Creative City,' and 4 years later, the experts from United Nations Educational Scientific and Cultural Organization (UNESCO) advised the Vietnamese government on how to develop its cultural industries. The Vietnamese government has recently ratified 'National Strategy for the Development of Cultural Industries in Vietnam to 2020, with a vision to 2030,' in which cultural industries are considered an important part of the whole economy. According to this document, cultural industries in Vietnam include 12 sectors, namely: (1) advertising; (2) architecture; (3) entertainment software and games; (4) handicrafts; (5) design; (6) cinema; (7) publishing; (8) fashion; (9) performing arts; (10) fine arts, photography, exhibitions; (11) television and radio; and (12) cultural tourism. Vietnam set a target that the revenue of cultural industries will contribute seven percent to total GDP by 2030 (Government of Vietnam 2016). This strategy has underlined three objectives, namely creative talent, creative excellence and creative cities and regions. Many agree that Vietnam has a large potential to develop creative industries and export creative goods to the world; thanks to an opened economy, diversified culture, large domestic market, educated young population, growing internet users and fast developing information technology industry and so on (Vo et al. 2012; Phan 2015). The creative sectors which Vietnam has an advantage possibly include design, arts, education, tourism, performing arts, fashion, handicrafts and foods (Phan 2015).

This current paper, by capitalizing UNCTAD's international commodity classification system and the analysis framework of gravity model, strives to answer the following questions: Why does Vietnam have a competitive advantage on design but not in the other creative segments? What are the main internal forces (cultural and economic) that are affecting Vietnam's creative goods exports in general and its creative design sector in particular? Is Vietnam subject to export-agglomeration economies in the creative sector? And is there much room for Vietnam to increase creative export products to its trading partners in future?

This paper is structured as follows. Following the Introduction section, Sect. 2 reviews existing knowledge on the studied theme. Section 3 highlights the major pattern of Vietnam's creative goods exports, in comparison with other Southeast Asian economies. Section 4 elaborates the research methodology and discusses empirical results. Section 5 provides analyses of Vietnam's export potential of creative goods with its key trading partners. Finally, Sect. 6 concludes the key findings and brings out policy implications.

2 Literature review

The ideas and terms of creative industries, creative economy or cultural industries have significantly varied between countries and international institutions. For the first time, the term 'creative industries' appeared in Australia in 1994 and then had expanded and begun to be popular in the UK in 1998 where the map of creative industries was developed (DCMS 2001). Meanwhile, Howkins (2001) used the term 'creative economy' that contains following sectors: advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, research and development (R&D), software, toys and games, television and radio and video games. On the other side, Hesmondhalgh (2002) referred the term 'cultural industries' to include only core industries, namely advertising and marketing, broadcasting, film, internet and music industries, print and electronic publishing, video and computer.

Recent reports of UNCTAD (2008, 2013) on creative economy have provided very attentive definition and classification on creative industries that are being employed pervasively in numerous countries. In particular, creative industries are approached through broadening the definition of creativity from activities embodied with significant artistic elements to any economic activities that create symbolic goods with a strong dependence on intellectual property. UNCTAD (2008, 2013) also divided creative industries into four broad groups, and each group is then classified into subgroups, namely: heritage (traditional cultural expressions and cultural sites); arts (visual arts and performing arts), media (publishing and printed media, and audiovisuals); and functional creations (design, new media and creative services). As for creative goods, they are categorized into groups as follows: art crafts; audiovisuals; design; new media; performing arts; publishing; and visual arts. Likewise, each group of creative goods is then classified into subgroups.

Based on above concepts, many works have explored the development of creative industries and exportation of creative goods in different countries. For instance, DTI (2005) examined the linkage between design, innovation and R&D activities in the UK economy and showed up how important governments are in dealing with market failures and providing broader framework conditions. Using data from Eurostat, European Union Commission (2010) estimated that creative goods exports accounted for 4.3 percent of European Union (EU)-27s external exports in 2008. Studies by Frontier Economics (2012) and European Union (2014) found that the shortcomings and challenges in export of creative products from EU member states result from the predominance of very small companies, weak intermediaries and issues related to the management of rights. Using data from UNCTAD, a study of KEA European Affairs (2013) revealed that the lack of supportive policies on developing creative industries is the main hindrance toward South Africa's creative goods exports to the EU.

Several works have attempted to quantify determinant factors, including creative activity on exports and imports as the whole and on traded creative goods in particular. Through employing cross-country regressions of exports on creativity and its four components, namely innovation, technology, technology transfer and business startups, DiPietro and Anoruo (2006) found a positive nexus between a

country's export performance and a country's creative activity. Using the method of principle component analysis (PCA) based on a survey of 400 small and medium enterprises, the study by Zadeh et al. (2013) found six main elements which influence creative construction of small and medium enterprises (SMEs) in Iran. These include enriching outside-book knowledge; using an idea; practicing for seeking new knowledge; characteristic belonging to creative thinking theory; bravery for differentiating; and emotional esthetics. Another work by Niu (2017) constructed a gravity model to investigate the export trade and the main influencing factors on Beijing's cultural creative products and services. Empirical results demonstrated that economic growth in Beijing could foster export of Beijing's cultural creativity industry.

A number of studies have attempted to investigate the impact of cultural distance on trading and investment activities at both national and firm levels. The empirical evidence has shown mixed results. Tadesse and White (2010) uncovered that cultural distance reduces trade in homogenous goods as well as in culturally differentiated goods. By contrast, Felbermayr and Toubal (2010) found that culturally close countries tend to trade more in differentiated goods than nations that are culturally more distance. Meanwhile, Lankhuizen and de Groot (2016)discovered the nonlinear relationship between international trade and cultural differences; thus international trade declines with cultural distance, however only when cultural differences between two nations exceed a certain threshold. Niu (2017) found that cultural distance between Beijing and its trade partners brings more opportunities for Beijing's cultural creativity industry. This is likely predictable because people's curiosity is increasingly being inspired. As a result, foreign consumers are more attracted with cultural goods and services having different historical cultures, values and customs. At firm level, using a sample of 82 outward foreign direct investments (OFDIs), Quer et al. (2017) found that while cultural distance obstructs Indian OFDI, this factor does not seem to influence Chinese OFDI. In other words, when facing greater cultural difference in host nations, the behavior of Chinese multi-national enterprises (MNEs) is less conventional compared with their Indian counterparts. This result is likely predictable due to the higher internationalization process of Chinese firms. Likewise, using a panel data of Chinese OFDI over 2003–2013, Liu et al. (2018) showed that relationship between cultural distance and Chinese OFDI is curvilinear (U-shaped). In other words, cultural distance does not always have an adverse effect on Chinese OFDI.

