**Online Platform: Solution to Managing and Sustaining
South Korea's Dispersed Inbound Education Aid**

ABSTRACT

South Korea's inbound education official development assistance (ODA) has been known to be spread across regions regardless of geographic proximity. This not only negatively impacts Korea's effectiveness to manage aid, but also to sustain aid long-term. As a follow-up study of Oh (2017), we reexamine Korea's aid pattern by making a comparison with those of the United Kingdom, Germany, and Australia, three other member countries of the Development Assistance Committee that allocates inbound education ODA. With the empirical results confirming Korea's lack of concentration in education ODA, we recommend establishing satellite campuses as a more viable, operative solution than the previously suggested solution of establishing a specialized agency focusing on scholarship programs. As validated by Nagoya University's Asian Satellite Campuses Institute (ASCI), transferring much of work to the online platform reduces time and financial costs. Furthermore, satellite campuses are expected to facilitate various means of partnerships among aid donor countries that are implementing similar programs. International collaborative efforts could help improve the quality of Korea's inbound education and play an important role in attracting bright prospective students. Thus, Korea could utilize online education platform to overcome severe geographic obstacles in distance education and increase effectiveness of its inbound education ODA.

Keywords: inbound education aid; aid effectiveness; satellite campus.

INTRODUCTION

In the previous OECD peer review, South Korea's inbound long-term scholarship program was pointed out as an example of "thinly spread" official development assistance (ODA) (OECD, 2012). According to Oh (2017), South Korea's ODA is dispersed without considering geographic proximity, decreasing the program's effectiveness in managing and sustaining aid. This directly contradicts Japan's ODA allocation pattern, which is highly concentrated to a limited number of Asian countries (Oh, 2017). This study reexamines the same issue of concern by conducting a more in-depth analysis.

Whereas Oh (2017) was a comparative study between Korea and Japan, two countries in East Asia that are geographically proximate to each other, this study shifts focus to other member countries of the Development Assistance Committee (DAC) that provide education ODA, namely, the United Kingdom, Germany, and Australia, to reexamine whether Korea's is indeed sparsely dispersed. This examination of other aid donor countries follows Oh's (2017) recommendation in its concluding paragraph. To state the conclusion up front, there is a clear significantly negative relationship between distance and the number of scholarship recipients for all three aid donor countries, thus confirming the weaker degree of concentration of Korea's education ODA in both absolute and relative terms.

Furthermore, this study goes beyond diagnosing the present state of affairs to prescribe realistic solutions. To address the diluted nature of Korea's inbound education ODA, Oh (2017) advised establishing a separate agency solely for managing scholarship programs, but this solution remains quite unfeasible in the Korean context due to budgetary constraints and existing circumstances. Considering these factors, establishing an online education platform should be given due consideration as it is a practical, workable solution that could compensate for the weak points of Korea's inbound education ODA allocation pattern.

The remaining part of the paper is organized as follows: Section 2 describes research methods and data used. Section 3 discusses empirical findings of this study. Section 4 specifies the details regarding online education platform. Section 5 concludes.

METHODS AND DATA

As an extension of Oh's (2017) work, we hypothesized that there would be a significantly negative relationship between distance and number of scholarship recipients for the United Kingdom, Germany, and Australia. This hypothesis was tested to determine the degree of statistical significance of these countries' inbound education ODA. To analyze the flow of scholarship recipients, the gravity model was used. The gravity model is oftentimes used to determine "flows between two objects proportional to their mass and counter-proportional to the distance between

them" (Oh, 2017).

First, the proxy for mass was population given that it is a more relevant pull factor that is likely to have a positive impact on the number of scholarship recipients. Thus, the expected sign of this coefficient was *positive*. Based on previous studies (McCallum, 1995; Wei, 1996), this author attempted to use GDP as an instrumental variable for population to avoid any possible endogeneity and reverse causality issues; GDP is known to be closely related with population yet not with error term. Second, distance is a key parameter in explaining the gravity model. Because distance is negatively related to the amount of flow between two objects, it was hypothesized that the number of scholar recipients would decrease with increasing distance and vice versa. Accordingly, the expected sign of the corresponding coefficient was *negative*. Last, an ODA dummy variable was added to test whether scholarship allocation is tied with the host country's overall ODA in general. Due to the fact that education aid is often endowed by means of ODA, the coefficient for ODA dummy was expected to be *positive*. The regression equation previously used by Oh (2017) is directly applicable to the current study. The basic model is as follows:

