Antecedents to international student inflows to UK higher education: A comparative analysis

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ABSTRACT

This study explores the antecedents of international student flows into UK higher education and the variations in the antecedents between home countries of origin. The results suggest that home country economic wealth and demographics, historic/linguistic link and UK government preferential policies are the important antecedents for international students from worldwide flows into the UK. However, a comparative analysis shows that a wide variety of economic, social and political factors are all important to the UK international students originally from developing economies, whilst home country economic wealth and population, and bilateral trade are more important than other factors in determining the students from developed countries studying in UK. The UK government should formulate effective and flexible policies and UK HEIs should develop specific marketing strategies to attract a growing number of international students in general and from key target countries and regions in particular.

Keywords: antecedents, international students, UK higher education, marketing strategy, comparative analysis

1. INTRODUCTION

Globalization has manifested itself not only through international trade and foreign direct investment (FDI) but strongly through the increasing trend of international student mobility in higher education (HE) (Bennell and Pearce, 2003; OECD, 2004; Zammuto, 2008). The competition in vying to attract international students has become fierce between the host (receiving) countries (Binsardi and Ekwulugo, 2003; British Council, 2011; Hemsley-Brown and Goonawardana, 2007). Internationalized higher education can promote not only a country's economy but also its social and cultural diversity, political democracy, and international trade and cooperation (Marginson, 2010). However, the literature gives scant attention to the globalization of higher education (Doh, 2010; Marginson, 2010).

As a traditional higher education destination for international students, the UK attracts students from around the world for decades (Lee and Tan, 1984). UK HE has become one of the UK's major exporting industries (Bennell and Pearce, 2003; Naidoo, 2007). The UK maintains its position as the second largest host country for international students behind only the US (IIE, 2010; OECD, 2011). However, the UK government and higher education institutions (HEIs) are now facing serious challenges in their attempt to maintain or increase international student numbers. UK HEIs have come increasingly to rely on international students from a financial point of view due to the reduction in funding for domestic students, combined with the effects of the current financial crisis and recession (Ryan, 2011).

The situation is made worse by the intensification of competition from other host countries such as the USA, Canada, Australia, and New Zealand, which share the advantage of an English-speaking environment (Green and Boone, 2005; Hemsley-Brown and Goonawardana, 2007). The UK market share of international students fell from 16% in 1998 to 13% in 2003 and further down to 10% in 2009 (Green and Boone, 2005; OECD, 2011). In order to attract more

international students and remain competitive in the global HE market, it is essential for the UK government to formulate effective policies and UK HEIs to develop efficient marketing strategies. For doing so, they need a good knowledge and understanding of the nature of UK international student mobility. However, this issue has not been addressed adequately by literature to date, and little research has been conducted to investigate the impact of home (sending) country characteristics on and the variations in the antecedents of UK international student inflows from a home country perspective.

This study addresses these literature gaps by tackling the following questions: What factors attract international students coming to the UK for their HE? Do the antecedents differ across home countries of origin due to their difference in economic development (measured by GDP per capita)? If so, what should the UK government and HEIs do to attract more international students from different countries? The study contributes to the literature in two ways. First, using a large panel dataset and an expanded estimate model, considering push and pull factors, combining economic, social and political elements, the study provides a more robust empirical analysis and more generalized results than those can be generated from a time series or a cross-sectional dataset (Baltagi, 2005; Hsiao, 2003). Second, exploring the variations between two home country groups classified by economic development level, the study leads to a better knowledge and understanding of the antecedents of UK international student inflows originating from worldwide in general, and from developed and developing economies in particular. More importantly, the study sheds a light on the literature with a comparative analysis between the two home country groups, identifying the factors that are most significant in each case.

The rest of the paper is organized as follows. Section 2 reviews the literature and models developed in previous studies. Section 3 discusses the research methodology. Section 4 presents

the results and discussions, and the final section summarizes the key findings, explores the policy and managerial implications, and discusses the research limitations and future studies.

2. LITERATURE AND MODELS

A country can benefit from exporting its HE service to international students through financial effects, employment and spillover effects, and economic growth effects (Adnett 2010; Bashir, 2007; Chellaraj, Maskus, and Mattoo, 2008; Gribble, 2008). Exporting HE service to international students can improve the host country's trade position and the current account of its balance of payments which is one of the most important policy issues for every government (Bashir, 2007). The income generated from international students can ease financial pressures on the host country government and HEIs arising from the government's HE budget cuts and other public funding shortages. International students can also create employment opportunities for the host country in HE industry directly, and in other sectors such as the property, retail and tourism industries, indirectly through spillover effects.

From the long-term perspective, the immigration of international graduates can promote host country human capital stock, which has positive impact on the country's innovation, productivity and economic growth (Adnett 2010; Chellaraj et al., 2008; Gribble, 2008). As a long-term impact, successful international graduates – one day's world business elites, may invest in, import from and export to the countries in which they have studied for their university degrees, boosting the country's FDI and economy (Wylie, 2011).

From a university perspective, a HEI can benefit from recruiting and educating international students from all over the world who can enrich the cultural and intellectual diversity of the academic community (Doh, 2010; Marginson, 2010; Ryan, 2011; SCONUL, 2007; Turner, 2008). Paying high tuition fees, international students can also contribute to a bulk

of income, which is even more essential for HEIs to survive from the current recession. A HEI can make itself "more global" by increasing the number of foreign students, which has became a core international strategy for some UK elite universities (Turner, 2008). Success in attracting large numbers of international students particularly at postgraduate level, can also demonstrate a university's world-class reputation, which will in turn attract even more international students in future (Hemsley-Brown and Goonawardana, 2007; SCONUL, 2007).