On the other hand, studies that profoundly focus on creative industries and export of creative products in Vietnam are relatively rare. The most notable work perhaps is of Vo et al. (2012). By embracing a survey and SWOT analysis for the cases of interior and fashion design in Vietnam, Vo et al. (2012) revealed that these industries have several favorite conditions to develop, such as creative individuals, abundantly dynamic and talented youths and cultural values. Notwithstanding this large development potential, Vietnam also has to deal with huge challenges to nurture these sectors, particularly in relation to the uneven playfield for SMEs, insufficient education and training, low managerial capacity as well as inefficient linkage. Using a qualitative approach, Phan (2013) and (2015) also argued that Vietnam has a significant room for the development of creative industries and exportation of creative

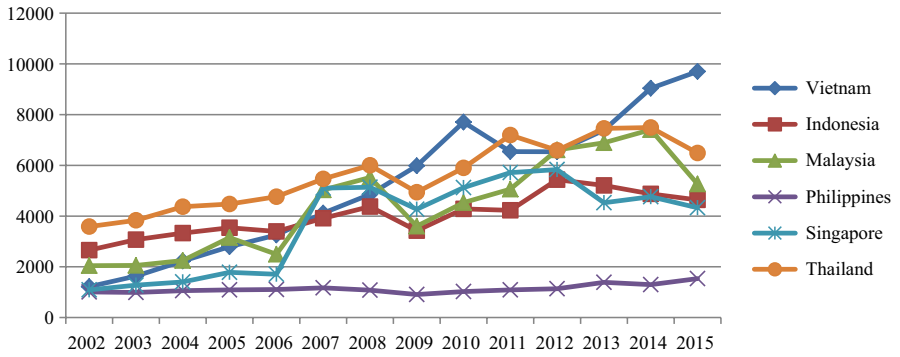

Fig. 1 Export value of creative goods from Vietnam and other ASEAN countries to the world market (US$ millions). *Source:* Author's extraction from UNCTAD database

products, yet the economy has to cope with numerous obstacles, especially regarding insufficient financial resources and lack of a skilled labor force.

In sum, despite the increasing potential and importance of the creative industry to the Vietnamese economy over the recent years, there is little existing research that empirically examines the expansion of Vietnam's export of creative goods and its determinants. Thus, besides the significance of a research about creative goods exports in a developing country, namely Vietnam, our paper aims to fill partly the existing gap in research methodology on this theme by proposing an approach of gravity model.

3 The pattern of Vietnam's creative goods exports

In line with the impressive expansion of the whole export sector, Vietnam's creative goods exports to the world market had substantially grown over the years 2002–2015. Specifically, during this period, creative goods exports from Vietnam increased by eightfold, reaching US$9.68 billion in 2015. Compared with other economies of Association of Southeast Asian Nations (ASEAN), Fig. 1 demonstrates that the growth rate of Vietnam's creative goods exports is particularly high. For instance, over 2002–2015, creative goods exports from Singapore and Malaysia had increased by 4.3 times and 2.5 times, respectively, while those for Indonesia, Philippines and Thailand were relatively lower, ranging between 1.5 and 1.8 times. As a result, from the fourth position in 2002 Vietnam had surpassed Malaysia, Indonesia and Thailand to occupy the first rank in 2015 in terms of export value of creative goods to the global market.

Looking at the importance of creative industry, Table 1 shows that export of creative goods shared the largest proportion to Vietnam's total exports in 2010, at 10.66 percent, but this share had fallen down to 5.98 percent in 2015. Meanwhile, the export proportion of creative goods to Vietnam's GDP had also gone up and down, but the overall trend was up, reaching 5.01 percent in 2015, about 1.56 times higher than the share in 2002. In comparison with other ASEAN peers, the importance of

Table 1 Export shares of creative goods to total export and GDP of Vietnam and other ASEAN countries (percent). *Source:*Author's calculation using database of UNCTAD and The World Bank

	Indonesia		Malaysia		Philippines		Singapore		Thailand		Vietnam	
	Share in total export	Share in GDP	Share in total export	Share in GDP	Share in total export	Share in GDP	Share in total export	Share in GDP	Share in total export	Share in GDP	Share in total export	Share in GDP
2002	4.49	1.36	2.17	2.03	2.87	1.24	0.87	1.19	5.26	2.67	7.28	3.21
2004	4.71	1.3	1.77	1.8	2.67	1.16	0.71	1.23	4.54	2.53	8.4	4.5
2006	3.28	0.93	1.55	1.53	2.32	0.9	0.63	1.15	3.67	2.15	8.17	4.9
2008	3.13	0.86	2.77	2.39	2.2	0.62	1.52	2.67	3.38	2.06	7.74	4.9
2010	2.71	0.57	2.28	1.78	1.99	0.51	1.46	2.17	3.05	1.73	10.66	6.64
2011	2.08	0.47	2.22	1.7	2.25	0.49	1.39	2.08	3.23	1.94	6.75	4.83
2012	2.86	0.59	2.9	2.1	2.18	0.45	1.43	2.02	2.88	1.66	5.71	4.2
2013	2.85	0.57	3.02	2.13	2.45	0.51	1.1	1.51	3.26	1.78	5.6	4.32
2014	2.77	0.55	3.17	2.19	2.08	0.45	1.16	1.56	3.29	1.85	6.02	4.85
2015	3.08	0.54	2.64	1.78	2.61	0.53	1.25	1.48	3.02	1.64	5.98	5.01

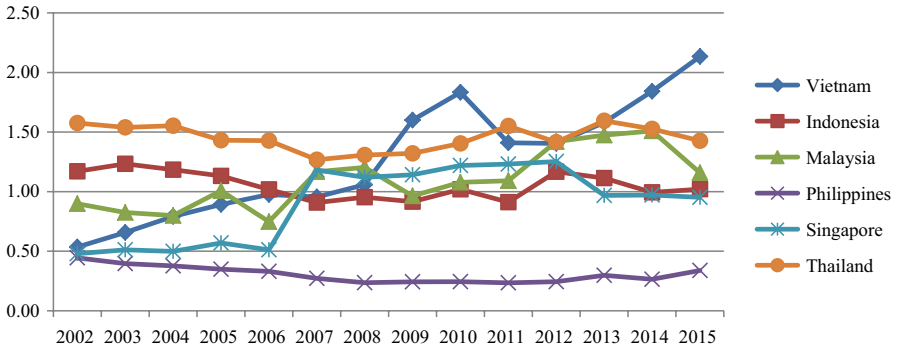

Fig. 2 Creative goods exports of Vietnam and other ASEAN countries as share in the world's export (percent). *Source:* Author's extraction from UNCTAD database

creative goods exports to the Vietnamese economy is the most evident. Specifically, as for 2015, export share of creative goods to total exports remained very low in Singapore, amounting to 1.25 percent while relative to GDP, the contribution of creative goods exports was the lowest for Indonesia and Philippines, at around 1.5 percent. Although the role of creative goods exports had a decreasing propensity in many countries such as Indonesia, Philippines and Thailand, if we add export value of all creative industries-related goods, the contribution of creative goods exports to Vietnam's GDP has become increasingly impressive. In particular, in 2015 estimation results using database from UNCTAD and World Bank show that total share of export of creative goods and related goods to Vietnam's GDP reached 16.95 percent, which was lower than that of Malaysia (20.42 percent) but much higher comparing to Singapore (9.31 percent), Thailand (8.95 percent), Philippines (4.66 percent) and Indonesia (1.03 percent).

At global level, Fig. 2 compares export shares of creative goods in the world market between Vietnam and other major ASEAN countries during the period 2002–2015. In 2002, Vietnam's export proportion of creative goods to the world market accounted for 0.53 percent, which was slightly higher than those of Singapore (0.48 percent) and Philippines (0.44 percent) but much lower as comparing with Malaysia (0.90 percent), Indonesia (1.17 percent) and Thailand (1.58 percent). Nevertheless, going hand-in-hand with the rapid growth in export value, Vietnam's export share of creative goods in the global market had enlarged by four times, reaching 2.13 percent in 2015. With such an impressive extension, Vietnam has become the largest exporter over creative goods in Southeast Asian region. And Vietnam's export proportion is much higher than that of the following nation, namely Thailand. This achievement is remarkable when taking into account a significantly existing gap in the level of economic development between Vietnam and its ASEAN counterparts.

