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The Economic Benefits of International Education at Wright State University and in the Greater Miami Valley

Sonia A. Ninon

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THE ECONOMIC BENEFITS OF INTERNATIONAL EDUCATION AT WRIGHT STATE UNIVERSITY AND IN THE GREATER MIAMI VALLEY.

An internship report submitted in partial fulfillment of the requirements for the degree of Master of Science

By

Sonia A. Ninon
B.S., Wright State University, 2002

2004
Wright State University
I HEREBY RECOMMENDED THAT THE THESIS PREPARED UNDER MY SUPERVISION BY Sonia A. Ninon ENTITLED The Economic Benefits of International Education at Wright State University and in the Greater Miami Valley BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF Master of Science.

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ABSTRACT


International students in the U.S have seldom been viewed as big contributors to local economies, in particular and to the U.S in general. The purpose of this study is to examine the impact of international students in the United States, particularly at Wright State University (W.S.U), on the Greater Miami Valley Area.

This economic impact study will use previously compiled information extend on it to ascertain the impact of international education in the Miami Valley and by extension to the United States. Public policies towards international students will also be evaluated.

The conclusion is that international students have had a significant impact on the regional economy. Policies towards international students should be rethought to reflect these positive benefits.
ACKNOWLEDGEMENTS

My first expression of gratitude and appreciation goes to God, my Good Shepherd, who has made this journey possible. Next, I would like to thank my mother, Omérine Ninon, my role model and my inspiration. You have been the anchor of my life. To my dad, Abel Ninon, I love you. To my sister, Ginette, I simply love you. Knowing you has made my life worth living. Thank you for your strength. To my brother, Franck, you are a masterpiece in progress. Thank you for being there.

To my extended family, Phyllis Bell, Amanda Branch, Didier and Francoise Agbemebia, Seth and Sylvie Gbenado and church family, thank you for your encouragements and prayers.

To the faculty and staff in the Raj Soin College of Business and in the Economics Department, thank you for not giving up on all the students, who on their way to reaching their dreams, step into your lives. You have made this challenging experience a memorable one.

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INTRODUCTION

A growing number of scholars and politicians recognize the importance of international education in the United States. According to the U.S Department of Commerce, higher education constitutes the fifth largest service export\(^1\). Since American higher education is a service provided to international students through U.S institutions, it meets the requirements for a service export. Over the years, the number of foreign learners has increased to reach a record high at 582,996 students in 2001, approximately 4.3 percent of the total enrollment in U.S colleges and universities (NAFSA)\(^2\). The following year, the number of international students increased slightly to reach a new high of 586,323 students, or approximately 4.6 percent of the total enrollment in U.S colleges and universities. Even though the number of international students increased from the academic years 2001-2002 to 2002-2003, it is obvious that the upward trend slowed, possibly the result of post-September 11 stringent immigration policies and other security issues\(^3\).

International students and their families are an essential part of the U.S economy. They enhance the economic development of localities where they reside and enrich community life. The economic contributions of foreign students and scholars increased substantially from $11.95 billion in the academic year 2001-2002 to $12.851 billion in 2002-2003. Contrary to popular beliefs, the majority of international students’ funding

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\(^1\) http://opendores.iienetwork.org/?p=36523  
\(^2\) www.nafsa.org  
\(^3\) http://opendores.iienetwork.org/?p=36523
comes from overseas. Open Doors 2003 reports that three-fourth of all international students’ funding come from personal and family sources outside the U.S\textsuperscript{4}.

The purpose of this project is to examine the flow of students to and from the U.S and determine why it is critical to encourage international education abroad and in the U.S. The final goal is to look at the economic impact of international students in the Miami Valley from 2001 onward in order to determine if strict immigration policies had any damaging effects on international education as a whole.

\textsuperscript{4} http://opendoors.iienetwork.org
I. INTERNATIONAL EDUCATION: A TWO-WAY STREET

In the past, international education has been a medium of both peace building and mutual understanding between rival nations through its programs of cultural and intellectual exchange. Today, international education still plays a uniting and binding role between cultures; however, it is the fast pace globalization that has intensified the need to educate students, scholars and professionals through the internationalization of curricula and the interaction with a multicultural workforce. According to Stephen Butler, Chairman of KPMG International, current multinational companies seek educated and culturally aware employees⁵. Marlene Johnson, executive director and CEO of the National Association of Foreign Student Advisors (NAFSA), stated that the U.S needed to be attuned to the realities and challenges of the world. It is through the internationalization of the U.S. educational system and the availability of study abroad opportunities that the U.S can maintain a competitive edge over the fast growing international economies. English, though still the dominant language for business transactions, is gradually fading as emerging economies require knowledge in different languages and cultural etiquettes. This explains why some curricula include courses such as Doing Business in Africa, Asia, Europe, and Latin America. It is the responsibility of all U.S schools, colleges and universities to incorporate fluency in diverse languages and awareness of cultural norms in their curricula.

⁵ http://www.nafsa.org/Template.cfm?Section=PublicPolicy&NavMenuID=50#NIEP
The U.S educational system can reach this goal first by promoting the study abroad and exchange programs to incite U.S students to have at least one international experience during their academic training and second by attracting international students to the U.S to impart American values and culture to them.

1. U.S Students Abroad

This section will present the benefits of study abroad and exchange programs both for U.S and international students. U.S students learn more about different cultures and ways of doing things by living in other countries. In addition, this invaluable experience broadens their perspective about life and allows them to make better decisions based on their knowledge of other models. On the other side of the equation, students in the chosen study abroad countries have the opportunity to familiarize themselves with other ways of thinking and cultural norms they probably would have not experienced, had it not been for their American peers.

"Educational exchanges are not a luxury — reserved for the few or pushed aside when other challenges preoccupy us. They are a matter of the national interest. While our nation properly continues the fight against terrorism, we also must develop a policy of educational diplomacy. It can be a key catalyst for a more peaceful world."

Richard W. Riley, Former U.S Secretary of Education

As Riley stated, the availability of study abroad and exchange programs to U.S students has become a matter of national security after September 11. Exchange and study abroad programs provided a platform to build mutual understanding and acceptance

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6 http://www.nafsa.org/Template.cfm?Section=PublicPolicy&NavMenuID=50#NIEP
of other cultures. Even though there is still much to do to further internationalize the U.S educational system, it is important to recognize the efforts that have been made in the right direction by tracing the evolution of study abroad and exchange programs.

In the last decade, the number of American students studying abroad doubled to reach a record high of 154,168 in the academic year 2000-2001. Collaborating with the U.S Department of State, the Institute of International Education offers a variety of exchange programs to U.S students and professionals. In 2002, the Benjamin Gilman Scholarship program provided scholarships of up to $5,000 for undergraduate students receiving federal financial aid interested in studying abroad. Applications for this scholarship were up 40 percent in the second term they were offered, demonstrating that interest in study abroad was strong once financial obstacles were removed.