Within the existing literature, three main models have been developed to analyze the antecedents of international student mobility: the gravity model (see Bessey, 2007; Karemera, Oguledo, and Davis, 2000; Gonzalez, Mesanza, and Mariel, 2011; Sa, Florax, and Rietveld, 2004); the push-pull model (see Cantwell, Luca, and Lee, 2009; Li and Bray, 2007; Mazzarol and Soutar, 2002; McMahon, 1992) and the three-category model (see Naidoo, 2007).

2.1 A gravity model

Tinbergen (1962) first introduces a gravity model to predict and describe international flows of trade including goods and services between two countries i and j as:

$$Fij = C\frac{E_i E_j}{D_{ij}}$$

Where F is the trade flow, E is the economic size of each country and D is the distance between the two countries. The gravity model is later widely used to explain international capital (FDI) flows (see Buckley, et al., 2007; Dunning, 1980; Grosse and Trevino, 1996; Sethi, Guisinger, Phelan, and Berg, 2003; Zheng, 2009; Zwinkels and Beugelsdijk, 2010), labor migration (see Karemera et al., 2000), and international student mobility (see Gonzalez et al., 2011; Sa et al., 2004). Zwinkels and Beugelsdijk (2010, p.102) note "Gravity models postulate that the magnitude of merchandise trade and FDI flows between countries is conditional on

several characteristics of these countries, notably their economic size and level of economic development, and on factors stimulating or discouraging the movement of merchandise or investment between countries" including geographic and cultural distance, and institutional factors. They claim that the popularity of a gravity model used in international business literature owes to two reasons: the model has "firm theoretical foundations" and "produced some of the clearest empirical results in international economics and business" (Zwinkels and Beugelsdijk, 2010, p. 102). Karemera et al. (2000, p. 1746) argue that "a gravity model is a reduced form equation derived from a system of demand and supply relationships." They develop a model of migration between two countries based on potential supply and demand factors. The supply factors include home country income, population and other push considerations, whilst demand factors include host country income and population and the pull factors arising from them. They modify Tinbergen's gravity equation as follows:

$$Fij = c\frac{S_i^{a1} D_j^{a2}}{R_{ij}^{a3}}$$

In this equation, S represents supply factors, D refers to demand factors and R regards to natural and artificial factors influencing migration between the two countries, such as distance, travel costs and host country visa regulations. All of these factors reflect the specific political, economic and demographic characteristics of the home and host countries (Karemera et al., 2000).

Using the modified gravity model, Karemera et al. (2000) investigate the antecedents of international migration to North America between 1976 and 1986. They find that the population of the home country is the most significant determinant of migration flows. The income and political factors also have significant influence on the size and composition of migration flows. Sa et al. (2004) employ a similar approach to examine the antecedents of regional demand for HE in the Netherlands. They conclude that distance and accommodation costs deter the geographic

mobility of students. They find that the distance effect is heterogeneous, even between the regions of a relatively small country: more elastic in the south-west, and the more remote northern areas of the Netherlands, as compared with the central and eastern areas of the country. Gonzalez et al. (2011) study student mobility within the European Region Action Scheme for the Mobility of University Students (ERASMUS) Program using the gravity model, they argue that the cost of living, distance, population and language are the important factors in explaining Erasmus student mobility.

2.2 A Push-pull model

Based on the gravity model, the push-pull model classifies all factors into "push" and "full" categories in explaining the antecedents of international student mobility. The "push factors" refer to the home country characteristics of international students which motivate and push them to go abroad for their HE. The push factors include home country economic wealth, population and HE capacity (especially in the developing countries). The "pull factors" refer to the specific host country characteristics attracting foreign student inflows. These characteristics include exchange rate, geographical and cultural proximity, common language and the policies of the host county's government with regard to international education including migration, visa regulations and the availability of scholarships and education aid. As a host country, the UK has several major pull factors including its common (English) language, geographic and cultural proximity to its European neighbors, historic (colonial) links with the developing world and the UK government's proactive engagement in the international education market in recent years, notably through the Prime Minister's Initiative (PMI) project and the activities of the British Council (Hemsley-Brown and Goonawardana, 2007; Mazzarol and Soutar, 1999; Mazzarol and Soutar, 2002).

Using the push-pull model, McMahon (1992) examines the push and pull factors determining the recruitment of international students from 18 developing countries to study in US HEIs during the 1960s and early 1970s. The study finds that the push factors such as home country's involvement in the global economy and the emphasis on education in the country's national culture have positive effects, whilst the increasing strength of the home country's economy has a negative influence on the decision of students to study in the US. With respect to the pull factors, the study finds that the relative economic size and extent of trade links between the host and home countries are positive, whilst the financial support from the host institutions is negatively associated with the recruitment of international students. Using a similar approach, Mazzarol and Soutar (2002) investigate the factors influencing the choice of international students' study destinations by conducting student surveys in Indonesia, Taiwan, China, and India. They find that four main push factors motivate the students studying abroad: the students' perception that an overseas course is better than a domestic one; the students' ability to gain entry to local programs; a desire to gain a better understanding of Western culture; and an intention to migrate after graduation. The research also identifies the pull factors attracting the students into a particular host country, such as a better knowledge or awareness about the host country, social links, geographic proximity, the costs of studying and living, and aspects of the environment in the host country.