With respect to export market, Fig. 3 shows that Vietnam's creative goods exports tend to rely on several countries. Specifically, the share of top five markets in Vietnam's creative goods exports had increased from 65 percent to 73 percent between 2002 and 2015. Of which, export to the US market made up

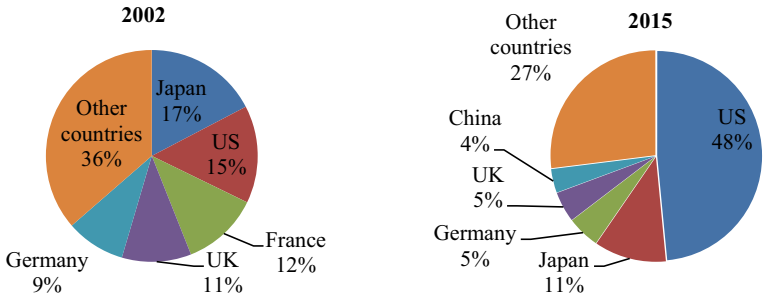

Fig. 3 Top markets for Vietnam's creative goods exports in 2002 and 2015 (percent). *Source:* Author's estimation using UNCTAD database

Table 2 Vietnam's creative goods exports to the world by sectoral distribution (percent). *Source:* Author's extraction from UNCTAD database

Product group	2002	2004	2006	2008	2010	2011	2012	2013	2014	2015
Art crafts	9.05	8.52	7.27	6.41	4.92	5.77	6.62	6.62	6.63	4.05
Audiovisuals	0.01	0.04	0.01	0.33	0.36	0.39	0.19	0.06	0.24	0.49
Design	80.03	83.10	86.13	87.64	91.99	90.70	90.11	90.56	90.20	92.00
New media	0.00	0.02	0.01	0.04	0.02	0.03	0.06	0.09	0.55	1.33
Performing arts	0.37	0.31	0.23	0.22	0.12	0.17	0.21	0.19	0.17	0.14
Publishing	0.09	0.18	0.17	0.18	0.13	0.12	0.27	0.23	0.25	0.20
Visual arts	10.45	7.83	6.19	5.18	2.47	2.82	2.54	2.26	1.96	1.78
All creative goods	100	100	100	100	100	100	100	100	100	100

nearly half of total creative goods exports of Vietnam to the world in 2015, which was over threefold higher than the share in 2002. Consequently, the USA had overtaken Japan to hold Vietnam's largest export destination over creative goods. Top five export markets also included other developed nations, namely Japan, the UK and Germany, while China had replaced France to appear in this list. During the past decade, there has been a high concentration of Vietnam's creative goods exports on developed economies, particularly the US market. Compared with ASEAN peers, in 2015 compiled data from UNCTAD show that the share of developed countries in Vietnam's creative goods exports was the same as Philippines (84.4 percent), while much higher than that of Singapore (28.7 percent), Malaysia (32.3 percent), Indonesia (44.7 percent) and Thailand (64.8 percent).

Considering export composition, the most striking point taken from Table 2 is that Vietnam's creative goods exports to the globe had extremely concentrated on design sector, increasing from 80 percent to 92 percent between 2002 and 2015. Conversely, during that period the contribution of art crafts and visual arts to total exports of creative goods from Vietnam to the world had significantly reduced; while the shares of other sectors, namely audiovisuals, new media, performing arts and publishing had relatively remained very low. Similar to

Table 3 Distribution of subgroups in design sector as share in Vietnam's creative goods exports to the world (percent). *Source:* Author's extraction from UNCTAD database

Subgroups	2002	2004	2006	2008	2010	2011	2012	2013	2014	2015
Architecture	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fashion	33.36	27.55	23.16	23.33	16.27	24.54	27.73	30.56	31.69	32.46
Glassware	0.02	0.01	0.01	0.01	0.00	0.00	0.01	0.03	0.10	0.10
Interior	35.31	46.89	55.46	56.04	37.77	45.55	52.83	51.46	48.83	49.70
Jewelry	4.61	4.56	4.01	4.53	34.41	15.60	4.00	2.98	3.29	2.97
Toys	6.75	4.10	3.48	3.74	3.53	5.00	5.53	5.53	6.28	6.77
All design	80.03	83.10	86.13	87.64	91.99	90.70	90.11	90.56	90.20	92.00

Vietnam, processed data from UNCTAD reveal that as of the year 2015, export of creative goods from Thailand to the global market highly relied on design sector (88.3 percent), while the contribution of this sector was less important in other countries such as Indonesia, Philippines and Malaysia, with the shares ranging between 51 and 75 percent. As for Singapore, export structure of this nation concentrated on audiovisuals (40.1 percent), followed by design sector (29.1 percent) and new media (17.4 percent).

To gain insight into Vietnam's export structure of creative goods, Table 3 provides a detailed picture of export shares of subgroups in the design sector over 2002–2015. In 2002, most export products in this sector were interior and fashion products, which accounted 35.3 percent and 33.3 percent of Vietnam's creative goods exports to external countries, respectively. After more than a decade, the export proportion of fashion products had slightly declined, while the position of interior products had remarkably widened, reaching nearly 50 percent in 2015. On the other hand, other groups such as art crafts, audiovisuals and new media shared a modest percentage during this period. The high concentration on design sector, particularly fashion and interior in Vietnam's creative export to the world market, is unsurprising. According to General Statistics Office (GSO) of Vietnam, exports of textile and garment, footwear as well as wood and wood products, which can be considered as proxies for fashion and interior sector, shared nearly 40 percent to Vietnam's total export in 2016. Given the cheap labor and rich natural resources, Vietnam has evidently comparative advantage on the world market over those products. Likewise, taking into account the advantage of labor cost, these sectors attract a significant proportion of inward FDI, which plays a vital role in Vietnam's export activities. In particular, data from Foreign Investment Agency (FIA), Ministry of Planning and Investment (MPI) of Vietnam shows that as of 2016, textile, garments and footwear attract the largest number of FDI projects as well as the value of investment into Vietnam, sharing 13.5 percent and 12.6 percent, respectively.

To sum up, over the last decade there has been a great development and widening of creative goods exports from Vietnam to the global market, particularly when comparing with other ASEAN member states. As a result, the role of creative goods exports in the Vietnamese economy and the world trade has been on the rise over time. In terms of export structure, most creative goods from Vietnam are dominantly

exported to developed economies particularly the US and the design sector being the main sub-sector, especially interior and fashion products.

4 Determinants of Vietnam's creative goods exports

4.1 Research methodology

4.1.1 Gravity model

The gravity model in econometrics is originated from Newton's universal law of gravitation in physics and was first introduced by Tinbergen (1962), in which bilateral trade has been predicted based on the economic size (often measured by GDP) and distance between two partners. At the beginning of application, the gravity model had long been criticized for lack of theoretical economic backgrounds. However, with a variety of notable works such as Anderson (1979), Bergstrand (1989), Mccallum (1995), Deardorff (1998), Anderson and Wincoop (2003), Egger (2002) and Eaton and Kortum (2002), the gravity model from the status of "an intellectual orphan, unconnected to the rich family of economic theory" (Anderson 2011, p. 136) has naturally become a workhorse of international trade analysis, and "structural gravity is now firmly embedded in the economic mainstream" (Anderson 2016, p. 2).