The Freeman Awards for Study in East and Southeast Asia also made financial assistance available to U.S undergraduates with an interest in the region. The program has already awarded scholarships to 1,200 students and will grant additional scholarships to 1,400 U.S. students over the next three years.

Source: Institute of International Education

http://www.iie.org/programs/freeman-asia/resources.htm
As one of the oldest program promoting international scholarly research and exchange, the Fulbright Program has sponsored more than 254,000 national and international participants. Senator Fulbright viewed the program as a much-needed vehicle for promoting “mutual understanding between the people of the United States and the people of other countries of the world” (IIE Network). Former Senator Daniel Patrick Moynihan, author Jonathan Franzen, and opera singer Renee Fleming are among a long list of prominent Fulbright alumni (IIE Network).

Moreover, each year, the Institute of International Education awards the Andrew Heiskell Awards to deserving institutions of higher learning dedicated to promoting internationalization. This year, Tufts University won the award for its Study Abroad program: “International Research Program: Integrating Study Abroad and International Research” (IIE Network). Northeastern Illinois University was the 2004 recipient of the Internationalizing the Campus award for its Institutional Internationalization Program (IIE Network). *Tecnológico de Monterrey* in Mexico won the 2004 Faculty Program award for its innovative faculty-training program (IIE Network).

All of these programs contribute directly to making the world safer and more secure; however, there is an overwhelming fear that progresses towards mutual understanding and acceptance are being chipped away by stringent immigration policies. The evidence appears in the changing immigration regulations that act as a filtering agent and are based on pre-conceived assumptions or stereotypes, which defeat the purpose of these educational programs.

8 [http://www.iie.org/FulbrightTemplate.cfm?Section=Fulbright](http://www.iie.org/FulbrightTemplate.cfm?Section=Fulbright)
10 [http://www.iienetwork.org/?p=26627](http://www.iienetwork.org/?p=26627)
The Institute of International Education conducted an online survey to question international educators about the enrollment of U.S students in study abroad programs since September 11 to reveal the true feelings of U.S students about an international educational experience. Results point out to the growing popularity of study abroad programs among U.S students in fall quarter 2002. International educators and politicians were pleased to see that more U.S students recognized the importance of engaging in international affairs and remained involved in exchange programs. Patricia Harrison, Department of State Assistant Secretary for Educational and Cultural Affairs said: “I’m excited to see the continued growth in the numbers of American students studying overseas.”

Reports from Open Doors 2002 indicated that students who studied abroad elected shorter terms with nearly 50 percent of undergraduate and graduate students going abroad during the summer and other short-term programs. Among the thirty-nine U.S campuses, which offered study abroad for credit to national students, Michigan State University headed the list with 1,835 students sent abroad, followed by University of Texas and New York University with 1,633 and 1,471, respectively.

At the local level, W.S.U has initiated several Study Abroad Programs to cater to U.S students and educators willing to study or teach in an international setting. The programs include Project RENEUUS (Regional Educational Network between the European Union and the United States), the Winter Ambassador Program to Costa Rica or Japan, the Summer Ambassador Program to Argentina and Brazil, and the International Exchange Programs in Asia, Europe and Latin America.

http://www.iie.org/Content/ContentGroups/Announcements/More_Americans_are_Studying_AbroadandNum8212;55%_Increase_in_Five_Years.htm
In an interview conducted by Marianne Wellendorf, Maricy Schmitz, Director of the Exchange and Study Abroad Programs in the University Center for International Education (U.C.I.E), promoted the study abroad programs and explained that there was something for everybody's taste. Students or faculties could stay overseas for two weeks to a year. Jesse Maleszewski, a MBA student, expressed his satisfaction with the Ambassador program and the invaluable practical experience and knowledge he gained after spending 28 days in Japan (Wellendorf).

Moreover, Schmitz said that the safety of the participants was her main concern. She and the coordinators of the programs in the destination countries maintained regular contacts with the enrolled students and faculty. Should anything happen, however, participants must follow the emergency plan presented during a mandatory orientation prior to their departure.

For U.S students, the desired destination regions are Europe, Latin America, Oceania, Asia, Africa, the Middle East and North America in descending order (figure 1).

![Figure 1: Destination of U.S Students Studying Abroad](image)

The number of U.S students going to the Middle East and North America has significantly decreased over the years. The move away from some of the conventional
destinations has been accompanied by an increase in the number of students going to so-called non-traditional destinations, in the last fifteen years. New Zealand welcomed 1,120 American students, up 40 percent and South Africa hosted 1,107, an increase of 23 percent.

The leading majors U.S students studied while abroad were Social Sciences, Business and Management, Humanities, Fine or Applied Arts, Foreign Languages, followed by Physical Sciences, Education, Health Sciences, Engineering, and Math or Computer Science (figure 2).

![Figure 2: Leading Fields of Study for U.S. Students Abroad](image)

While Europe, Latin America and Asia have been U.S students’ preferred destinations for study abroad programs, international students from other countries cross the waters to brave the U.S educational system.

2. International Students in the U.S

We have seen how study abroad and exchange programs help further international education and cultural awareness by allowing American students and faculty to experience different political, economic and educational institutions in foreign countries.
In this section, we will observe how the flow of international students in the U.S serves the same internationalization purpose.

From its modest beginning in the 1950s, the population of international students has grown to reach a record high of more than a half a million in 2003. In 1954, there were a little over 30,000 international students in the U.S. In a span of twenty years, the number of international students tripled to reach 154,580. The largest increase happened during the academic years 1974-1975 to 1979-1980 with 286,343 international learners, an increase of 85.2 percent. The 1980s and 1990s registered a steady increase in the number of foreign students coming to the U.S. From the millennium onward, international educators expected a similar growth in the number of foreign students; however, after the academic year 2001-2002, we observe a sluggish rise of less than 1 percent (figure 3).

Several hypotheses have been suggested to explain this phenomenon. Paramount among the list is the strict post-September 11 immigration policies.

There seems to be a dichotomy in the approach towards international education in the U.S since 2001. On the one hand, policymakers and international educators want to
further engage in the intellectual international exchange by welcoming diverse foreign scholars and professionals. Colin Powell, the U.S. Secretary of State, has expressed his total support for international education. In line with past visionary leaders, he understands that today’s international students are tomorrow’s world leaders. He further argues that in addition to receiving an educational experience in America, they build long-lasting relations and ties valuable for future international negotiations and affairs. Patricia Harrison, Assistant Secretary of State for Educational and Cultural Affairs, shares the same view and adds: “welcoming learners from abroad over the long term helps enormously to eliminate hostile preconceptions, to promote cultural relations and to attempt to solve conflicts peacefully” (NAFSA). International students in the U.S are bridges between their respective sending countries and this country, and facilitate open dialogues for cultural tolerance and peaceful relations. An American educational experience definitely pays dividends to the nation’s public diplomacy over many years; indeed, more than fifty of the world leaders, who joined the alliance in fighting terrorism, studied in the United States12 (NAFSA).