2.3 The Three-category model

The three-category model differentiates the antecedents of demand for international education into social, economic and political categories. Naidoo (2007) notes that social factors include the level of affinity between the host and home countries; the pedagogical and academic reputation of educational institutions in the host country; geographic/cultural proximity between

the host and home countries and potential migration opportunities in the host country. Economic factors refer to exchange rates, tuition fees and the perceived cost of living in the host country. Political factors include the promotion of international education through the host country's foreign policy, and the role of education in development aid programs.

Using a time series dataset, Naidoo (2007) explores international student mobility in UK HEIs over 1985-2003 by considering five socio-economic factors and finds that the most significant antecedents are access to domestic education opportunities in the home countries; the level of integration of the home countries within the global economy; and the level of tuition fees in the host country. However, argued by Baltagi (2005) and Hsiao (2003), the results generated from a time series or a cross-section dataset may run the risk of bias arising from a lack of degree of freedom and efficiency of the estimators.

3. METHOD

3.1 Model

This study employs a large panel dataset, pooling time series and cross-section data, to detect the antecedents of UK international student inflows and the variations of the antecedents between developing and developed home country groups. Based on the gravity model, the study uses a combination of the approaches elaborated above, considering both push and pull factors, and economic, social and political variables. The expanded estimate model (1a) and its log-linear version (1b) are structured as follows:

International student enrolment = f (home country economic wealth, trade link, relative exchange rate, home country population, geographic distance, historic/linguistic link, the UK government policy) (1a)

$$LISE = \alpha + \beta_1 LGDP + \beta_2 LGGDP + \beta_3 LGDPP + \beta_4 LEX + \beta_5 LIM + \beta_6 LREXR + \beta_7 POP + \beta_8 LGD + \beta_9 LD + \beta_{10} TD + \varepsilon_{it} \quad (1b)$$

3.2 Dependent variable

The dependent variable is international student enrolment (ISE) in UK HEIs from 42 home countries in each academic year from 1994/95 to 2007/08. The 42 countries (see Appendix 1) selected are the major sources of the UK international students from worldwide, including both developed and developing economies, accounting for 84% of the total number of 3.6 million UK international students over the 14 years. The top 20 home countries (see Appendix 2) accounting for 70% of UK international students are all covered for estimation except Taiwan owing to data availability problems.

3.3 Independent variables

The independent variables include economic factors: home country economic wealth (using three proxies: GDP, GDP growth - GGDP and GDP per capita - GDPP), trade link (using two proxies; export - EX and import - IM), and relative exchange rate (REXR); social factors: home country population (POP), geographic distance (GD) and historic/linguistic link (LD); and political factor: the UK government policy towards international students (TD) – a time dummy variable to reflect the PMI project effects. Among these independent variables, home country economic wealth and population will be the push forces; while relative exchange rate, trade link, historic/linguistic link, geographic distance and the UK policy will be the pull forces.

Students originally from wealth economies are more likely to be able to go abroad for their HE as they have more disposable income and can better support themselves financially than those from poorer economies (Karemera et al., 2000; Naidoo, 2007). They do not necessarily rely

on scholarships and are more mobile for their HE abroad (Bessey, 2007). Home country economic wealth, therefore, is expected to be positively associated with the number of UK international students. Exchange rate is a major consideration in determining the affordability of study in a given country (Naidoo, 2007). A relatively weak currency in host country may attract international student inflows as the costs of studying in the country will become cheaper. The same amount of home currency could buy more goods and services in the host country or the same costs of tuition fees and living will consume less home currency. Vice versa, a strong currency in the host country may deter international student inflows as the strong currency will make studying in the country more expensive. Bilateral trade between host and home countries indicates a high level of economic integration between the countries (Zheng, 2009). A higher bilateral trade level implies a stronger economic tie and dependence on each other and more knowledge and awareness of the trade partner country (McMahon, 1992). Thus, a higher level of economic link and more bilateral trade between the two countries should lead more international student flows from the home country into UK HEIs.

A home country with a large population, especially one with a relatively large young generation (age 15-64), will generally have more demand for HE than a country with small or aging population (Gonzalez et al., 2011; Karemera et al., 2000). A higher proportion of young people in a country's population may lead to more needs and demands for studying abroad. Countries located in close proximity to one another are likely to have similarities in culture and custom and a greater mutual knowledge and understanding of each others' history, culture and language (Gonzalez et al., 2011; Malhotra, Sivakumar, and Zhu, 2011; Mazzarol and Soutar, 2002; Naidoo, 2007). For example, European countries have similar political and economic regimes, similar cultures and customs whilst Asian countries in the Far East have similar norms and values, which differ significantly from those of Europe.

Country location has not only social but economic effects on international student mobility. International students studying in a foreign country face greater difficulties and higher costs than studying at home due to the necessary adaptation to a different language, culture, system and environment (Bessey, 2007; Mazzarol and Soutar, 2002). Far distance means that international students need to pay more for their travel and the culture in the host country may be far different from theirs and more difficult for them to adapt in the new environment (Gonzalez et al., 2011; Malhotra et al., 2011; Mazzarol and Soutar, 2002; Sa et al., 2004). The students may, therefore, have a strong incentive to choose a country, which is near-by for less cost and more reliability (Cantwell et al., 2009).

Historical (colonial) link and linguistic ties between the host and home countries may make the study in the host country easier and cheaper due to the similar education system and a common language (Bennell and Pearce, 2003; Gonzalez et al., 2011; Lee and Tan, 1984). Studying in the UK will be easier for the students from most Commonwealth Countries than others because they generally have a high level of proficiency in the English language, and are already familiar with UK HE system and regulations which are similar to those which apply in their home countries. The studying will be also cheaper for them because there is no additional payment for their English learning and training. Thus, the UK common English language and its historic tie with the Commonwealth Countries will attract more students from its colonial and other English speaking countries.