$$y_{ijt} = a + \mathrm{b}population_{ijt} + \mathrm{c}distance_{ij} + \mathrm{d}X_{ijt} + u_{ijt} \qquad\qquad (1)$$

where y_{ijt} is the percentage of scholarship recipients from a recipient country (i) out of the total number of recipients in a given year (t) to study in host countries United Kingdom, Germany, and Australia (j), respectively. Percentage is utilized as a unit for the dependent variable to make the comparison among the varying number of inbound education scholarship recipients of each aid donor countries more consistent. Population measures mass in the gravity model, and $population_{ijt}$ represents the population of a recipient country at a given year. Distance noted as $distance_{ij}$ is the only time-invariant variable in the equation that measures the distance between host and recipient countries. For both population and distance, the variables are log-transformed. X_{ijt} denotes other controlling factors that could affect the number of inbound education scholarship recipients. u_{ijt} is an error term.

For the United Kingdom, data regarding the number of scholarship recipients were acquired from the Commonwealth Scholarship Commission annual report. The UK's inbound education scholarship recipients were from 53 countries, and the time frame for analysis was 15 years from 2000 to 2015. To create a balanced panel data set, missing values were treated with average values of three time frames: 2000-2005, 2006-2010, and 2011-2015. For Germany, data were obtained from the annual reports of the German Academic Exchange Service.[1] Scholarship recipients were from 181 countries, and six years of data were available, from 2012 to 2017. For Australia, data on the scholarship recipients were from international student enrollment data published by the Australian government. A full data set from 2002 to 2009 including scholarship recipients from 181 countries was available. The data sources for the independent variables were as follows: population was obtained from Worldometers, a real-time, worldwide statistical database; GDP was obtained from the World Bank's World Development Indicator measured in constant 2010 US$. ODA and distance data were acquired from OECD's Query Wizard for International Development Statistics and distancecalculator.net, respectively.

Furthermore, panel random effects was employed in this study. Fixed effects provide good estimates because these models can control for time-invariant differences between individual variables; however, that becomes an obstacle, because they fail to capture those time-invariant variables (distance, etc.) that are essential components in the study. Baldwin and Taglioni (2006) had already raised this limitation in the past. On the other hand, in random-effect estimation, it can be assumed that the error term is an entity not correlated with the estimated coefficients (predictors), thus allowing for the time-invariant variables to play a role as explanatory variables.

EMPIRICAL FINDINGS

In this section, we empirically tested whether other country donors' inbound education ODA was consistent with the gravity model. The hypothesis was that there would be a clear negative relationship between distance and the number of scholarship recipients as the gravity model predicts. In brief, the finding was that distance was negative for all three countries. For the other independent variables, population, GDP, and ODA dummy, the coefficients were expected to be positive because these factors are estimated to be directly proportional to the number of scholarship recipients. Among all variables, population consistently revealed the highest degree of significance for all the aid

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[1] *Deutscher Akademischer Austausch Dienst* in German.

donor countries.

First, the regression results for the United Kingdom shown in Table 1 indicate a high level of significance overall. The population variable in particular maintains 1% significance throughout Equations 1 to 5; holding other variables constant, a 1% increase in population resulted in an approximately 0.5% increase in the number of scholarship recipients. This outcome clearly supports the hypothesized positive relationship between population and scholarship allocation. Distance is negative throughout all the models. A 1% increase in distance explained a 0.5%-0.6% decrease in the scholarship recipients. The significance in this relationship was weaker than for population (10% in Column 3 and not significant in the next one). One possible explanation for these observations is former British colonies. In this study, the list of United Kingdom's inbound education scholarship recipient countries comprised of independent states recognized as member states of the United Nations[2] and thus excluded British dependent territories. Nonetheless, unsurprisingly, given Britain's historical past as an "empire on which the sun never sets," a significant number of countries that received British education scholarship were countries with colonial ties. In fact, 22[3] among 52 countries were former British colonies. Lastly, the coefficient for the ODA dummy was positive. It can be inferred from the coefficients that the number of scholarship recipients, holding other variables constant, is nearly two or three times larger for countries that receive ODA from Britain [exp(0.603) = 1.828 and exp(1.155)=3.174].