On the other hand, there is an attitude of suspicion towards foreign scholars especially the ones from particular geographical regions and religion. Some have argued that this is the reason behind the slow growth rate of total number of international students in the academic year 2002-2003. Only seven of the major sending countries recorded higher numbers of international learners in the U.S. The other thirteen recorded significant declines in enrollment in 2002-2003. The largest drop was concentrated in Southeast Asia and the Middle East – in predominantly Muslim countries. Indonesia sent 10,432 students, a 10 percent drop. Thailand recorded 9,982 students, a decline of 14

12 http://www.nafsa.org/Template.cfm?Section=PublicPolicy&NavMenuID=50#NIEP
percent. Malaysia had 6,595 students, down 11 percent. There were 4,175 students from Saudi Arabia, and 2,212 students from Kuwait, both registering a 25 percent drop. The United Arab Emirates sent 1,792 students, a decline of 15 percent13 (IIE Network).

The non-Muslim Asian countries such as India, China, Korea, Japan and Taiwan have sent more students and scholars to the U.S. than any other countries. Asian students comprise over half of all international enrollments, followed by students from Europe, Latin America, the Middle-East, Africa, North America and Oceania14 (figure 4).

**Figure 4: Origin of International Students**

As diverse as the origin of international learners is, so is their choice of schools and majors. In 2002-2003, 153 institutions of higher learning welcomed 1,000 or more foreign scholars, an increase of 2 percent. California hosted 80,487 international students and is by far the leading destination state. New York is second in terms of leading host states with 63,773 foreign students, followed by Texas with 45,672 students, Massachusetts with 30,039, Florida and Illinois, with 27,270 and 27,116 international learners, respectively. The state of Texas incurred the highest increase in international students’ enrollment with 17 percent. The University of Southern California is the

13 [http://opendoors.iienetwork.org](http://opendoors.iienetwork.org)
leading host institution with 6,270 international students. Once the premiere institution of choice, New York has now fallen to second place with a total of 5,454 students. Columbia University followed suit with 5,148. Purdue University (main campus) and University of Texas at Austin had 4,601 and 4,926, respectively\(^{15}\).

The most popular majors are Business, Management, Engineering, Mathematics and Computer Sciences. The last two are the fastest growing major with an increase of 13 percent\(^ {16}\). From this, we understand that international students studying in the U.S choose strategic fields of study that will enhance their marketability in the U.S and in their countries of origin. They also choose to locate in flourishing areas with leading institutions of higher learning.

3. **International Students in Ohio and in the Miami Valley**

Since it is our goal to examine the benefits of international students in the Miami Valley, it will be interesting to determine the attractiveness of the state of Ohio to foreign learners and the number of such students currently attending Ohioan colleges and universities.

The state of Ohio, a large exporter of educational service, is among the top ten destinations. The number of international students attending Ohio higher learning institutions, however, is on a decline at 18,668, or a decline of 3.7 percent from the academic year 2001-2002 to 2002-2003. Nonetheless, the remaining foreign students contributed more than $425 millions to the Ohio economy, which represents an increase of nearly 12 percent (table 1).

\(^{15}\) http://opendoors.iienetwork.org/?p=36523
\(^{16}\) http://opendoors.iienetwork.org/?p=36523
Table 1: Net Contribution to Ohio Economy by International Students (2002)

| Total Number of Foreign Students | 18,866 |
| Contribution from Tuition and Fees to State Economy | $257,493,000 |
| Contribution from Living Expenses | $367,537,000 |
| Total Contribution by Foreign Students | $625,030,000 |
| Less U.S Support of 35.3 percent | $220,376,000 |
| Plus Dependents’ Living Expenses | $20,374,000 |
| **Net Contribution to State Economy by Foreign Students and their Families** | **$425,028,000** |

Source: NAFSA

Ohio State University is Ohio’s premiere host institution with 4,334 international students, up less than a percent. University of Cincinnati comes in second place with 1,906 foreign students, followed by Case Western University with 1,259 students. Ohio University and University of Toledo both experienced declines in the number of foreign scholars with 1,173 and 1,088, respectively. Overall, there was a net decline of about half a percent in the number of international students attending these institutions.

As shown in Table 2, the Miami Valley and its environs house over ten institutions of higher learning. W.S.U has by far the largest population of international students in the Dayton-Springfield metropolitan area. During the academic year 2002-2003, W.S.U had 634 foreign students, up 17.6 percent, followed by the University of Dayton (U.D) with 244 international students, up 3.4 percent and Sinclair Community College with 171, down 1.2 percent. The historically black universities in the vicinity of Dayton had their share of international students. Both Central State and Wilberforce had 14 international students, a respective increase of 75 percent and 40 percent. A probable

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17 www.nafsa.org/pdf/ohio.pdf
The reason for the general increase in the number of international students in the region is the relative affordability of higher learning institutions and the decent cost of living.

Table 2: Foreign Students in Miami Valley’s Higher Learning Institutions (2002/03)

<table>
<thead>
<tr>
<th>Institution</th>
<th>City</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wright State University</td>
<td>Dayton</td>
<td>634</td>
</tr>
<tr>
<td>University of Dayton</td>
<td>Dayton</td>
<td>244</td>
</tr>
<tr>
<td>Sinclair Community College</td>
<td>Dayton</td>
<td>171</td>
</tr>
<tr>
<td>Wittenberg University</td>
<td>Springfield</td>
<td>50</td>
</tr>
<tr>
<td>Antioch College</td>
<td>Yellow Springs</td>
<td>38</td>
</tr>
<tr>
<td>Cedarville University</td>
<td>Cedarville</td>
<td>16</td>
</tr>
<tr>
<td>Central State University</td>
<td>Wilberforce</td>
<td>14</td>
</tr>
<tr>
<td>Wilberforce University</td>
<td>Wilberforce</td>
<td>14</td>
</tr>
<tr>
<td>Kettering College of Medical Arts</td>
<td>Kettering</td>
<td>12</td>
</tr>
<tr>
<td>Edison State Community College</td>
<td>Piqua</td>
<td>10</td>
</tr>
<tr>
<td>Clark Community State University</td>
<td>Springfield</td>
<td>9</td>
</tr>
</tbody>
</table>

The majority of Ohio’s international students population is of Asian descent. India tops the list with 3,698, followed by China with 3,176, and Korea with 1,716. The last two are Japan and Taiwan with 902 and 863, respectively. The choice of study of international students in Ohio mirrors that of their peers in other states with majors such as Engineering (23.9 percent), Business and Management (17.8 percent), Physical & Life Science (11.9 percent), Math and Computer Science (8.8 percent) and other (6.6 percent).19

W.S.U and other local universities and colleges have developed academic programs designed to serve the international population on campus and in the region and to ease the learning process for non-English speakers. Similar to U.D’s E.L.M.I program (English Language and Multicultural Institute), W.S.U has initiated on-campus programs to cater to its growing international population. The on-campus educational and cultural

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programs include L.E.A.P (Learning English for Academic and Professional Purposes), and I.H.O.P (International Honors On-Campus Program). The LEAP program is a ten-week intensive program providing English classes to non-English speaking foreign students who want to acquire the language skills necessary for college level classes or professional activity. I.H.O.P, on the other hand, gives an opportunity to international students and American students to share their cultural diversity by living together during an academic year.