The traditional equation of the gravity model is presented as follows:

$$T_{ij} = G\frac{Y_i Y_j}{D_{ij}}, \tag{1}$$

where T_{ij} indicates bilateral trade flows from interested country i to partner country j; Y_i and Yj present economy size of country i and j; D_{ij} is physical distance between two countries; and G is gravitational constant.

The gravity model Eq. (1) is a function of multiplicative nature. Thus, by simply taking the natural logarithms of both sides, we obtain a form of linear equation as follows:

$$\ln T_{ij} = \ln G + \ln Y_i + \ln Y_j + \ln D_{ij} + e_{ij} \tag{2}$$

4.1.2 Constructing gravity model

Admittedly, Anderson and Wincoop (2003) indicated that an augmented gravity model can incorporate more variables such as trading multilateral resistances and dummy variables to strengthen and consolidate more firmly the explaining significance and estimating power of the model. This extension depends on interests and purposes of each study. According to UNCTAD (2008), EY (2015) and Niu (2017), the main factors that might have significant bearing on the creative industry consist of economics, education, culture and globalization. Besides, as a key characteristic of gravity model based on literature, economic size presented by GDP plays a

significant role in reciprocal trade flows between two units, of which larger scale economy tends to contribute more to degree of trade flow. And, it is pretty interesting that Vietnam is an export-driven country with a miracle of economic growth, and thus it is necessary to discuss agglomeration economies in the model to capture effects of externalities to its exports. Thus, the estimated gravity models are expressed as follows:

$$\begin{aligned}\ln \text{export}_{ijt} = {} & a_0 + a_1 \ln \text{gdp}_{it} + a_2 \ln \text{gdp}_{jt} + a_3 \ln \text{income}_{it} \\ & + a_4 \ln \text{income}_{jt} + a_5 \text{distance}_{ij} + a_6 \text{landlocked} + \text{a}_7 \text{fta} + e_{ijt}\end{aligned} \tag{3.1}$$

$$\begin{aligned}\ln \text{export}_{ijt} = {} & a_0 + a_1 \ln \text{gdp}_{it} + a_2 \ln \text{gdp}_{jt} + a_3 \ln \text{income}_{it} + a_4 \ln \text{income}_{jt} \\ & + a_5 \text{distance}_{ij} + a_6 \text{edu}_i + a_7 \text{edu}_\text{j} + a_8 \text{culdis}_{ijt} + a_9 \text{exrate}_{ijt} \\ & + a_{10} \text{agglo}_{it} + a_{11} \text{landlocked} + a_{12} \text{fta} + e_{ijt}\end{aligned} \tag{3.2}$$

In which, Eq. (3.1) is conventional gravity model; and Eq. (3.2) is the augmented gravity model. The equation of conventional gravity model is estimated, aiming to compare it with the augmented model only, and thus interpretation of paper will be under the augmented gravity Eq. (3.2). Subscripts *i* and *j* present exporting country (Vietnam) and importing country *j*, respectively, while *t* is observed year. The indicators of gdp, income and distance are in turn gross domestic product, per capita income and geographical distance; edu and culdis symbolize higher education level and cultural distance, respectively; exrate denotes exchange rate. Variable agglo_{it} is a proxy of export-agglomeration economies. Dummy variables, namely landlocked and fta, represent landlocked economy and bilateral FTA between Vietnam and its trading partner. And, *e* is error terms.

4.1.3 Estimation issues

As previously analyzed, Vietnam's creative good exports are mainly dominated by design sector; and in design group, they are almost determined by fashion and interior. As such, it is reasonable to suspect that estimating with aggregate data could be suspiciously sensitive. Therefore, the augmented gravity specification (3.2) will be treated separately for each type of creative industry and sub-level of design sector.

With purpose, to partially control the problems of collinearity and endogeneity, and determining individual effects among variables, panel data approach will be employed (Egger 2002; Wooldridge 2013). Working with panel model, fixed effects model (FEM) and random effects model (REM) would be considered for estimation technique. Intuitively, random effects estimator is efficient when unobserved effects are uncorrelated with all explanatory variables, while fixed effects are better if idiosyncratic errors are serially uncorrelated between unobserved effects and explanatory variables (Wooldridge 2013). To deal with statistical techniques, Hausman test will be applied to determine a suitable model. Of which, null hypothesis is REM and alternative is FEM. However, in case FEM is more appropriate, the estimator faces a problem that is unable to estimate non-varying variables over time (Rahman 2009).

Thus, these variables will be estimated under a second regression step in which individual effects are treated as dependent variable, while distance and dummies are treated as independent variables. Equation takes the form as below:

$$\mathrm{IE}_{ij} = \beta_0 + \beta_1 \mathrm{distance}_{ij} + \beta_2 \mathrm{Non-Var}_{ij} + \mu_{ij} \quad (4)$$

where IE is the individual effects, and Non-Var is a set of all non-varying variables.

In addition, according to Bacchetta et al. (2012), when working with gravity equation, heterogeneous observations in many ways can probably damage assumption of homoscedasticity of error terms. Taking into this observation account, it is clearly reasonable to suspect that heteroscedasticity may be existing. Hence, Wald test will be used to diagnose the existence of heteroscedasticity. In case of arisen problem, down-weighted method of cross-section residual standard deviation will be applied. Besides, a simple way to deal with heteroscedasticity, so-called heteroscedasticity robust estimator of covariance, is also employed for comparative purposes.

4.2 Data analysis

Evidently, creative industry is greatly contributing to the economic growth and is becoming a key pillar in sustainable development strategies of many nations. However, scholars are seemingly not paying enough attention to it. One of the most important reasons which might explain this is difficulties arising in classifying creative goods indirectly which lead to unfeasibility of data collection (Van der Pol 2007). Although significant efforts have been made by national and cross-national level organizations, there is still a lack of data collection on the creative industry (Aalbers et al. 2005; UNCTAD 2008; SGS 2013; EY 2015). As noted, similar to many developing countries, the generation of statistics of creative export products is problematic for GSO—a government agency in charge of officially socioeconomic statistics in Vietnam. In order to partially remedy limitations of data collection, the study applies the commodity classification system of UNCTAD to gather the figures of Vietnam's creative goods exports. The UNCTAD's statistics data on creative goods are reliable as they were extracted from the UN Comtrade database using the Harmonized System (HS) classification, version 2002 as well as were aligned with other classifications gathered from key international organizations or individual countries (UNCTAD 2010). Another basis is that UNCTAD's classification method emphasizes the undiscovered creativity of the Global South and is pragmatic in the way it represents both the evolution of statistical methodology and the balance of trade data currently available (UNCTAD 2010). Hence, data on Vietnam's creative goods exports expressed in US$ are mainly taken from UNCTAD's database.

In terms of variables in conventional gravity equation, GDP measures size of economy. Theoretically, a larger country usually trends to trade more. Thus, variable gdp is expected to have a positive sign. Per capita income (income) is a proxy of market power, in which rich people tend to consume more goods of culture, creation and technology (UNCTAD 2008; EY 2015). So, income is hypothesized to have a positive sign. Data on gdp and income are obtained from database of The World Bank. Geographical distance (distance) acts as a proxy of trade barriers; thereby it

is hypothesized to have a negative sign. Data on distance in kilometers are retrieved from GeoDist of CEPII.