Second, Germany's empirical results presented higher significance than those of the United Kingdom for all of the variables including the ODA dummy variable. There was a significant positive relationship between the number of scholarship recipients and population. The estimated coefficient shows that holding other variables constant, a 1% increase in population resulted in an approximately 0.7% increase in the number of scholarship recipients, which is 0.20% higher than the rate for the United Kingdom. Similarly, the distance coefficients were consistently negative throughout all the equations, validating the greater concentration and higher prioritization of Germany's inbound education scholarship programs to its neighboring countries. Although the magnitude is less than that of the United Kingdom, the ODA dummy variable maintained a strong positive relationship with number of scholarship recipients, implying that Germany grants more education scholarship to students of developing countries in the form of ODA. Other things equal, education scholarship allocation is 1.5 times larger for countries that receive Germany's ODA [exp(0.364) = 1.439 and exp(0.436)=1.546]. This is to a smaller degree than that in the United Kingdom.

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[2] As of December 2018, the United Nations has 193 Member States (United Nations, n.d.).

[3] Pacific: Fiji (1)
   Caribbean: Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Jamaica, St. Lucia, St.Vincent and the Grenadines, Trinidad and Tobago (10)
   Southeast Asia: Malaysia, Singapore (2)
   Sub-Saharan Africa: Kenya, Mauritius, Nigeria, Seychelles, Sierra Leone, the Gambia (6)
   Europe: Cyprus, Malta (2)
   Australasia: Australia (1)

Table 1. Regression results for United Kingdom, Germany, and Australia

Independent variable	United Kingdom					Germany					Australia				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Log population	0.511***	0.516***	0.522***	0.554***	0.509***	0.716***	0.713***	0.684***	0.739***	0.735***	0.711***	0.758***	0.904***	0.867***	1.227***
	-0.03	-0.03	-0.039	-0.047	-0.041	-0.022	-0.022	-0.067	-0.046	-0.035	-0.025	-0.026	-0.079	-0.069	-0.047
Log distance	-0.584**	-0.533**	-0.534*	-0.536	-0.605***	-0.202***	-0.298***	-0.353***	-0.352***	-0.177***	-1.953***	-2.766***	-3.082***	-3.020***	-2.700***
	-0.24	-0.241	-0.3	-0.394	-0.199	-0.043	-0.045	-0.103	-0.102	-0.043	-0.155	-0.162	-0.423	-0.418	-0.178
ODA dummy		0.603**	0.632*	1.155***			0.364***	0.412**	0.436**			-1.899***	-2.258***	-2.259***	
		-0.287	-0.351	-0.353			-0.088	-0.204	-0.202			-0.105	-0.265	-0.262	
Constant	-0.422	-1.492	-1.583	-2.283	-0.208	-6.508***	-5.912***	-5.113***	-5.989***	-7.017***	11.432***	19.535***	20.153***	20.189***	10.211***
	-2.306	-2.304	-2.904	-3.846	-1.95	-0.47	-0.463	-1.306	-1.077	-0.619	-1.42	-1.496	-3.982	-3.945	-1.574
Estimation method:	OLS	OLS	RE	RE	IV	OLS	OLS	RE	RE	IV	OLS	OLS	RE	RE	IV
Observations:	145	145	145	96	144	956	956	956	800	898	993	993	993	923	966
Adjusted R²:	0.637	0.6515	0.6515	0.6817	0.6339	0.4643	0.4716	0.4706	0.4762	0.4793	0.3761	0.5071	0.5062	0.508	0.2111

Notes: Standard errors in parentheses and *, **, *** indicate significance at the 10%, 5%, and 1% level respectively.

Equation (1): Basic equation, population and distance only.

Equation (2): Full equation, including population, distance, and ODA dummy.

Equation (3): Full equation, including population, distance, and ODA dummy.

Equation (4): Full equation, includes lagged population variable.

Equation (5): Logarithms of GDP used as instruments for population.