Given the historical affiliation between the Miami Valley area and foreign students and scholars, it is becoming necessary to determine the impact of international students on the cultural and economic life of the region.
II. QUANTITATIVE AND QUALITATIVE IMPACT ANALYSIS

The previous sections have looked at the evolution of international education in the U.S and particularly in the Miami Valley in the midst of the debate around the security issue connected to international scholars and professionals coming to the U.S. The purpose of this section is to highlight the major financial and cultural contributions these individuals make to their adoptive communities. In a nutshell, we argue that local regions and the U.S cannot afford to do away with international dollars poured into the economy by visiting scholars and professionals. Hence, it is a matter of economic development to further improve the American educational system, to attract international students regardless of their origin and to facilitate employment after graduation. The literature on the topic suggests that both creative experience and diversity boost a region’s economy.

1. Theoretical Foundations

The proponents of international education assert that foreign students contribute substantially to the economic and cultural development of their residing communities; hence, institutions of higher learning along with their host communities should focus on recruiting, retaining and utilizing such assets, effectively. The basis of these hypotheses is rooted in regional economics theories: the economic base theory, the cluster theory and Florida’s creative class theory. At this point, we will present and examine each theory to gain a better understanding of the issue.
a. Economic Base Theory

Economic base theorists contend that a region’s exports are the dominant determinant of economic growth. Exports, as defined by economic base theorists, do not necessarily mean that producers send goods or services outside the region; rather, the idea is that there are basic – as opposed to non basic or local service – activities that bring in money from other regions. The growth of basic activities leads and determines the region’s overall development while other non basic activities sprout as a result of such development. How do economic developers identify and locate the growth-ensuring activities and what are the processes through which basic activities stimulate lagging activities? Hoover and Giarratani suggested using the location quotient method to estimate export activities; however, they warned that location quotients could underestimate the gross exports of a region, since export industries tend to get averaged with local service activities at high levels of aggregation20.

Higher education is definitively a basic activity because it brings income from the outside world, which fosters regional development. Since it is the fifth largest service export in the nation, there should definitely be national and regional plans of action to ensure its development. The regional growth of communities with institutions of higher learning rests in part on the net positive flow of international students’ dollars into the region. International students studying in the Miami Valley area bring in financial resources that are spent on industries in the region. The niche for these communities is to recruit outstanding foreign students and harness their monetary power and cultural creativity.

20 http://www.rrri.wvu.edu/WebBook/Giarratani/chaptereleven.htm#11.2
The regional input-output figure, below, helps understand the transactions both among different economic sectors and within each sector in a region. The arrows represent the flows of goods and services passing from one sector to another in exchange for monetary payments. The maroon line marks the regional boundary, separating the region from the outside world. The outside world can be any entity, neighboring regions or international visitors. Both the government and capital sectors are within and outside the region because of their close connections to outside factors\textsuperscript{21}.

\textbf{Figure 5: Regional Input-Output Model}
Source: Regional Research Institute\textsuperscript{22}

Notwithstanding the advantages of exports on regional growth, other concepts are also essential in explaining a region’s development. The industrial cluster theory provides another approach to achieve regional growth.

\textsuperscript{21} http://www.rrri.wvu.edu/WebBook/Giarratani/chaptereleven.htm#11.3.2
\textsuperscript{22} http://www.rrri.wvu.edu/WebBook/Giarratani/chaptereleven.htm#11.3.2
b. Industrial Clusters and Regional Growth

The geographical concentration of interrelated companies and institutions that drive wealth creation in a region is better known as a cluster of industries. Clusters represent a new way of thinking about location, challenging much of the conventional wisdom about how companies should be organized, how institutions such as universities can contribute to competitive success, and how governments can promote economic development and prosperity (Porter 78). Clusters improve internal competition in three broad ways: first, by increasing the productivity of companies based in the area; second, by driving the direction and pace of innovation; and third, by stimulating the formation of new businesses within the cluster (Porter 78).

Bergman and Feser contended that two basic approaches dominated the literature on the benefits of concentration: the industrial location theory whose benefits are called agglomeration economies, and the external scale economies. In both cases, Bergman and Feser contend that various externalities (or sources of externalities) explain firms' co-location.

Weber (1929) identified agglomeration economies, the cost savings firms enjoy, as one of three primary causes of spatial clustering or agglomeration. These costs savings are due to the availability of specialized inputs such as information and technology or business services. The specialized infrastructure, such as a job-training center, can facilitate the development of a capable workforce. Using Scorsone's work, Weber explained that a group of firms demanding the same services could come together and afford higher up front fixed costs, especially when the specialized inputs and infrastructure are subject to economies of scale. The concept of external economies
addresses the added benefits – i.e. cost-effectiveness and efficiency – gained through the economies of scale and the synergistic concentrations of activities.

Marshall (1961) defined external economies of scale as cost savings accruing to the firm because of size or growth of output in industry. Of most relevance to understanding industry clusters are dynamic external economies associated with learning, innovation, increased specialization, knowledge spillovers and skilled pools of labor. Marshall explained how dynamic external economies in industrial districts combined these ingredients to enhance productivity.

In the same caliber with previous leading regional economists, Hoover introduced the now accepted distinction between urbanization and localization economies. In the cluster literature, the focus was mainly on externalities related to proximity among business enterprises (localization economies), rather than externalities associated with general urban advantages (urbanization economies). “Localization economies”, a term for the reduction in costs to firms being located in close proximity, lead to scale economies in intermediate inputs, labor market pooling and knowledge spillovers (Bergman and Feser 7).

There is definitely a new paradigm in the knowledge economy in the form of greater labor pooling. Labor pooling occurs when corporations vie for talented people in the same area. As these workers are drawn to a region with multiple employment opportunities, firms benefit by having access to a large pool of talent, e.g. Silicon Valley in California, and Route 168 around Boston. In turn, Scorsone contends that the mere existence of a wellspring of talented people, when tied to technical or vocational training facilities, will raise the skills of the workforce and reduce the transaction costs associated
with conducting an employee search (Scorsone 2). According to McKinsey & Co., a management-consulting firm, the war for talent is the premiere competitive issue facing companies in the U.S and around the world (NAFSA). It is not unusual for engineers at Massachusetts Institute of Technology or other high-tech educational centers to have multiple job offers before graduation.