In the literature, the concept of agglomeration economies or external economies of scale is originated from effects of clustering explanation of economic activity in which agglomerative advantages could be achieved from spillovers of knowledge, labor market pooling and input sharing (Bogart 1998; Glaeser 2010; Brueckner 2011). As acknowledged in international trade, reducing sunk costs resulting in agglomeration spillovers is broadly considered as significant factor in exporting participation decision of enterprises. On empirical side, many works evidently demonstrate that spillovers associated with external economies of scale contribute crucially to export activities (Greenaway and Kneller 2008; Koenig et al. 2010; Ito et al. 2015; Ramos & Moral-Benito 2018). Hence, taking into account export-agglomeration economies in the augmented gravity model is meaningfully necessary to understand more deeply determinants of exporting in the creative industry of Vietnam. In theory, there are two types of agglomeration economies consisting of urbanization and localization. Of which, localization economies arise from an increasing in industries in the same locations, while urbanization economies occur from an increase in size of cities or a number of people living in the cities (Glaeser 2010; Bogart 1998; Brueckner 2011). Actually, on theoretical side there are a range of parameters to possibly gauge the degree of urbanization (such of urbanization ratio or number of citizens living in urban) and localization (such of number of industrial clusters, establishments or employments); however, in case of Vietnam collecting data on these measurements is problematic and somehow not available. Thus, we build agglo variable as a proxy of agglomeration economies by considering urbanization degree and weighted by growth rate of industrial zones as following:

$$\text{agglo}_{it} = \text{urbani}_{it}\, x\, \text{indzone}_{it} \tag{5}$$

where agglo is a proxy of agglomeration; urbani acts as a representative of urbanization economies and measured by degree of urbanization of total population (or percentage of the total population living in the urban areas); indzone represents for localization economies and calculated by growth rate of industrial zones. As mentioned above, external economies of scale contribute constructively on the export decision, and thus agglo expected has positive sign. Data on urbanization are collected from The World Bank, while data on industrial zones are retrieved from Annual Reports of Department for Economic Zones Management, MPI.

For real exchange rate, it is determined indirectly by taking annual average exchange rate of US$ to unit of Vietnam's currency divided by the currency units of country j. Depreciation in domestic currency expresses relative appreciation in exchange rate which could affect positively export flows. Thus, exrate would have negative signs. Data on exchange rate are retrieved from The World Bank database.

With respect to education, reports of UNCTAD (2008, 2013) and EY (2015) demonstrated that creative industries of countries with good education system represented by higher education and expenditure on education have performed successfully compared to others which do not have good education system. As a proxy of educational indicator, edu variables present higher education level and measured

by amount of people receiving higher education over population. A bigger ratio of higher education level means that more people receive knowledge which in turn would concurrently promote production and consumption of creative goods as well. So, variable edu would be expected to have a positive sign. Data on education indicators are taken from the sources of GSO and UNESCO.

It is clear that trading cultural or creative goods relies massively on cultural background, values, religions and customs (UNCTAD 2008; Niu 2017). In the literature, cultural distance currently could possibly be measured based on one of five frameworks consisting of Hofstede (Hofstede 1980), Schwartz (1994), GLOBE (House et al. 2004), linguistic distance (West & Graham 2004) and managerial perceptions (Boyd et al. 1993). However, given the rapid adoption, Hofstede's cultural framework is widely used (Liu et al. 2018). In this paper, we employ cultural distance index proposed by Kogut and Singh (1998), of which they extended the Hofstede's cultural framework. Specifically, using the extended Hofstede's model with six dimensions comprising uncertainty avoidance, power distance, individualism–collectivism, masculinity–femininity, long-term orientation and indulgence versus self-restraint produced, Kogut and Singh (1998) developed a formula to calculate cultural distance index as follows:

$$\mathrm{CD}_{ij} = \sum_{d=1}^{6} \{(I_{di} - I_{dj})^2 / V_i\} / 6 \tag{6}$$

where CD_{ij} is the cultural distance between two countries; I_{di} and I_{dj} are the scores on the cultural dimension; V_i is the variance of the score of the dimension. Scores on these dimensions demonstrate relative position of a country, and thus cultural distance between different nations can be estimated by above cultural dimension scores (Liu et al. 2018). Nevertheless, it is secure to argue that globalization has considerable effects on international trade, of which for each nation, the degree of economic freedom plays a vital role to its foreign trading activities. Thus, on the face of it, we believe that a deeper integration level of an economy is a more shrunken cultural distance between that nation and other countries. Hence, to capture effects of globalization and integration, index of cultural distance will be weighted by square root of multiple of economic freedom index (EF) of Vietnam and its counterparts and is functioned as follows:

$$\mathrm{culdis}_{ijt} = \sqrt[2]{\mathrm{EF}_{it} * \mathrm{EF}_{jt}} \sum_{d=1}^{6} \frac{\{(I_{di} - I_{dj})^2 / V_i\}}{6} \tag{7}$$

On the whole, cultural distance drops rapidly in the early period of diplomatic ties, and it then slows down gradually (Liu et al. 2018). In conventional viewpoint, trade patterns with similar cultural background are believed to have better acceptance of cultural creative products (Niu 2017). A firm faces new cultural settings when investing and trading across the border, which in turn creates new isomorphic pressures (Beugelsdijk et al. 2014) or misinterpretation and miscommunication (Quer et al. 2017). This makes it difficult for MNEs to transfer skills and

competencies from one nation to another. This challenge will increase with employees having a higher cultural distance (Pejovich 2003). In other words, cultural distance theoretically impedes doing business abroad; thus, it is expected to have a negative sign on creative export. On the other hand, cultural distance may also create some benefits. That is, "acquiring a local firm or working with local partner could allow foreign enterprises to access different, valuable and inimitable set of routines and repertories that enhance the firms' advantage" (Liu et al. 2018: p. 31). To put differently, cultural diversity or a mix of diversity and homophiles enhance creativity. Therefore, it is worth considering the alternative hypothesis; that is, "greater cultural distance, make cultural goods imports more appealing".[1] The strength of cultural distance may vary at its different levels, relying on the degree of acculturative stress when two different cultures interact with each other (Liu et al. 2018) or depending on prior inward internationalization (Quer et al. 2017). Data on cultural distance are obtained from the official website of Hofstede (https://geert-hofstede.com), while economic freedom index is retrieved from The Heritage Foundation (http://www.heritage.org/index).

Regarding economic integration and globalization indicators, we take dummy variable fta into account to capture effects of bilateral trade agreements on export flows of Vietnam to its counterparts. Variable fta takes the value of one if trade agreements between Vietnam and partners have come into effects; otherwise, it holds value of zero. Finally, for landlocked variable, being limited access to the sea is among the largest obstacles for landlocked countries to convey goods from factories to destinations of ports, delivery hub or importing countries (Raballand 2003). Thus, landlocked dummy is expected to have negative signs (Table 4).

4.3 Empirical results

First, we estimate Equations of (3.1) and (3.2) for aggregate export flows under approaches of FEM and REM. The results are reported in Table 5.

Then, Hausman test formally will be run to decide which model is more appropriate. Results of Hausman test from models presented in Table 5 indicate that FEM should be chosen as null hypothesis is rejected.