Last, Australia also has statistically significant regression results. Whilst the significantly positive relationship between the number of scholarship recipients and population and the significantly negative relationship between the number of scholarship recipients and distance closely resemble the empirical results for the other countries, one key difference is the shift of the ODA dummy variable from a positive to a negative sign. This dummy variable maintained a clear negative value throughout all equations, implying that Australia does not necessarily grant its education scholarship to countries of the developing world or the countries where it allocates its ODA. Holding other variables constant, countries that received Australian ODA had 10% to 15% fewer scholarship recipients than countries that did not receive ODA [exp(-1.899) = 0.150 and exp(-2.259)=0.104]. For a robustness check, a random-effect panel regression was conducted, and the dummy coefficient still coincided with others.

Table 2 adds squared term for population and distance to provide sensitivity testing results that confirmed the robustness of the results shown in Table 1. Population does not have a uniformly consistent pattern. It is linearly positive and quadratically negative for the United Kingdom and opposite for Australia. Separately, while the positive effect of population from Table 1 diminishes for the United Kingdom, the same effect becomes more distinctive in Australia. For Germany, neither the linear nor the quadratic term was significant; there were no meaningful results. All of the countries consistently showed a positive linear term and negative square term for distance. This clarifies the decreasing pattern of distance derived from Table 1. ODA donor countries have fewer scholarship recipients from more distant countries, but the absolute effect increases exponentially, as shown in Table 2. The number of scholarship recipients decrease in great numbers as distance increases.

Table 2. Sensitivity test results

Independent variable	United Kingdom	Germany	Australia
Log population	1.014**	0.223	-1.527***
	(0.406)	(0.624)	(0.573)
Log distance	19.367***	3.444*	32.764***
	(5.376)	(1.962)	(12.289)
ODA dummy	0.878**	0.336	-2.400***
	(0.432)	(0.213)	(0.264)
Log population²	-0.016	0.016	0.077***
	(0.013)	(0.020)	(0.019)
Log distance²	-1.118***	-0.239*	-1.962***
	(0.308)	(0.122)	(0.686)
Constant	-93.596***	-16.648*	-124.057**
	(23.920)	(9.707)	(55.117)
Estimation method:	RE	RE	RE
Observations:	96	800	923
Adjusted R²:	0.7204	0.4894	0.5597

Notes: Standard errors in parentheses and *, **, *** indicate significance at 10%, 5%, and 1%, respectively. Full equation with lagged population, lagged population squared, distance, distance squared, and ODA dummy.

ESTABLISHING ONLINE EDUCATION PLATFORM

The effect of distance is weaker in Korea with regard to major scholarship recipient countries. Table 3 illustrates Korea's aid allocation pattern, which is significantly negative for all countries with at least one scholarship recipient (consists of first four equations indicated as "all but zero") but becomes less significant when countries with negligible portions are excluded (equations 5 to 7, denoted as "upper 75%"). Going further, the coefficients become insignificant when only major countries whose portions exceed the median of all countries are included (equations 8 to 10, indicated as "upper 50%"). As Table 3 reveals, indeed, Korea's scholarship allocation pattern is less concentrated and thinly spread (OECD, 2012).

Table 3. Regression results for Korea

	All but zero				Upper 75%			Upper 50%		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Log distance	–0.609***	–0.412***	–0.559***	–0.607**	–0.286*	–0.144	–0.380**	0.190	0.293	0.102
	(0.139)	(0.146)	(0.145)	(0.251)	(0.165)	(0.170)	(0.173)	(0.234)	(0.206)	(0.229)
Lag log population	0.129**	0.154***	0.143**	0.132	0.044	0.103*	0.091	–0.040	–0.023	–0.017
	(0.055)	(0.057)	(0.057)	(0.098)	(0.056)	(0.062)	(0.063)	(0.073)	(0.073)	(0.072)
Lag log trade	–0.242***		–0.140***	–0.164**	–0.267***		–0.200***	–0.201***		–0.128*
	(0.055)		(0.051)	(0.078)	(0.063)		(0.063)	(0.072)		(0.073)
Lag log ODA	0.326***				0.311***			0.255***		
	(0.050)				(0.066)			(0.096)		
Priority country		1.126***	1.056***	1.064***		0.793***	0.648***		0.705***	0.582**
		(0.175)	(0.171)	(0.295)		(0.208)	(0.209)		(0.256)	(0.268)
Constant	5.507***	2.541	4.453***	4.999	4.582***	1.671	4.598**	2.377	0.713	2.699
	(1.543)	(1.635)	(1.697)	(3.138)	(1.740)	(1.837)	(1.949)	(2.232)	(2.044)	(2.354)
Estimation method:	OLS	OLS	OLS	RE	OLS	OLS	OLS	OLS	OLS	OLS
Observation:	330	337	335	335	236	237	236	158	159	158