Comprised of American higher learning institutions, training programs, research and development, and surrounding businesses, the American education cluster gains strength and maturity mainly because international students and scholars infuse radical new ideas and expertise particular to their unique experience. Hence, it is imperative for the education cluster to recruit outstanding international scholars, train them, and deliver them to neighboring firms. The knowledge spillovers of this endeavor will fuel and develop other industrial clusters, and ultimately the entire region.

c. Diversity, Creativity, Innovation, and Regional Growth

In the words of Florida, the emerging pool of talented and eclectic labor gave rise to the "new creative class" (Florida b). The new creative class hypothesis assumes that both the diversity and creativity of labor is paramount in the innovative cycle, which fuels regional development. The next section looks at the processes through which these elements come together to reshape the economic landscape of a region.

A body of literature has examined the relationship between diversity, creativity, innovation, and regional growth. There is overwhelming evidence that diversity and creative human capital jointly produces innovative growth. According to Roelandt and den Hertog, in modern innovation theory, the strategic behavior and alliances of firms, as well as the interaction and knowledge exchange between firms, research institutes,
universities and other institutions, are at the heart of the analysis of innovation processes (Roelandt and den Hertog 1-2).

The theoretical divergence arises as to what role learning institutions should play in the innovative growth cycle. Florida argues that universities and policymakers in surrounding cities have a joint responsibility in the development and growth of their regions. Universities must tend to the affairs of creating an atmosphere of excellence in order to draw talent and then provide the desired output, i.e. smart and creative graduates, to surrounding businesses. On the other hand, communities must effectively harness the science, innovation, and technologies generated through the universities and have the strategic infrastructures necessary to retain talented people.

Florida denounces that a set of regulations diverted universities from their primary focus – that is to educate students and conduct and openly publish research – to engage instead in the secrecy and rivalry of industry-funded research. The Patent and Trademark Act of 1980 (Bayh-Dole Act) allowed universities to take patents on products created under federally funded research and to assign or license those rights to others. The Economic Recovery Tax Act of 1981 extended industrial R&D tax breaks to research supported at universities, while the NSF’s programs tied federal support to industry participation. “Collectively, these initiatives also encouraged universities to seek closer research ties to business by creating the perception that future competition for federal funds would require demonstrated links to industry” (Florida a).

Florida is adamant in believing that universities should refocus on attracting outstanding students and scholars because smart people tend to migrate toward smart people. Since smart people are well remunerated, they will be able to make generous
contributions to their alma mater and enhance the development of their communities. Florida further suggests that the key function of cities is not just in attracting and retaining talent, but also in constantly recreating it. Hence, regional policymakers should revitalize their cities to accommodate and cater to the pool of talent.

In the mid 1920's, Robert Park suggested that cities should stimulate human creativity by attracting a diverse group of people in the targeted areas. He argued that cities should nurture creativity and innovation – vital for economic growth – by encouraging the clustering of creative professionals and effectively harnessing their gifts. Jacobs (1961) contended that open and diverse cities tended to attract and produce top talent, thus spurring creative and innovative growth. Lucas formulated a theory of cities suggesting that cities should collect a diverse and qualified workforce to grow into high-growth economic centers. The more knowledgeable labor is, the better it allegedly performs and the more innovations it produces.

Maillat was the one who labeled such cities as the innovative milieu. He argued that innovation could not operate absent from the innovative milieu, which was the life-giving source of the innovation process and a complex system capable of initiating synergistic processes (Maillat 103). From this point of view, the milieu could not be defined merely as a geographical area, rather it must be seen as a complex organization made up of economic and technological interdependencies (Bergman and Feser 8-9).

Florida and Lee conducted an empirical research testing the relationship between regional growth, human capital and innovation, to prove the validity of the pioneering theories. The gist of their hypotheses rests on the assumption that innovation and diversity are essential to the innovative cycle and regional growth (Florida and Lee 3).
The Bohemian, foreign-born and gay indexes were proxies for the variable diversity. The Bohemian index incorporated information about professions that required constant traveling such as musicians, actors and other artists. The gay index took into account the difference in people’s lifestyle while the foreign-born index included distinction in the country of origins. The percentage of the population with a bachelor’s degree and above was a proxy for human capital; and the proportion of engineers and scientists in the sample was a measure of the controlled variable, innovation. The results overwhelmingly supported the assumption that innovation was a direct result of human capital and diversity.

Dayton holds a special place in this empirical study. In 2000, Dayton ranked fifth as one of the most creative medium-size cities. Unfortunately, it had a lower ranking in diversity, ranking number 24 out of 32 (Florida b). More than anything, Dayton needs a boost of diversity and retention of creative professionals, which can be achieved by capitalizing on its young and talented foreign students population. In so doing, Dayton will improve the region’s diversity, knowledge and creative pool, all of which work in tandem to strengthen the regional economy.

Having explored the theoretical foundation of the benefits of diverse and creative pool of labor, it is now important to examine the direct financial contributions foreign learners and professionals infuse in their residing communities.

2. Direct Impacts in the Miami Valley

The purpose of this part is to conduct an economic impact analysis. The analysis draws on a previous study by Kamara of international students’ spending patterns. A set of Input-Output (IO) multipliers is applied to the spending patterns of international
students to determine the economic impact on the Dayton-Springfield Metropolitan Statistical Area (M.S.A), which includes four counties: Clark, Greene, Miami, and Montgomery.

a. Kamara’s Survey

Kamara (2000) gathered information from various sources to estimate the population of international students at W.S.U. He observed that there were 414 graduate and undergraduate foreign students enrolled at W.S.U in fall quarter 1998. From this list, he selected a sample of 120 students to whom he mailed out surveys to determine the financial contributions of such students to the Greater Miami Valley economy. Seventy four percent of the participants (or 89 students) returned their completed surveys. Nearly 70 percent (62 students) of the respondents were graduate students whereas the others were undergraduate (27 students). Kamara’s ten-question survey sought to determine the socio-economic affiliations of each international student at W.S.U and prove that foreign students are vital contributors, and not leeches, to the economic development of their adoptive regions. Kamara had three main hypotheses:

- International students spent most of their income within the regional boundaries of their residence because of limited traveling.
- U.S. colleges and universities did not provide the bulk of the financial support for international students; rather it was relatives, governments or international institutions in home countries that assisted them financially.
- International students for the most part chose to stay in the U.S after graduation for diverse reasons ranging from gaining additional experience to enjoying the American lifestyle.
The updating process of Kamara’s data required a conversion factor to reflect the inflationary trend from 1998 to 2002. The year 2002 was chosen since it is the year directly following September 11 and crucial for this study. Each monetary figure was divided by the 2002 conversion factor, 0.906, which is calculated by dividing CPI 1998 by CPI 2002 (or 163/179.9)\(^2\). For example, to convert $1,000 of 1998 to dollars of 2002, we divide $1000 by the conversion factor of 2002: 0.906. Hence, $1,000 becomes about $1,104 in 2002 dollars. The spending budget of first-year undergraduate and graduate students in 1998 and 2002 dollars is presented in table 3. Table 3 assumes that the number of graduate and undergraduate students remains the same in 1998 and 2002 in order to show the inflationary trend in the budget.