Next, modified Wald test for group-wise heteroscedasticity has been employed. The result shown in second-last row of Table 5 implies that there is heteroscedasticity. To deal with the problem, we apply the down-weighted method of cross-section residual standard deviation (weighted least square—WLS) for the estimation of augmented gravity models. The results are illustrated in Table 6.

In general, coping with heteroscedasticity, the approach of WLS is likely more effective than its robust in both conventional and augmented gravity model, of which most estimated coefficients under the WLS come up with correct signs, except for coefficient of Vietnam's higher education level. Apart from that, this approach shows that *R*-square coefficients are higher as well.

[1] We would like to thank Referee for suggestion of this term.

Table 4 Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
Export	260	2.22E+08	4.83E+08	3.74E+06	3.84E+09
Artcrafts	260	1.01E+01	1.25E+01	4.48E−01	7.56E+01
Audiovisuals	221	1.06E+02	6.27E+01	1.00E+00	2.15E+02
Design	260	2.03E+02	4.65E+02	2.43E+00	3.70E+03
Architecture	47	2.11E−02	6.12E−02	2.00E−06	3.00E−01
Fashion	260	5.49E+01	9.94E+01	6.54E−01	9.07E+02
Glassware	139	6.76E+01	3.96E+01	1.00E+00	1.36E+02
Interior	260	1.10E+02	3.14E+02	4.16E−01	2.53E+03
Jewelry	246	2.85E+01	1.99E+02	6.10E−05	2.49E+03
Toys	260	1.01E+01	2.16E+01	7.76E−03	2.04E+02
New media	153	2.38E−01	1.21E+00	8.00E−06	1.26E+01
Performing arts	250	1.26E+02	7.23E+01	1.00E+00	2.50E+02
Publishing	258	3.47E−01	7.95E−01	3.33E−04	6.57E+00
Visual arts	260	8.31E+00	1.15E+01	5.87E−02	5.79E+01
gdpi	260	1.00E+11	4.84E+10	3.79E+10	1.86E+11
gdpj	260	2.23E+12	3.23E+12	6.66E+10	1.74E+13
Distance	260	7.79E+03	3.12E+03	8.68E+02	1.32E+04
Incomei	260	1.16E+03	5.17E+02	4.77E+02	2.05E+03
Incomej	260	3.55E+04	1.67E+04	1.15E+03	8.80E+04
Exrate	260	1.40E+04	1.02E+04	1.22E+01	3.48E+04
edui	260	1.43E+01	2.22E+00	1.11E+01	1.82E+01
eduj	239	4.04E+01	1.27E+01	1.25E+01	7.28E+01
Culdis	260	1.33E+02	5.09E+01	1.64E+01	2.14E+02
Agglo	260	5.33E+00	4.34E+00	3.24E−01	1.69E+01
Landlocked	260	1.00E−01	3.01E−01	0.00E+00	1.00E+00
fta	260	1.46E−01	3.54E−01	0.00E+00	1.00E+00

As reported by our results, size of the economy and market development contribute positively to exportation of creative products from Vietnam to its key trading partners, whereas cultural distance and exchange rate have negative impacts on Vietnam's creative goods exports. This shows that less cultural understandings and further distance between Vietnam and its trading counterparts could limit Vietnam's creative goods exports. Indeed, our estimation reveals that Vietnam has a relatively large cultural distance with its key trading partners, especially Australia, Austria, New Zealand and the USA. Another interesting thing obtained is that coefficient of higher education of Vietnam is statistically significant, but it turns out with undesirable sign, implying that Vietnam's higher education would not assist the country in speeding up export of creative goods to trading partners. Limited quality of higher education in Vietnam for the two past decades could be an important reason for the unexpected result. The works of World Bank (2008) as well as Nha and Tu (2015) demonstrated that reform of national education system carried out since the late

Table 5 Estimated results under approach of FEM and REM

	(3.1)		(3.2)	
	FEM	REM	FEM	REM
lngdpi	0.52799*	0.64218	13.37412	9.16853
lngdpj	0.05671	0.66260***	0.05356	0.68174***
lnincomei	− 0.09773	− 0.28707	− 12.96807	− 9.05290
lnincomej	1.25355*	0.76272***	1.60259***	0.77326***
lnexrate			− 0.87267**	− 0.04984
lnedui			− 2.35047	− 1.42414
lneduj			− 0.02436	0.16793
lnculdis			− 1.12098	− 0.01823
lnagglo			0.02048	0.02666
landlocked		− 0.84105*		− 0.75520
Distance		− 0.04855		0.00002
fta		0.18138***		0.16527***
cons	− 8.8626302	− 21.66071	− 227.37141	− 173.29123
R-square	0.4635	0.6699	0.5315	0.6438
Hausman	5.33***		7.90***	
Wald	19775.42***		27585.43***	

Legend: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 6 Estimated results under WLS

	(3.1)		(3.2)	
	WLS (3.1a)	Robust (3.1b)	WLS (3.2a)	Robust (3.2b)
lngdpi	0.71887***	0.52799	2.84781***	13.37412**
lngdpj	1.13592***	0.05671	1.8313***	0.05356
lnincomei	1.05607***	− 0.09773	1.94400***	− 12.96807**
lnincomej	− 0.25157**	1.25355***	1.77199***	1.60259***
lnexrate			− 0.34892***	− 0.87267
lnedui			− 2.94926*	− 2.35047
lneduj			1.52856***	− 0.02436
lnculdis			− 0.66090***	− 1.12098
lnagglo			0.08680**	0.02048
cons	− 103.08455	− 8.86263	− 25.48084	− 227.37141**
R-square	0.5532	0.4635	0.5952	0.5315

Legend: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

1990s in Vietnam has gained considerable achievements, but its outcomes for higher education system have remained modest which could be a bottleneck for socio-economic development. Meanwhile, most of Vietnam's trading counterparts have a developed higher education that positively influences Vietnam's creative goods

Table 7 Estimated results for individual effects over distance and non-varying variables

	(3.1) from (3.1a)	(3.2) from (3.2a)
lndistance	−0.16564	−0.19807
landlocked	1.73176	−0.40264
fta	0.42791**	0.05640*
_cons	8.55021*	8.66682*
R-square	0.1368	0.1901

Legend: *$p < 0.05$; **$p < 0.01$

exports. Additionally, estimated results show that export-agglomeration economies have a significant contribution on exporting of creative industry since coefficient of agglo turns out with positive sign and statistically significant. More specifically, increase in urbanization and industrial zones in Vietnam is likely determinant factors in advancing its creative export products.

Since FEM is more suitable model, now we process the second step of regression with individual effects treated as dependent variable over distance in log form and overtime-unvarying variables of landlocked and fta. The estimation results are represented in Table 7. In particular, geographical distance and being landlocked do not play a meaningful role in exporting of creative goods since estimated coefficients for individual effects in both conventional and augmented gravity models are statistically insignificant, even though they turn out with expected signs. However, the establishment of free trade agreements is thought of likely assisting Vietnam in fostering its export of creative products to trading counterparts since estimated coefficients of fta in both models are statistically significant. Comparatively, measured results of distance, landlocked and fta in terms of expected signs are closely similar to the ones obtained in REM (see Table 5), but the coefficients in magnitude are far different from ones. With regard to relatively low *R*-square coefficients, these estimated outcomes are comparable with those in studies of Martinez-Zarzoso and Nowak-Lehmann (2003) and Chen and Wall (2005), meaning that there are still other determinant factors of trading-pair effects between Vietnam and each counterpart.