The attitude and policy of a host country's government towards international students is an influential factor (Bourke, 2000; Naidoo, 2007). As noted earlier, the UK government PMI project (a five year program launched in June 1999 and re-launched in April 2006 for a further five year – the second phase of the project following the success of the first phase) aims to promote UK HE by increasing the number of international (primarily non-EU) students (British

Council, 2010). The project provides a series of promotional policies, including investment in a UK education marketing campaign managed by the British Council; the streamlining of visa arrangements; an increase in the number of scholarships; and the International Graduate Scheme (IGS), which has allowed non-EU students to work in the UK for up to one year after completing their study. Thus, the PMI project is expected to have a positive effect on international student recruitment. Table 1 presents the specifications of the dependent and independent variables and their data sources.

Table 1 here.

4. RESULTS AND DISCUSSIONS

The Equation (1) is estimated by the feasible generalized least squares (GLS) statistical model which can handle both heteroscedasticity and correlations for obtaining unbiased, consistent, asymptotically normal, and efficient estimators. The empirical results are reported in Table 2.

Table 2 here.

4.1 Whole sample

Column 1 presents the results for the whole sample – the 42 countries currently studied. All explanatory variables are statistically significant except the variable of GDP (LGDP), import (LIM) and geographic distance (LGD). Interestingly, GDP growth (LGGDP) and GDP per capita (LGDPP) are significant at the same 1% high level but with opposite signs. GDP growth has a positive effect on international student inflows to the UK, the higher the home country GDP growth pushes more international student flows into the UK for their HE. However, unexpected, GDP per capita is negatively associated with international student flows, the lower the home country GDP per capita, the more the international student flows from the home countries to the

UK. A potential reason behind the unexpected result is a high involvement in international student mobility from developing countries. The number of international students has been rapidly increasing in the last two decades originally from developing countries in Asia, Africa and South America, in which the level of GDP per capita is still very low. For example, among the top 20 home countries of the UK international students (see Appendix 2), the GDP per capita in China, India, Pakistan and Nigeria, are at least five times lower than that of the OECD countries (World Bank, 2010). This result may also indicate that "some minimum level of economic strength…was a prerequisite for greater participation in overseas study" (McMahon, 1992, p.473) or "greater educational opportunity counteracts the effect of improved GDP per capita" (Mazzarol and Soutar, 2002, p.83).

The relative exchange rate variable (LREXR) is positively significant with the right sign, indicating that a weaker UK sterling pound attracts more international student inflows. Interestingly, the results for the two trade link variables export (LEX) and import (LIM) are different from one another. The export variable (LEX) is positively significant at 1% level, whilst the import variable (LIM) is insignificant with negative sign. These results imply that export from the UK to the home countries is important as a pull factor attracting international students from the home countries, but that the import from the home countries to the UK has no influence on the UK international student inflows.

The home country young population variable (LPOP) associates positively with the largest coefficient at 3.58, a 1% increase in young population leads to a 3.58% increase in the number of UK international students. The home country's larger young population increases in demand for HE and pushes more international student flows into the UK for their HE. The result supports the finding of Agrwal and Winkler (1985) that the increased number of international

students in the US is largely due to the increased eligible population, especially in the developing countries.

The geographic distance variable (LGD) is not statistically significant. The finding suggests that distance between the host and home countries is generally not an important determinant of international student flows into the UK. Globalization and economic integration between countries may reduce the influence of geographic distance on international student flows. Historic (colonial) and language tie variable (LD) is positively significant as expected. This finding indicates that the UK attracts more international students particularly from the Commonwealth Countries with which it has colonial ties, and from other English speaking countries. The UK government's policy variable (TD) is positively significant. The result implies that the PMI project has had a significant pull effect and host country national promotion in target countries influences country preferences of international students (Bourke, 2000).

4.2 Two home country groups

Due to home country differences in economic development level, the demand and customer behavior and orientation of international students are different between developed and developing countries (Cantwell et al. 2009; Vrontis, Thrassou, and Melanthiou, 2007). The antecedents of UK international student inflows may, therefore, vary between the developed and developing countries of origin. The whole sample is further divided into two groups using their OECD membership status (see Appendix 1 for the country category) for investigation of the heterogeneity. Column 2 presents the results for the OECD group and Column 3 for the non-OECD group, respectively.

All three economic wealth variables are positively significant for the OECD group. A high level of GDP, GDP growth and GDP per capita in the OECD countries are associated with a

high number of UK international students from these countries. However, the results for the non-OECD group are different and more complicated. GDP growth variable is positively significant, whilst GDP is not significant, and GDP per capita is significant but with an unexpected negative sign. As noted above, developing countries generally have much lower levels of GDP and GDP per capita. However, those countries, particular the emerging economies in Asia and South America, have achieved remarkably high GDP growth in the last three decades. Some of them, such as China and India, the two fastest growing economies in the world, have much higher growth rates than those of developed countries. It can be argued that the GDP per capita may not be the best measure for developing country economic wealth.