Table 3: Spending budget of first-year undergraduate and graduate foreign students (in 1998 and 2002 dollars)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Expenditures in 1998 dollars</th>
<th>Expenditures in 2002 dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>$269,102</td>
<td>$297,022</td>
</tr>
<tr>
<td>Food</td>
<td>$117,150</td>
<td>$129,305</td>
</tr>
<tr>
<td>Tuition</td>
<td>$833,100</td>
<td>$919,537</td>
</tr>
<tr>
<td>Clothing</td>
<td>$55,350</td>
<td>$61,092</td>
</tr>
<tr>
<td>Entertainment</td>
<td>$43,640</td>
<td>$48,168</td>
</tr>
<tr>
<td>Utilities</td>
<td>$61,890</td>
<td>$68,311</td>
</tr>
<tr>
<td>Books/Supplies</td>
<td>$50,920</td>
<td>$56,203</td>
</tr>
<tr>
<td>Health insurance</td>
<td>$48,215</td>
<td>$53,217</td>
</tr>
<tr>
<td>Transportation</td>
<td>$64,890</td>
<td>$71,623</td>
</tr>
<tr>
<td>Total</td>
<td>$1,544,257</td>
<td>$1,704,478</td>
</tr>
</tbody>
</table>

Note: We will adjust the data to account for the actual number of W.S.U international students in a latter section.

\(^2\) http://data.bls.gov/servlet/SurveyOutputServlet?jrunsessionid=1085424148314160694
In 2002 dollars, fifteen percent of undergraduate respondents spent up to $8,389 on tuition and living expenses, as opposed to thirty-two percent of graduate students. Fifteen percent of undergraduate students spent up $9,934 while only eleven percent of graduate students admitted spending comparable amounts. Thirty-three percent of undergraduate learners spent up to $16,556 while twenty-three percent of graduate students reported spending that much. Thirty-seven percent of undergraduate students and thirty-four percent of graduate students disbursed over $16,556.

![Bar chart showing tuition and other expenses in 2002](image)

**Figure 6: Tuition and other expenses in 2002**

Contrary to popular beliefs, international students received most of their income from abroad. Fifty-nine percent of undergraduate respondents reported receiving money from relatives outside Dayton while sixty-three percent of graduate students identified the same source of financial support. Nineteen percent of undergraduate students indicated that their financial assistance came from relatives in Dayton. Five percent of the graduate students receive assistance from their relatives in Dayton. Seventy-four percent of undergraduates and three percent of graduate students relied on their home government for support. Four percent of undergraduates and twenty-seven percent of graduate students worked to pay for part of their expenses. Nineteen percent of undergraduate students and twenty-four percent of graduate students reported receiving financial support from other sources.
Figure 7: Sources of Income

The money that international students earned through employment in the region – about 31 percent of their income – was treated as outside earnings. This assumed that if international students did not take these jobs, the positions would not be created or would be created in some other area(s). This theory is reasonable during periods of full employment, when the economy is producing using resources to the maximum capacity, but it may not strictly hold during periods of unemployment. Hence, international students may hold positions intended for American workers.

Given the information on the sources of funding of international and their expenditures in the Dayton-Springfield M.S.A, it is important to determine the economic impact of these students on the region. The hypotheses of the economic analysis are that 1) international students still provide a major monetary benefit to local economies because they spend most of their income where they reside; 2) post-September 11 strict immigration policies could limit the flow of international students, thereby creating a loss of income and cultural diversity, 3) policymakers and international educators must work together to find ways to encourage the inflow and retention of international students while ensuring the security of the American public.
b. Economic Impact of International Students on the Dayton-Springfield Area

In this section, we will use the actual number of foreign students attending W.S.U and other higher learning institutions to calculate the overall impact of their financial contributions on industries in the Dayton-Springfield M.S.A. Also, we will determine the resulting aggregate growth in output, earnings and employment.

Table 4: Budgetary allocation of W.S.U International Students in 2002

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average expenditure</th>
<th>Total expenditure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>$3,337</td>
<td>$2,115,658</td>
<td>17%</td>
</tr>
<tr>
<td>Food</td>
<td>$1,453</td>
<td>$921,202</td>
<td>8%</td>
</tr>
<tr>
<td>Education</td>
<td>$10,963</td>
<td>$6,950,542</td>
<td>57%</td>
</tr>
<tr>
<td>General Retail</td>
<td>$1,228</td>
<td>$778,552</td>
<td>6%</td>
</tr>
<tr>
<td>Utilities</td>
<td>$768</td>
<td>$486,912</td>
<td>4%</td>
</tr>
<tr>
<td>Health insurance</td>
<td>$598</td>
<td>$379,132</td>
<td>3%</td>
</tr>
<tr>
<td>Transportation</td>
<td>$805</td>
<td>$510,370</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>$19,151</td>
<td>$12,142,368</td>
<td>100%</td>
</tr>
</tbody>
</table>

W.S.U international students disbursed a substantial amount of money in the Greater Miami Valley Area. On average, each W.S.U international student spent $19,151 on basic necessities and tuition in 2002. The average expenditure was computed first by adding the expenses (in 2002 dollars) of surveyed international students in each category, and then by dividing the total amount by the number of survey respondents (or $1,704,478 / 89). Over fifty percent of that money serviced education-related fees, while the other portion went to living expenses. Housing fees constituted seventeen percent of the budget. Eight percent of the budget was used to purchase food. Six percent of the money was allocated to the general retail industry. Four percent of their income went toward utilities; an equal portion went toward transportation. Health insurance
represented three percent of the budget. The total living expenses of the entire international population at W.S.U are calculated by multiplying the average expenditure in each industry by 634, the total number of graduate and undergraduate students in 2002. In general, international students spent $2,115,658 on housing, $921,202 on food, $6,950,542 on education, $778,552 on general retail, $486,912 on utilities, $379,132 on health insurance, and $510,370 on transportation. These monetary figures represent the final demand or purchases from their respective industries.

Most regional economists argue that expenditures in particular industries have a ripple effect on aggregate regional industries and use regional IO multipliers to measure these impacts. Based on the work of Drake and Garnick24, the Bureau of Economic Analysis (B.E.A) compiled a method to calculate IO Multipliers in the 1970's, or Regional Input-Output Multiplier System (R.I.M.S). B.E.A updated R.I.M.S once in the 1980's, another time in the early 1990's and more recently in 1997 to reflect the demands of R.I.M.S' users.