Source: Oh (2017). *Notes*: Standard errors in parentheses and *, **, *** indicate significance at 10%, 5%, and 1% respectively. Standard errors are in parentheses. White standard heteroscedasticity robust standard errors. The dependent variable is the portion/percentage of scholarship recipients per country. Except for "priority country," a dummy variable that was 1 for Korea's priority partner countries and 0 otherwise, all independent variables are log transformed. Among them, population, trade, and official development assistance (ODA) are lagged by one year to avoid any potential endogeneity issues. The sample includes only countries with positive portions (all but zero), portions with 75% quantile (upper 75%), and median (upper 50%). This is the result from 2000 in which only two countries are selected. This analysis includes outliers, but even without them the results are almost the same. Countries with zero scholarship recipients are not included.

The Korea International Cooperation Agency (KOICA) recently increased the number of countries to which it offers scholarships, from 31 in 2007 to 57 in 2014, encompassing a vast range of regions including Africa, the Americas, the Middle East, Oceania, Eastern Europe, and Central Asia. This pattern is quite contrary to the scholarship allocation patterns of Japan, where the 244 students who received long-term scholarships in 2017 were chosen from only 11 Asian countries (Oh, 2017). This geographic proximity allows host universities to send faculty members to these countries multiple times a year for promotional fairs, interviews, alumni gatherings, and even lectures on prerequisite materials for prospective students, as well as inviting alumnae to their alma maters, which helps in building long-term sustainable relationships between the host universities and scholarship recipients.

Table 4. Allocation for KOICA and JICA scholarships by country

Group	Countries that Receive KOICA Scholarships
Asia	Laos, Vietnam, Indonesia, Cambodia, Philippines, Mongolia, Bangladesh, Sri Lanka, Myanmar, Nepal, East Timor, Pakistan, Afghanistan (13 countries)
Africa	Sudan, Madagascar, Morocco, Algeria, Angola, Zambia, Zimbabwe, Cameroon, Tunisia, Côte d'Ivoire, DR Congo, Ghana, Kenya, Nigeria, Senegal, Ethiopia, Tanzania, Egypt, Rwanda, Uganda, Libya, Gabon, Mozambique (23 countries)
Americas	Guatemala, Paraguay, Peru, Nicaragua, Dominican Republic, Bolivia, Ecuador, El Salvador, Honduras, Jamaica, Colombia, Haiti, Costa Rica, Panama, Uruguay, Venezuela (16 countries)
Middle East	Yemen, Jordan, Iran, Palestine, Iraq, Lebanon (6 countries)
Oceania	Solomon Islands, Fiji, Papua New Guinea (3 countries)
Eastern Europe Central Asia	Uzbekistan, Kazakhstan, Azerbaijan, Ukraine, Turkmenistan, Kyrgyzstan, Tadzhikistan, Belarus, Serbia (9 countries)

Group	Countries that Receive JICA Scholarships
Asia	Bangladesh (30/298), Cambodia (24/268), Kyrgyz Republic (15/161), Laos (20/354), Mongolia (20/262), Myanmar (44/413), Nepal (20/20), Philippines (20/299), Tajikistan (7/33), Uzbekistan (15/295), Vietnam (30/484)

Source: http://training.koica.go.kr/; http://jds-scholarship.org/. Recited from Oh (2017). *Notes*: Seventy countries around the world receive KOICA scholarships, whereas only 11 receive JICA-JDS scholarships, and they are all in Asia. The numbers in parentheses for the JICA scholarships are recipients from the 2017 batch divided by the total number of recipients since 2000. Japan also considers more geographically distant countries, such as African nations, but separates these from the JICA-JDS program to new ones such as the Abe Program for Africa.