The two groups have different results on the relative exchange rate variable, positively significant for the developing group whilst insignificant for the developed group, which indicate that the relative exchange rate is an important factor for the students from developing world, but not for those from the developed world. Whilst the results for the export variable are positively significant for both groups, the results for the import variable tell a different story, though both are significant but with different signs, negative for the developed group and positive for the developing group. The results imply that the bilateral trade between the UK and the developing countries pull international students from these countries to the UK. However, only exports from the UK to the developed countries have an encouragement pull effect, while imports from the developed countries to the UK deter or discourage the student from the countries to the UK.

The population variable is positively significant for both groups. Comparing the coefficients, the one for developing group (4.95) is larger than that of developed group (2.79). A 1% increase in developing countries population leads to a 4.95% increase in the UK international students from these countries. The finding, to some extent, confirms the argument that a surplus in demand for, over supply of HE in developing countries is the most important determinant for

the flow of international students from developing into developed countries (Lee and Tan, 1984). The populations of many developing countries have grown very rapidly in the last three decades, none more so than the two largest emerging giants, China and India, with the largest populations in the world, and which rank first and eighth in the flow of international students into UK HEIs, respectively (see Appendix 2). The developing countries also have much larger and younger populations compared to those of developed countries. Rapid and accelerating economic development places a greater demand on a country's human capital, which generates further demand for HE.

However, unlike the developed world, these developing countries have not developed adequate capacity within their HE infrastructure to accommodate their domestic students, and are unable to meet the significantly increased demands for HE at home (Lee and Tan, 1984; Mazzarol and Soutar, 2002). China's HEIs, for example, can only accommodate less than half of the students who take national university entry exams (Kaufman and Goodman, 2002). This combination of the rapidly increasing population and demand for the HE in the developing countries pushes the students towards the option of studying abroad (Li and Bray, 2007; McMahon, 1992). Many individuals in developing world consider that a foreign degree from a developed Western country such as the UK will be more valuable for their academic study and future career preparation (Gonzalez et al., 2011; Mazzarol and Soutar, 2002). The expectation is also much higher for them to secure a job in their home countries (Altbach, 1991; Hemsley-Brown and Goonawardana, 2007).

The three variables of geographic distance (LGD), historic/linguistic link (LD) and preferential policy (TD) seem not to be significant at all for the OECD group, suggesting that these factors are not very important for the students from the developed countries. However, for the developing group, these three variables are all significant at 1% high level with the expected

signs. The UK international students from developed countries are mostly from Europe and North America, in which the culture is similar to that of Britain. The UK is a near-by and less expensive option (in terms of travel) to the students especially from European countries. Due to the cultural similarities, the European and North American students can easily adapt themselves in the UK. In contrast, the UK international students from developing countries are mainly from Asia, Africa and South America, which are geographically far away from the UK and their cultures are also diverse and different from that of the UK. Unlike the students from the developed world, the geographic and cultural distance is one of the concerns for the students from those developing countries. However, the UK attracts more international students from those developing countries having historic colonial tie with the UK. The colonial link and commonality of language reduce physical and cultural distance and increase similarities in education system and familiarity of knowledge (Lee and Tan, 1984). The result for the political factor indicates that the UK government policy is an important determinant for the developing country group and the PMI project plays a very important role in attracting international students from the developing non-EU countries.

5. CONCLUSIONS AND IMPLICATIONS

5.1 Conclusions

This study has identified the antecedents of international student flows into UK higher education and the variations in these antecedents between the developing and developed home country groups. The results suggest that home country economic wealth and demographics, relative exchange rate, the UK export to the home countries, historic/linguistic link and UK government preferential policies are the important antecedents for international students from worldwide flows into the UK. However, these antecedents are heterogeneous between the two

home country groups. A wide variety of economic, social and political factors are all important to international students from developing countries, whilst home country economic wealth and population, and trade link are more important than other factors for the students from developed countries.

The findings provide important policy and managerial implications to help the UK government educational policymakers to formulate effective policies and the HEI practitioners to develop specific marketing strategies for attracting a growing number of international students from worldwide in general and from key target countries in particular.

5.2 Policy implications

In attempting to attract more international students, and maintain its competitiveness in the world HE market, the UK government and HEIs should target those developed countries with high GDP (in both PPP and per capita) and GDP growth, and the developing countries with high GDP growth rate in particular. The UK government and HEIs should also target both developed and developing countries with large young populations. Particular attentions should be paid to those developing countries with strong and appreciated currency, colonial tie and geographically close to the UK. Further efforts should be made to promote the bilateral trade with the developing countries, increasing not only exports to but also imports from the targeted countries. Effective and efficient visa and immigration policies should be formulated and implemented and more education aid should be provided to attract the best and the brightest overseas students from non-EU developing world.

5.3 Managerial implications

Higher education as a service industry needs to provide customized and specialized products to its customers due to service's heterogeneous attribute (Doh, 2010). International students from different countries are more likely to choose different subjects to study owing to the differences in economic development levels of and the human capital types demanded in their home countries. For example, the students originally from China are more likely studying in business, law, finance and accounting degrees, while the students from Japan are more likely studying in media, art and psychology related courses. Students from developed countries in North America and Western Europe are mainly for short courses such as exchange and ERASMUS programs, whilst students from developing countries in Asia, South America and Africa are mainly for a degree course for gaining an UK certificate. It is important, therefore, for UK HEIs to identify specific needs of international students originally from different countries and regions and to design specific programmes to meet these different demand.

Studying and living in a foreign country for their higher education, international students can expand not only their knowledge of academic subjects but also their understanding of other cultures and languages, gain cross-cultural experiences, prepare themselves to compete in an globalised labour market. (Doh, 2010; OECD, 2011).