We also provide estimation results of determinants of Vietnam's creative exports at sectoral level as well as sub-sectors of design group which are illustrated in Tables 8, 9, 10 and 11. At sectoral level, estimated outcomes from Table 8 show that impacts of independent variables on exports are not the same among different types of creative industries. In another way, there is heterogeneity among the parameter estimations. In particular, Vietnam's economic scale is a positive factor contributing to the expansion of its exports in design and new media sectors, while negatively affecting other sectors, especially visual arts, publishing and art crafts. Meanwhile, size of economy of trading partners is found to positively impact on all creative export sectors of Vietnam. In terms of income, income of Vietnam and its partners are found to facilitate Vietnam's export in almost all creative sectors except design and new media (with Vietnam's income), performing arts and publishing (with partner's income). On the other side, variables of higher education of

Table 8 Estimated results with FEM under WLS approach at sectoral level

	Art crafts	Audiovisuals	Design	New media	Performing arts	Publishing	Visual arts
lngdpi	−1.1154***	−0.71754***	1.03063***	3.55668***	−0.064507***	−1.30102***	−2.74367***
lngdpj	0.75982***	0.39884***	0.35453***	0.82426***	0.54277***	0.43242***	1.53698***
lnincomei	1.82581***	1.17164*	−0.01890	−4.53400***	2.64884***	3.47534***	0.13944
lnincomej	0.44081***	0.96856***	2.27297***	1.23350***	0.01760	−0.21623	1.97056***
lnexrate	−0.04376***	−0.22125***	−0.35226***	0.30869***	0.19373***	0.51595***	0.56919***
lnedui	−0.67273	0.07765	5.70687***	30.29354***	−11.4297***	−5.14301*	(Omitted)
lneduj	−0.69488***	−0.10694	−0.71660*	1.07616***	0.45950***	1.95719***	3.04165***
lnculdis	−0.76429***	−1.04685***	−2.58523***	−1.39288***	0.01562	−0.34695**	−2.08433***
lnagglo	0.21644***	0.21173***	0.18852***	0.08590	−0.44719***	−0.22539*	0.33490***
cons	−26.68949	−10.529488	−230.9875*	−1.56571	−0.44403	11.50738	38.20800
R-square	0.3181	0.6610	0.6728	0.3987	0.1752	0.4586	0.3652
Wald	776.55***	5577.04***	52995.2***	1398.99***	7464.96***	821.69***	2352.18***

Legend: *$p<0.05$; **$p<0.01$; ***$p<0.001$

Table 9 Estimated results for individual effects over distance and non-varying variables (Eq. 3.2) at sectoral level

	Art crafts	Audiovisuals	Design	New media	Performing arts	Publishing	Visual arts
lndistance	−0.08905	−0.32947	0.36505	0.06593	0.17853	0.31493	0.50732
landlocked	−0.89996	0.25363	0.28078	0.44739	−1.60546	−0.04089	1.07960
fta	0.07504	1.28820*	0.92353*	0.92265	0.25476	0.48198	−0.14487
cons	4.32636	1.84242	4.02542	0.3235	3.57679	−1.18609	0.25618
R-square	0.1249	0.1915	0.1358	0.1267	0.1534	0.1174	0.0739

Legend: *$p < 0.05$

Table 10 Estimated results with FEM under WLS approach (Eq. 3.2) for sub-sectors of design industry

	Architecture	Fashion	Glassware	Interior	Jewelry	Toys
lngdpi	1.73124	1.27299***	−0.14517	3.63706***	−3.54658***	0.39500**
lngdpj	0.98078	0.92014***	0.47568***	1.33363***	1.30688***	0.28335***
lnincomei	(Omitted)	3.88595***	2.73371	−4.34094***	3.34971***	−0.07874
lnincomej	4.64151***	0.53997***	0.10552	−0.96745***	1.68907***	1.60362***
lnexrate	−0.99056***	0.14132**	0.08822***	−0.044907	−0.16758***	−0.38762***
lnedui	(Omitted)	7.26078***	−11.00043*	31.03491***	5.92657***	(Omitted)
lneduj	−5.61248***	−0.47219***	0.85392**	1.77919***	1.81398***	0.11186
lnculdis	−1.59853	−0.57190***	−0.03439	1.63316***	−1.87389***	−2.01597***
lnagglo	−0.63489***	0.36863***	−0.29246**	1.38241***	0.47140***	−0.06971
cons	−2.70117	−33.47985	2.71818	−71.37552	2.64286	95.62909
R-square	0.3208	0.4181	0.3138	0.3665	0.3637	0.5373
Wald	239.24***	736.08***	581.09***	1941.70***	8956.44***	1556.3***

Legend: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 11 Estimated results for individual effects over distance and non-varying variables (Eq. 3.2) for sub-sectors of design industry

	Architecture	Fashion	Glassware	Interior	Jewelry	Toys
lndistance	3.53186	1.02332*	−0.79233	0.46888*	−0.15717	0.10465
landlocked	0.41110	−0.14963	−1.25363	0.37719	−0.85490	0.65898*
fta	0.34089	0.13752**	−0.55849	0.35559	0.88253	0.43733
cons	2.29325	−3.58611	11.07089*	10.14734	3.35990	4.11555*
R-square	0.1208	0.1448	0.1683	0.0996	0.1271	0.1293

Legend: *$p < 0.05$; **$p < 0.01$

Vietnam and trading counterparts as well as exchange rate and agglo variables have mixed impacts on Vietnam's creative goods exports at sectoral level. For instance, Vietnam's higher education has a positive relationship with export of design and new media products, while negatively affecting export of performing arts and publishing products. Similarly, trading partners' higher education is found to enhance

Vietnam's export of new media, performing arts, publishing and visual arts, while impeding export of art crafts and design products. Regarding variable agglo, this factor has positive impact on export of art crafts, audiovisuals and design products, but obstructing export of publishing and performing arts goods. It is worth noting from Table 9 that cultural distance seemingly has negative effects on almost creative sectors, except performing arts, while fta is found to advantageously impact only on audiovisuals and design sectors.

Considering sub-sectors of design, we find that there are mixed impacts of relevant factors. In particular, estimated results from Table 10 show that variable gdp of both Vietnam and trading partners has a positive influence on the two most important sub-sectors of design, namely fashion and interior, while its effect on jewelry goods is negative. Estimated outcomes with income also reveal that income of Vietnam and trading partners advantageously affect Vietnam's export in most sub-sectors of design with only one exception, interior products. Regarding higher education, estimated results indicate that Vietnam's higher education positively influences its export of fashion, interior and jewelry products, while adversely affecting glassware export products. With respect to higher education of trading partners, this variable has an advantageous effect on Vietnam's export of glassware, interior and jewelry products, while impeding export of architecture and fashion products. Interestingly, estimated outcome with culture distance shows that there are different impacts on exporting of sub-sectors inside design group. It has a positive impact on exporting of interior products, but negative one in fashion, glassware, jewelry and toys products. Also, there are mixed impacts of exchange rate and agglomeration economies on Vietnam's export of sub-sectors within design. For instance, estimation results with export-agglomeration economies indicated that the variable has crucial support on exporting of fashion, interior and toys sub-sectors. Finally, estimated results from Table 11 demonstrated that the formation of bilateral free trade area has positive role in only fashion export. This is obviously understandable since one of the main purposes that prompted Vietnam to sign trade agreements is to increase export products which it has significantly comparative advantage on including textile and garments over trading partners.