While restructuring the allocation plan and concentrating more on nearby countries is the most desirable option, establishing an online education platform can be considered the most effective method under the current situation to supplement the weak concentration of Korea's education aid and increase its effectiveness. It is well known that widening access to tertiary education is high on the global agenda as it relates to employment, entrepreneurship, and labor market policies. Nonetheless, Ossiannilsson et al. (2016) claim that this goal is feasible in reality "only if we truly open up education and provide high-quality and easily accessible open educational resources (OER) and massive open online courses (MOOC) for all worldwide" (160). With socioeconomic changes followed by the computer communications revolution in the mid-20th century, the realm of education has undergone dramatic transformation, opening doors to new learning models and educational opportunities (Harasim, 2000; Carey, 2016). Furthermore, Bartholet et al. (2013) assert technology as the solution to bring "top-notch courses to the world's poorest citizens" (51). Major MOOC platforms such as Udacity, Coursera, and edX have in fact proposed their ambition to deconstruct class and geographical barriers to higher education (Bartholet et al., 2013, p.51).

This type of benefit will be greater in the developing world, where students are less likely to receive education that meets international standards and geographic obstacles are severe. Online platforms are effective means of delivering education in terms of cost and method. In practice, a small nonprofit organization called Generation Rwanda has experimented with using MOOCs to educate Rwandan youth who were born during the time of Rwandan genocide in 1994. Students were exposed to a form of blended learning where they were given free access to a MOOC platform and were required to participate in seminars and sessions facilitated by an on-site teaching fellow (Bartholet *et al.*, 2013). Having proved the success of the pre-pilot course, Generation Rwanda is working towards expanding its scope to award associate's and even bachelor's degrees to empower young Rwandans and equip them with skills and knowledge necessary to move out of poverty.

Another point worth mentioning is that whilst universities have been willing to provide education through traditional teaching methods, there has been less attention to comparative educational effectiveness (McPherson & Bacow, 2015). A comprehensive understanding of educational effectiveness is necessary, because pedagogy cannot merely be divided into two parts: online and offline. As McPherson and Bacow (2015) observed, the ways in which traditional instruction is delivered vary as greatly as students' learning outcomes, and thus, educational effectiveness should be accurately measured by "well-defined and valued outcomes" (146).

Returning to the subject matter, KOICA faces difficulties in managing and sustaining aid, because its aid is spread across too many countries regardless of geographic proximity. For instance, it is difficult to visit the widely dispersed scholarship recipient countries due to time and resource constraints. On the other hand, Japan only considers a small number of Asian countries which makes organizing promotional fairs, alumni gatherings, interviews, and providing prerequisite courses for prospective students much easier (Oh, 2017). Management of education aid programs occurs systematically on a regular basis.

Following this line of alternative thinking, establishing an online platform could be a pragmatic solution to address Korea's realistic challenges. Online interviews can be conducted as an alternative to face-to-face interviews, and lectures can be substituted by online courses. Sustaining long-term relationships with graduates would also become much easier. Another viable option is to reduce students' length of stay in Korea. The current KOICA scholarship program for a master's degree requires scholarship recipients to stay in Korea for sixteen months, and this could be reduced to six months or even less if students could fulfill education requirements by taking courses online. Moreover, an online education platform could bring new opportunities for international cooperation. Harmonization between aid donor countries is likely to increase with countries collaborating on creating online educational content and facilitating dual or joint degree programs to attract more competent students.

In this regard, Nagoya University's Asian Satellite Campuses Institute (ASCI) is a representative case example of an online learning platform. There are six established satellite campuses in Asia, namely, Uzbekistan, Laos, Mongolia, Vietnam, Cambodia, and the Philippines at present. This is in sharp contrast to the conventional concept of satellite campus where a main campus has had associated branches located domestically. As Table 5 illustrates, ASCI offers doctoral degrees in six major fields of study: education and human development, bio-agricultural sciences, law, international development, medicine, and environmental studies. ASCI actively utilizes distance education and communication tools to help students engage in the learning process. Enrolled students are only required to visit the main campus to attend short-term intensive academic seminars that are fully funded by the university.