The updated regional multiplier handbook offers five different types of multipliers: final-demand multipliers for output, earnings, and employment and direct-effect multipliers for earnings and employment. These multipliers tell us how much increase in total regional output (or earnings, or employment) is expected as a result of each additional dollar of sales, earnings, or each additional person employed in the production process of a region.

The final-demand multipliers for output are the bases from which all others multipliers are drawn. Each column entry in the final demand matrix indicates the

change in output in each row industry that results from a dollar change in final demand in
the column industry. The impact on each row industry is computed by multiplying the
final-demand change in the column industry by the multiplier for each row. The total
impact on regional output is the product of the final-demand change in the column
industry and the sum of all multipliers for each row except the household row. “The
household is not included to avoid double accounting because of the other row entries
already includes earnings paid to households” (BEA).

The final-demand multiplier for earnings is appropriate only when the researcher
knows the final demand change in income. Each column entry indicates the change in
earnings in each row industry that results from a dollar change in final demand in the
column industry. The impact on each row industry is computed by taking the product of
the final-demand change in the column industry and the multiplier for each row. The
total impact is computed by multiplying the final-demand change in the column industry
by the sum of the multipliers in each row.

The final-demand multipliers for employment apply when the researcher knows
the final demand change in income. In the final-demand employment multiplier table,
each column entry indicates the change in employment in each row industry that results
from a million dollars change in final demand in the column industry. The impact on
each row is calculated by multiplying the final demand change in the column industry by
the multiplier for each row. The total impact is calculated by multiplying the final-
demand change in the column industry by the sum of the multipliers in each row.

The direct-effect multipliers, on the other hand, take into consideration the initial
changes in earnings or employment. For earnings, each column entry indicates the total
change in earnings in the region that results from a dollar change in earnings in the row industry. The total impact on regional earnings is calculated by multiplying the initial change in employment in the row industry by the multiplier for the row (BEA). For employment, each column entry indicates the total change in employment in the region that results from a change of one job in the row industry. The total impact on regional employment is calculated by multiplying the initial change in employment in the row industry by the multiplier for the row (BEA).

We will use the total final-demand for output, earnings and employment multipliers in the following table since we already know the final-demand changes for each industry in the budget of W.S.U international students. Below is an excerpt from Table 1.4: Total final-demand multipliers and total direct-effect multipliers for the Dayton-Springfield M.S.A, from which we will use only the total final demand multipliers for the chosen industries.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Output/1/ (dollars)</th>
<th>Earnings/2/ (dollars)</th>
<th>Employment/3/ (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Farm Product</td>
<td>1.9666</td>
<td>0.4029</td>
<td>23.6951</td>
</tr>
<tr>
<td>Poultry and eggs</td>
<td>1.6384</td>
<td>0.3322</td>
<td>15.7771</td>
</tr>
<tr>
<td>Meat animals</td>
<td>1.8281</td>
<td>0.3632</td>
<td>18.8303</td>
</tr>
<tr>
<td>Miscellaneous livestock</td>
<td>1.7005</td>
<td>0.3713</td>
<td>20.1055</td>
</tr>
</tbody>
</table>

Footnotes
1. Each entry in column 1 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
2. Each entry in column 2 represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
3. Each entry in column 3 represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the
employment multipliers are based on 1997 data, the output delivered to final demand should be in 1997 dollars” (B.E.A).

Although the IO multipliers are quite disaggregated, the budget is required to fit the spending categories used by Kamara with the IO categories. Hence, the multipliers appropriate for the education category were the ones for the colleges, universities and professional schools industry (77.0402) because the money spent on tuition, books and supplies went to higher learning institutions. The multipliers for the eating and drinking places industry (74.0000) were used for the food category because not a single other industry represented the aggregate food industry. The multipliers for the retail trade industry (69.0200) were perfect for the general retail category as international students spent money on clothing and other retail items. The multipliers for new residential 2-4 unit structures industry (11.0102) were used for the housing category because international students usually rented 2-bedrooms apartments around campus to share the living expenses with roommates. The multipliers for the insurance agents, brokers and services industry were suitable for the health insurance category since health insurance was a service provided by an insurance company to the incoming international students. The multipliers for the local and suburban transit and interurban highway passenger transportation industry (65.0200) were perfect for the transportation category since cars or city buses were the most common modes of transportation. Finally, the multipliers suitable for the utilities category were the ones for the electric services (utilities) industry (68.0100) because most apartments renters pay mainly electric bills.

Table 5 provides a summary of multipliers applying to the categories in the budget.
Table 5: Total Final-Demand Multipliers for output, income and employment

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total Multipliers</th>
<th>Output</th>
<th>Earnings</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0102 New residential 2-4 unit structures</td>
<td></td>
<td>1.8833</td>
<td>0.4835</td>
<td>18.8</td>
</tr>
<tr>
<td>74.0000 Eating and food places</td>
<td></td>
<td>1.6884</td>
<td>0.4696</td>
<td>36.7</td>
</tr>
<tr>
<td>77.0402 Colleges, U. and P. S.</td>
<td></td>
<td>1.9338</td>
<td>0.6492</td>
<td>33.9</td>
</tr>
<tr>
<td>69.0200 Retail trade, except eating and drinking</td>
<td></td>
<td>1.6747</td>
<td>0.5164</td>
<td>29.4</td>
</tr>
<tr>
<td>68.0100 Electric services (utilities)</td>
<td></td>
<td>1.3693</td>
<td>0.2341</td>
<td>6.6</td>
</tr>
<tr>
<td>70.0500 Insurance agents, brokers and services</td>
<td></td>
<td>1.7476</td>
<td>0.6186</td>
<td>26.8</td>
</tr>
<tr>
<td>65.0200 Transportation</td>
<td></td>
<td>1.7005</td>
<td>0.5725</td>
<td>32.1</td>
</tr>
</tbody>
</table>

Each additional dollar of output delivered to final demand by the new residential 2-4 unit structures industry will lead to a $1.8833 increase in output for all industries, while it will create an increase of nearly 50 cents in earnings of households employed by all industries. Each additional one million dollars of output in the new residential 2-4 unit structures industry will lead to an increase in employment of 18.8 in all industries.

An additional dollar of output delivered to final demand by the eating and drinking places industry will lead to an increase of nearly $1.70 in output for all industries, while it will lead to an increase of over 46 cents in earnings of households employed by all industries. A million dollar increase in the same industry will lead to 36.7 additional jobs in all industries. The same analysis is valid for each subsequent industry.