The UK HEIs should design and provide internationalized curriculum (Bennell and Pearce, 2003), developing strong international brands by increasing "brand strength" internationally (Woodside and Walser, 2007). Particular attention needs to be paid to the special needs of international students originally from non-English speaking countries with different culture background. The UK HEIs need a transcultural approach in designing their curriculum and pedagogy (Ryan, 2011), providing the international students with greater English language support and more social cultural activities to accelerate their language proficiency and local social integration during their studies in the UK (Turner, 2008).

5.4 Limitations and future directions

The current study has its limitations. The analysis of aggregate data at country level cannot detect how the individual personal or university institution's factors (e.g. university quality and academic reputation, course structure and tuition fees) influence individual decisions of the UK international students. Future study, therefore, should be conducted at an individual level through questionnaires and interviews to identify the antecedents of international students choosing specific universities in the UK (see Bourke, 2000). The UK current strict immigration control policy may have a negative effect on international student inflows, whilst the UK recently increased home student tuition fees policy may have positive spillover effects on the inflows. It, therefore, will be interesting to explore the impact of the new immigration regime and the new tuition fees policy on the UK international student inflows for a further study. . Some current global issues, for instance, the growing terrorism and conflicts may have negative effects on international student mobility. These variables, therefore, should be included into the estimation when the data is available. The antecedents may vary over time due to changed characteristics of home and host countries, it will be interesting to investigate time trend and variations over an even longer time period when the data is available.

As one of the most important global business and financial centres, the UK has attracted the lion's share of international students studying in UK's business schools – the centre educating and nurturing next generation of international managers. It would be interesting to investigate the antecedents of international students inflows to the UK's business schools (see Soo and Elliott, 2010), which in turn helps business schools to develop their internationalisation strategy (Friga, Bettis, and Sullivan, 2003).

The numbers of international students originally from emerging economies continue to increase (Dhanaraj and Khanna, 2011; IIE, 2010; OECD, 2011; Pyvis and Chapman, 2007), such as China and India, the top two sources of UK international students. Particular attention need to be focused on the two countries to explore the antecedents of international students from China and India flows to UK higher education, providing insights on how the UK HEIs can be sustainable in attracting even more students from the emerging countries, to gain not only economic but also political, social and cultural benefits.

References

Adnett N. The growth of international students and economic development: friends or foes? J Edu Poli 2010;25(5):625-637

Agarwal VB, Winkler DR. Foreign demand for United States higher education: a study of developing countries in Eastern hemisphere. Econ Dev Cult Chang 1985;33(3):623-644

Altbach PG. Impact and adjustment: foreign students in comparative perspective. Higher Edu 1991;21(3):305-323

Baltagi BH. Econometric analysis of panel data, 3rd edn. Wiley, Chichester; 2005

Bashir S. Trends in international trade in higher education: implications and options for developing countries. The Education Working Paper Series: number 6; 2007. The World Bank. Online at www.worldbank.org/education

Bennell P, Pearce T. The internationalization of higher education: exporting education to developing and transition economies. Int J Edu Dev 2003;23:215-232

Bessey D. International student migration to Germany. Working paper No. 6. University Zurich; 2007

Binsardi A, Ekwulugo F. International marketing of British education: research on the student's perception and the UK market penetration. Mark Intell Plann 2003;21:318-327

Bourke A. A model of the antecedents of international trade in Higher Education. The Service Industries J 2000;20(1):110-138

British Council. PMI 2 Overview. 2010; [online]. Available at: http://www. britishcouncil.org/eumd-pmi2-overview.htm

British Council. New international student trend presents fresh challenges for universities. 2011; [online]. Available at: http://www.britishcouncil.org/new/press-office/ press-releases/New-international-student-trend-presents-fresh-challenges-for-universities/.

Buckley PJ, Clegg LJ, Cross AR, Liu X, Voss H, Zheng P. The determinants of Chinese outward foreign direct investment. J Int Bus Stud 2007;38(4):499-518.

Cantwell B, Luca SG, Lee JJ. Exploring the orientations of international students in Mexico: differences by region of origin. Higher Edu 2009;57:335-354

Chellaraj G, Maskus K, Mattoo A. The contribution of international graduate students to US innovation. Review of International Economics 2008;16(3):444-462

Dhanaraj C, Khanna T. Transforming mental models on emerging markets. Academy of Management Learning & Education 2011;10(4):684-701

Doh J. Why aren't business schools more global and what can management educations do about it? Academy of Management Learning & Education 2010;9(2):165-168

Dunning JH. Towards an eclectic theory of international production, some empirical tests. Journal of International Business Studies 1980;11:9-31

Friga P, Bettis R, Robert S. Changes in graduate management education and new business school strategies for the 21st century. Academy of Management Learning and Education 2003;2(3):233-249

Gonzalez CR, Mesanza RB, Mariel P. The antecedents of international student mobility flows: an empirical study on the Erasmus programme. Higher Education 2011;62(4):413-430

Green M, Boone J. University losing allure with overseas students. Financial Times, September 14, 2005, [online]. Available at: http://www.ft.com/cms/s/0/2f89e418-24bd-11da-a5d0-00000e2511c8.html#axzz1xDNrFeDu

Gribble C. Policy options for managing international student migration: the sending country's perspective. Journal of Higher Education Policy and Management 2008;30(1):25-39

Grosse R, Trevino L. Foreign direct investment in the United States, an analysis by country of origin. Journal of International Business Studies 1996;27:139-155

Hemsley-Brown J, Goonawardana S. Brand harmonization in the international higher education market. Journal of Business Research 2007;60:942-948