5 Trade potential

To evaluate the trade potential of creative goods between Vietnam and its trading partners, we employ an index of Average Standardized Trade Potential (ASTP) proposed by Benedictis and Vicarelli (2005) with the following equation:

$$\mathrm{ASTP}_{ij} = \sum_{t=1}^{n} \left[\{(\mathrm{act\_EXijt}/\mathrm{est\_EXijt}) - 1\}/\{(\mathrm{act\_EXijt}/\mathrm{est\_EXijt}) + 1\}\right]/n \tag{8}$$

where act_EX is actual exports of Vietnam to its counterparts, est_EX is estimated figure of that from gravity equation. ASTP takes a value range of -1 to $+1$. If ASTP has value of approximately zero, export of Vietnam to its partner is predicted to

Table 12 Vietnam's export potential of creative goods to its key partners

Country	ASTP	Scenario	Country	ASTP	Scenario
Australia	−0.10053	Untapped	Netherlands	−0.00606	Untapped
Austria	0.008628	Overtraded	New Zealand	−0.16889	Untapped
Belgium	−0.11833	Untapped	Poland	−0.12356	Untapped
Canada	−0.06981	Untapped	Russia	0.030184	Overtraded
China	−0.04678	Untapped	South Korea	0.025218	Overtraded
France	−0.02909	Untapped	Spain	−0.06885	Untapped
Germany	−0.00486	Untapped	Sweden	−0.05553	Untapped
Hong Kong	−0.02836	Untapped	Switzerland	−1.50183	Untapped
Italy	−0.02349	Untapped	UK	−0.00546	Untapped
Japan	0.018139	Overtraded	USA	−0.49056	Untapped

reach closely to the critical point. Export is untapped if ASTP is negative and being overtraded for the opposite option.

Trade potential is calculated based on the results obtained from gravity model with FEM under WLS method. Equation. (3.2) is served as a basis for predication. Table 12 below represents the estimated results for export potential of creative goods from Vietnam to its main trading partners over period 2002–2015. The most notable feature is that Vietnam's creative goods exports to nearly all of its largest trading partners had not yet reached the expected values. Of which, the ASTP values were lowest in cases of Switzerland, the USA, New Zealand, Poland and Belgium. Meanwhile, Vietnam's creative goods exports revealed the slightly overtraded status in only four markets of Austria, Russia, Japan and South Korea. One implication that could be drawn from these results is a significant room for Vietnam to broaden export value of creative goods to many countries, particularly the largest advanced economies such as the USA and partners in EU region. Nevertheless, this would need Vietnam to take deeper steps in closely engaging consumers in these economies in the next years. The over-trade circumstance to Russia, Japan and South Korea, three countries signing FTA with Vietnam, could come up with an interested implication that if Vietnam would like to move further, it is necessary to strongly strengthen the process of negotiating and taking multi- and bilateral trade agreements into effect such as of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the EU-Vietnam Free Trade Agreement (EVFTA) and so on.

6 Concluding remarks

Using data set from UNCTAD, this paper shows that Vietnam has gained significant successes in increasing the export value of creative goods to the world market during the last decade. More interestingly, in the Southeast Asian region, Vietnam has become the largest exporter over those goods though its per capita income is much lower than many other ASEAN countries. This, to some extent, affirms that

a developing economy such as Vietnam also has the ability and potential to promote export of creative products to outside countries. In terms of market distribution, Vietnam's creative goods exports have highly concentrated on developed markets, particularly the US market, while its export products heavily rely on design sector, namely interior and fashion goods. The high export concentration on fashion and interior is likely because Vietnam has largely comparative labor cost and natural resources, which help to rapidly foster its export of textile, garment, footwear and wood products to the world market.

Our paper, by employing various steps of gravity model, has revealed that at aggregately, creative goods exports from Vietnam have a principally positive relation with economic scale and market development of both Vietnam and its key trading partners. On the contrary, variables of cultural distance and exchange rate are found to negatively affect Vietnam's creative goods exports. Estimated results have also demonstrated the contrasting effects of variables of higher education on promoting Vietnam's creative goods exports, with the positive role for trading partners' higher education and the negative one for Vietnam's higher education. As expressed, this possibly indicates that there has been little gain attained in Vietnam on higher education over recent decades. We also found that export-agglomeration economies, which are represented by urbanization level and the growth of industrial zones in Vietnam, positively contribute to its export expansion of creative products. When testing individual effects over distance and non-varying variables, while variable fta is detected to facilitate Vietnam's creative export products, we do not find the nexus between creative exports with geographical distance and landlocked variables.

At sectoral level, we found that the effects of considered factors on creative sectors are different, showing that there is heterogeneity among the parameter estimations in each type of creative sector. We explored that Vietnam's GDP growth advantageously fosters its design and new media export products, but impeding export of the remaining sectors, while trading partners' GDP is found to increase the import demand for all creative sectors from Vietnam. Estimation results show the heterogeneity in impacts of higher education of both Vietnam and partners on creative export sectors. On the other sides, cultural differences between Vietnam and trading counterparts negatively influence almost creative export sectors, excluding performing arts, while variable fta has a positive effect on audiovisuals and design export sectors. The mixed effects on creative sectors are also found in factor of export-agglomeration economies, with the positive role in art crafts, audiovisuals, visual arts and design products and the adverse one in performing arts and publishing products. At sub-sectors of design industry, estimated results also show that Vietnam's creative goods exports are almost positively impacted by GDP and per capita income of Vietnam and trading counterparts, excluding jewelry and interior products. The paper also found that export-agglomeration economies positively influenced the two major export sub-sectors of Vietnam, namely interior and fashion, while the similar effect of variable fta takes place only in fashion products. Regarding cultural distance, this variable has negative impacts on most design sub-sectors, except interior products.

This paper has also measured the export potential of creative goods from Vietnam to trading partners. The estimated results have shown a considerable capacity for boosting export of creative goods from Vietnam to other countries particularly

the major advanced economies, provided that the economic linkages between Vietnam and its trading partners could be strengthened in the upcoming time.

From the empirical evidence as analyzed, our paper has also policy implications. Given the positive impact of preferential trade deals analyzed, Vietnam should enhance the establishment of FTAs and implement export promotion schemes with potential markets, particularly with those having high income and developed higher education. To lower the negative impacts of cultural distance on export of creative goods, there should be more 'people to people' exchange initiatives organized between Vietnam and its target markets. Additionally, the effect of cultural distance may be less significant if creative products are produced by foreign (or Western) firms or their local suppliers based in Vietnam according to their own or foreign buyer's specifications, as frequently happened in manufacturing sectors highly linked to global supply chains. Thus, policies should look at attracting more FDI as well as consolidating the linkage between local suppliers and MNEs in Vietnam. The paper also suggests that increasing the urbanization and the establishment of industrial zone may contribute more to the creative export products, including the two most curial sub-sectors, namely fashion and interior goods. Finally, to increase the competitiveness of creative goods in the world market, Vietnam should improve the quality of higher education particularly via investing more finance in higher educational institutions, coupled with effectively performing other human resource development programs in the upcoming years.

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