Table 5. Degrees offered through the ASCI program

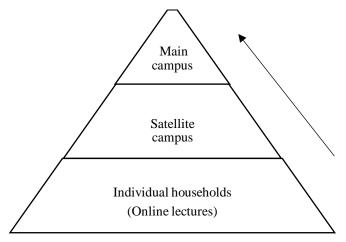*Source*: From http://asci.nagoya-u.ac.jp/about_asci/ (Nagoya University, n.d.).

	Fields of the programs	Degree	Term/Country
Graduate School of Education and Human Development	Educational Sciences, Psychology and Developmental Sciences	Ph.D. in Education and Psychology Doctor of Education	3 years (M1, U)
Graduate School of Law	Legal institution design	Doctor of Laws in Comparative Law	3 years (V, C, M1, L, U)
Graduate School of Medicine	Healthcare administration	Ph.D. in Medical Science	4 years (V, C, M1, L, U, M2)
Graduate School of Bioagricultural Sciences	Food production and agricultural development	Ph.D. in Agricultural Science	3 years (C, L, P)
Graduate School of International Development	Economic and social development	Ph.D. in International Development	3 years (C, P)
Graduate School of Environmental Studies	Environmental problem and environmental policy	Ph.D. in Environmental Studies, Geography, Economics, and Laws	3 years (M1, L)

Notes:
1. V: Vietnam, C: Cambodia, M1: Mongolia, L: Laos, U: Uzbekistan, P: Philippines, M2: Myanmar.
2. Graduate School of Medicine's program in Myanmar is offered without a satellite campus.

KOICA could adopt a similar satellite-campus model to effectively manage and sustain its inbound education ODA's long-term scholarship programs. Satellite campuses could be established on each continent and could expand if regional scholarship recipients increase in number. As aforementioned, most of the courses should be offered online; however, students could regularly come together to the regional satellite campuses to take courses that require physical human interactions. Faculty members will be composed mostly of local teaching staff, supplemented with instructors from the main campus; these instructors should supervise students taking online courses in their individual households and provide direct assistance through offline seminars. With this system implemented, students can visit the main campus only once or twice during the course of their study for intensive seminars, thesis defense, commencement, and other occasions to overcome obstacles in distance education (Figure 1). The satellite-campus model would also greatly reduce KOICA's substantial financial burden of having to support its scholarship recipients' living expenses for their 16 months stay in Korea. Moreover, with reduced costs, creating a doctoral degree program – which is in high demand among scholarship recipients – may become quite feasible as well. As such, ASCI's model could be directly applied to KOICA and its inbound education scholarship program.

Figure 1. Three-step approach to online learning

CONCLUSION

This study is a follow-up study to Oh's work (2017) in which we have confirmed Korea's dispersed pattern of inbound education ODA by comparing it with the patterns of the United Kingdom, Germany, and Australia, the three major aid donor countries affiliated with the DAC. The empirical findings were significant in explaining the predictions of the gravity model. They showed higher concentrations of education ODA in all three aid donor countries. Population, GDP, and ODA dummy variable, otherwise known as proxies for mass, were expected to have a positive relationship with the number of scholarship recipients. Though all relationships were significant, population showed the highest, most consistent statistical significance. The time-invariant variable was expected to have a clear negative relationship with the number of scholarship recipients, and this was also the case for the three aid donor countries.

To re-address the issues of aid management and sustainability concerning Korea's inbound education ODA, we propose establishing an online education platform as a viable solution. To elaborate, KOICA could utilize the satellite campus model readily verified by Nagoya University's ASCI to reduce the costs of accommodating inbound education scholarship recipients. Because Korea has dispersed its education ODA funds across countries in disparate locations regardless of geographic proximity, visiting all of the scholarship recipient countries is difficult. By establishing the online education platform, much work can be transferred to the online platform and to the regional satellite campuses. Online lectures, interviews, and communication mechanisms can be facilitated to increase cost and time efficiency as well as effectiveness. In addition, online education platform gives the opportunity to foster collaborative relationships with other donor countries by means of online learning content development, course exchange, joint degree programs, and other academic activities. Korea should utilize the online education platform as a tool to overcome geographic barriers and increase connectivity by innovatively optimizing the resources that are readily available.

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