Hsiao C. Analysis of panel data, 2nd ed. Econometric society monographs, vol 34. Cambridge, University Press, Cambridge; 2003

Institute for International Education (IIE). Atlas of Student Mobility, 2010 [online]. Available at: www.atlas.iienetwork.org/page/48047/

Karemera D, Oguledo VI, Davis B. A gravity model analysis of international migration to North America. Applied Economics 2000;32(13):1745-1755

Kaufman H, Goodman AE. Institute of international education annual report. [online]. Washington, DC: Institute of International Education; 2002. Available at www.iie.org

Lee KH, Tan JP. The international flow of third level lesser developed country students to developed countries: antecedents and implications. Higher Education 1984;13:687-707

Li M, Bray M. Cross-border flows of students for higher education: push-pull factors and motivations of mainland Chinese students in Hong Kong and Macau. Higher Education 2007;53:791-818

Malhotra S, Sivakumar K, Zhu P. A comparative analysis of the role of national cultural on foreign market acquisitions by U.S. firms and firms from emerging countries. Journal of Business Research 2011;64:714-722

Marginson S. Higher education in the global knowledge economy. Procedia Social and Behavioral Sciences 2010;2:6962-6980

Mazzarol T, Soutar G. Sustainable competitive advantage for educational institutions: a suggested model. The International Journal of Educational Management 1999;12:287-300

Mazzarol T, Soutar GN. “Push-pull” factors influencing international student destination choice. The International Journal of Educational Management 2002;16(2):82-90

McMahon M. Higher education in a world market: an historical look at the global context of international study. Higher Education 1992;24(4):465-482

Naidoo V. Research on the flow of international students to UK universities. Journal of Research in International Education 2007;6(3):287-307

OECD. Policy brief: Internationalisation of higher education. Paris: OECD; 2004

OECD. Education at a glance 2011: highlights. Paris: OECD; 2011

Pyvis D, Chapman A. Why university students choose an international education: a case study of Malaysia. International Journal of Education Development 2007;27(2):235-246

Ryan J. Teaching and learning for international students: towards a transcultural approach. Teachers and Teaching: Theory and Practice 2011;17(6):631-648

Sa C, Florax R, Rietveld P. Antecedents of the regional demand for higher education in the Netherlands: a gravity model approach. Regional studies 2004;38(4):375-392

SCONUL. Library services for international students; 2007 [online]. Available at http://www.sconul.ac.uk/groups/access/papers/international_students.pdf

Sethi D, Guisinger SE, Phelan SE, Berg DM. Trends in foreign direct investment flows: a theoretical and empirical analysis. Journal of International Business Studies 2003;34(4):315-326

Soo K, Elliott C. Does price matter? Overseas students in UK higher education. Economics of Education Review 2010;29:553-565

Tinbergen J. Shaping the World Economy: Suggestions for an International Economic Policy. Twentieth Century Fund, New York; 1962

Turner D. UK warned over foreign students. Financial Times, June 25, 2008, [online]. Available at: http://www.ft.com/cms/s/0/16a7e190-424f-11dd-a5e8-0000779fd2ac.html#axzz1xDNrFeDu

Vrontis D, Thrassou A, Melanthiou Y. A contemporary higher education student-choice model for developed countries. Journal of Business Research 2007,60:979-989

Woodside A, Walser A. Building strong brands in retailing. Journal of Business Research 2007;60:1-10

World Bank. World Development Indicators database; 2010

Wylie I. UK schools wary of new visa rules. Financial Times, January 31, 2011, [online]. Available at: http://www.ft.com/cms/s/2/cecb4a6e-27bc-11e0-a327-00144feab49a.html#axzz1xDNrFeDu

Zammuto RF. Accreditation and the globalization of business. Academy of Management Learning & Education 2008;7(2):256-268

Zheng P. A comparison of FDI antecedents in China and India. Thunderbird International Business Review 2009;51 (3):263-279.

Zwinkels R, Beugelsdijk S. Gravity equations: workhorse or trojan horse in explaining trade and FDI patterns across time and space? International Business Review 2010;19:102-115

Table 1 Variables

Variable	Proxy	Expected sign	Theoretical justification	Data source
ISE (Dependent variable)	LISE: international students enrolment in UK higher education			HESA *Students in Higher Education Institutions*
Economic wealth - GDP (in PPP) **- GGDP** **- GDPP**	LGDP: home country GDP GGDP: home country GDP growth GDPP: home country GDP per capita	+	Push - Economic factor	*World Development Indicators*
Exchange rate	LREXR: official exchange rate between UK and home country	+	Pull - Economic factor	*World Development Indicators*
Trade link - Exports **- Imports**	LEX: UK exports to home country LIM: UK imports from home country	+	Pull - Economic factor	*IMF Direction of Trade Statistics*
Population	LPOP: home country population ages 15-64 (% of total)	+	Push - Social factor	*World Development Indicators*
Geographic distance	LGD: Geographic distance between London and home country capital city	-	Pull - Social factor	calculated by http://www.geobytes.com/CityDistanceTool.htm
Historic/linguistic link (language dummy)	LD = 1 home country sharing a common language (English) or colonial history	+	Pull - Social factor	(See Appendix 1 for LD value)
Preferential policy (time dummy)	TD: year 2000 onwards = 1, reflect UK PMI project influence	+	Pull - Political factor	

Table 2 Results

	Whole sample (1)	OECD (2)	Non-OECD (3)
LGDP	-0.02	0.21	-0.05
	(0.05)	(0.08)**	(0.07)
LGGDP	0.16	0.18	0.14
	(0.04)***	(0.06)***	(0.06)**
LGDPP	-0.38	0.47	-0.41
	(0.06)***	(0.17)***	(0.09)***
LREXR	0.07	0.00	0.05
	(0.02)***	(0.03)	(0.02)**
LEX	0.54	1.06	0.29
	(0.09)***	(0.14)***	(0.11)***
LIM	-0.08	-0.72	0.24
	(0.05)	(0.11)***	(0.08)***
LPOP	3.58	2.79	4.95
	(0.74)***	(1.44)*	(0.96)***
LGD	0.04	-0.03	-1.19
	(0.06)	(0.09)	(0.21)***
LD	0.37	-0.26	0.78
	(0.10)***	(0.16)	(0.13)***
TD	0.36	0.12	0.42
	(0.07)***	(0.08)	(0.10)***
NT	554	309	245

Notes: 1. Standard errors are in parentheses.
2. ***, ** and * indicate that the coefficient is significant at the 1%, 5% and 10% levels, respectively

Appendix 1 Home country list

	Country	Country category	Historic/language dummy (LD)
1	Australia	OECD	1
2	Austria	OECD	0
3	Belgium	OECD	0
4	Brazil	Non-OECD	0
5	Canada	OECD	1
6	China	Non-OECD	0
7	Cyprus	Non-OECD	0
8	Denmark	OECD	0
9	Finland	OECD	0
10	France	OECD	0
11	Germany	OECD	0
12	Greece	OECD	0
13	HK	Non-OECD	1
14	Hungary	OECD	0
15	India	Non-OECD	1
16	Indonesia	Non-OECD	0
17	Iran	Non-OECD	0
18	Ireland	OECD	1
19	Israel	Non-OECD	0
20	Italy	OECD	0
21	Japan	OECD	0
22	Kenya	Non-OECD	1
23	Korea	OECD	0
24	Malaysia	Non-OECD	1
25	Mauritius	Non-OECD	1
26	Mexico	OECD	0
27	Netherlands	OECD	0
28	Nigeria	Non-OECD	1
29	Norway	OECD	0
30	Pakistan	Non-OECD	1
31	Portugal	OECD	0
32	Saudi Arabia	Non-OECD	0
33	Singapore	Non-OECD	1
34	South Africa	Non-OECD	1
35	Spain	OECD	0
36	Sri Lanka	Non-OECD	0
37	Sweden	OECD	0
38	Switzerland	OECD	0
39	Thailand	Non-OECD	0
40	Turkey	OECD	0
41	USA	OECD	1
42	Zimbabwe	Non-OECD	1

Appendix 2 Top 20 home countries 1994/95-2007/08

Rank	1994/95			2001/02			2007/08			1994/95-2007/08		
	Country	No. of students	% of total	Country	No. of students	% of total	Country	No. of students	% of total	Country	No. of students	% of total
1	Malaysia	14627	8.94	Greece	28585	11.78	China	45355	13.27	China	335064	9.29
2	Ireland	12858	7.85	China	20710	8.53	India	25905	7.58	Greece	309424	8.58
3	Greece	12247	7.48	Ireland	13235	5.45	Ireland	15260	4.47	Ireland	209679	5.81
4	Germany	11054	6.75	Germany	10960	4.52	USA	13905	4.07	Malaysia	182061	5.05
5	HK	10683	6.53	Malaysia	10680	4.40	Germany	13625	3.99	Germany	176039	4.88
6	France	9916	6.06	USA	9985	4.11	France	12685	3.71	France	163961	4.55
7	USA	8084	4.94	France	9940	4.10	Greece	12625	3.69	USA	162116	4.50
8	Singapore	6326	3.86	HK	8870	3.65	Nigeria	11785	3.45	India	141536	3.92
9	Spain	5705	3.49	India	7570	3.12	Malaysia	11730	3.43	HK	131829	3.66
10	Italy	3897	2.38	Japan	6355	2.62	Cyprus	9795	2.87	Spain	90638	2.51
11	Japan	3226	1.97	Spain	5705	2.35	HK	9700	2.84	Japan	77364	2.15
12	Netherlands	2887	1.76	Italy	5170	2.13	Pakistan	9305	2.72	Italy	74425	2.06
13	Canada	2374	1.45	Taiwan	4870	2.01	Poland	8570	2.51	Nigeria	67855	1.88
14	China	2368	1.45	Singapore	4175	1.72	Spain	5740	1.68	Singapore	66054	1.83
15	Cyprus	2295	1.40	Cyprus	4000	1.65	Taiwan	5615	1.64	Cyprus	66054	1.82
16	Norway	2257	1.38	Norway	3670	1.51	Italy	5,605	1.64	Taiwan	63402	1.76
17	Taiwan	2119	1.29	Sweden	3610	1.49	Canada	5,005	1.46	Pakistan	63402	1.57
18	Belgium	2093	1.28	Nigeria	3340	1.38	Japan	4,465	1.31	Canada	49768	1.38
19	Israel	1724	1.05	Canada	3285	1.35	Thailand	4180	1.22	Norway	47231	1.31
20	India	1707	1.04	Thailand	3125	1.29	Korea	4030	1.18	Sweden	44080	1.22
Subtotal		118447	72.35		167840	69.14		234885	68.72		2521982	69.94
Total		163713	100		242755	100		341790	100		3606022	100

Source: calculated from Higher Education Statistics Agency (HESA), *Students in Higher Education Institutions*