Using the actual figures of W.S.U international students' spending, we can draw the following conclusions. The monetary impact of an additional $2,115,658 of output delivered to final demand by the new residential 2-4 unit structures industry is an increase of $3,984,419 (= $2,115,658 * 1.8833) in output of all industries, an increase of $1,022,921 in earnings of households employed by all industries, and an increase of 39.77 jobs in all industries. The financial impact of an additional $921,202 of output
delivered to final demand by the food industry is an increase of $1,555,357 in output, an increase of $432,596 in income, and an increase of 33.81 jobs in all industries. The impact an increase of $6,950,542 in final demand for education is a $13,440,958 increase in output, an increase of $8,725,870 in earnings, and an increase of 235.62 jobs in all industries. An increase of $778,552 in the final demand for retail trade leads to an increase of $1,303,841 in output, an increase of $673,304 in income, and an increase of 22.89 jobs in all industries. An increase of $486,912 in final demand for utilities leads to an increase of $666,729 in output, an increase of $156,081 in income, and additional 3.21 jobs in all industries. An increase of $379,132 in final demand for health insurance leads to an increase of $662,571 in output, an increase of $409,866 in income, and additional 10.16 jobs in all industries. Finally, the fiscal impact of international students’ transportation expense of $510,370 is an increase of $867,884 in output, an increase of $496,864 in earnings, and an increase of 16.38 jobs in all industries.

Assuming that other international students in the Miami Valley have similar spending patterns as W.S.U foreign students, we can estimate their budgetary allocation and the ensuing economic impact on the Dayton-Springfield M.S.A. There were 595 international students attending other universities and colleges in the Dayton-Springfield M.S.A. Table 6 provides the budgetary allocation of the other international students on industries in the area.
Table 6: Estimates of Budgetary Allocation of Other International Students (in 2002)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average expenditure</th>
<th>Total expenditure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>$3,337</td>
<td>$1,985,515</td>
<td>17%</td>
</tr>
<tr>
<td>Food</td>
<td>$1,453</td>
<td>$864,535</td>
<td>8%</td>
</tr>
<tr>
<td>Education</td>
<td>$10,963</td>
<td>$6,522,985</td>
<td>57%</td>
</tr>
<tr>
<td>General Retail</td>
<td>$1,228</td>
<td>$730,660</td>
<td>6%</td>
</tr>
<tr>
<td>Utilities</td>
<td>$768</td>
<td>$456,960</td>
<td>4%</td>
</tr>
<tr>
<td>Health insurance</td>
<td>$598</td>
<td>$355,810</td>
<td>3%</td>
</tr>
<tr>
<td>Transportation</td>
<td>$805</td>
<td>$478,975</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>$19,151</td>
<td>$11,395,440</td>
<td>100%</td>
</tr>
</tbody>
</table>

For each additional $1,985,515 of output delivered to final demand by the new residential 2-4 unit structures industry, there is an increase of $3,739,320 (= $1,985,515 * 1.8833) in the output of all industries, an increase of $959,997 in earnings of households employed by all industries, and an increase of 37.33 jobs in all industries. The monetary impact of an increase of $864,535 in final demand for food is an increase of $1,459,681 in output, an increase of $405,986 in income, and an increase of 31.73 jobs in all industries. The impact of a $6,522,985 increase in final demand for education is a $12,614,148 increase in output, an increase of $4,234,722 in earnings, and an increase of 221.13 jobs in all industries. An increase of $730,660 in the final demand for retail trade leads to an increase of $1,223,636 in output, an increase of $377,313 in income, and an increase of 21.48 jobs in all industries. For each additional $456,960 of output delivered to final demand by the utilities industry, there is an increase of $625,715 in output, an increase of $106,974 in income, and additional 3.02 jobs in all industries. An increase of $355,810 in final demand for health insurance leads to an increase of $621,814 in output, an increase of $220,104 in income, and additional 9.54 jobs in all industries. Finally, for
each additional $478,975 of output delivered to final demand by the transportation industry, there is an increase of $814,497 in output, an increase of $274,213 in earnings, and an increase of 15.38 jobs in all industries.

After adding the economic impact of international students attending W.S.U and other institutions in the Dayton-Springfield M.S.A, we observe that the aggregate output of all industries in the economic area went up by over $43.5 million. Moreover, these expenditures affected the earnings of households employed by all industries in the aforementioned area. Total earnings increased by nearly $13.6 million. Finally, aggregate employment in the economic area went up by over 701 jobs. Table 7 summarizes the economic impact of all international students’ spending on industries in the Dayton-Springfield M.S.A.

Table 7: Estimation of the Impacts of all International Students’ Expenditures on Industries in the Dayton-Springfield Metropolitan Area

<table>
<thead>
<tr>
<th>Industry</th>
<th>Expenses/ category (dollars)</th>
<th>Final-demand multipliers</th>
<th>Impact</th>
<th>Output (dollars)</th>
<th>Earnings (dollars)</th>
<th>Employment (jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>$4,101,173</td>
<td>1.8833</td>
<td>0.4835</td>
<td>18.8</td>
<td>$7,723,739</td>
<td>$1,982,917</td>
</tr>
<tr>
<td>Food</td>
<td>$1,785,737</td>
<td>1.6884</td>
<td>0.4696</td>
<td>36.7</td>
<td>$3,015,038</td>
<td>$838,582</td>
</tr>
<tr>
<td>Education</td>
<td>$13,473,527</td>
<td>1.9338</td>
<td>0.6492</td>
<td>33.9</td>
<td>$26,055,107</td>
<td>$8,747,014</td>
</tr>
<tr>
<td>General Retail</td>
<td>$1,509,212</td>
<td>1.6747</td>
<td>0.5164</td>
<td>29.4</td>
<td>$2,527,477</td>
<td>$779,357</td>
</tr>
<tr>
<td>Utilities</td>
<td>$943,872</td>
<td>1.3693</td>
<td>0.2341</td>
<td>6.6</td>
<td>$1,292,444</td>
<td>$220,960</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>$734,942</td>
<td>1.7476</td>
<td>0.6186</td>
<td>26.8</td>
<td>$1,284,385</td>
<td>$454,635</td>
</tr>
<tr>
<td>Transportation</td>
<td>$989,345</td>
<td>1.7005</td>
<td>0.5725</td>
<td>32.1</td>
<td>$1,682,381</td>
<td>$566,400</td>
</tr>
<tr>
<td>Total</td>
<td>$23,537,808</td>
<td>11.9976</td>
<td>3.5439</td>
<td>184.3</td>
<td>$43,580,571</td>
<td>$13,589,866</td>
</tr>
</tbody>
</table>

This economic impact study did not account for international students outside the Dayton-Springfield M.S.A. There were 18,668 international students in the state of Ohio. Let’s assume that the average expenditure of these students is comparable to the ones at W.S.U, we can then multiply the average expenditure in each industry category by the
total number of foreign students in Ohio to estimate the financial contribution of those students in the state economy (table 8). Table 8 does not include the multiplier effects. However, since leakages from the Ohio spending stream are likely to be smaller than leakages from Dayton, the Ohio multipliers would be bigger than the ones used for the Dayton-Springfield M.S.A. The leakages from the entire state’s spending stream would be smaller than the ones from Dayton because of the diversity of the industries in the state economy are greater than the ones in a smaller city, thus it is expected that more money would remain within the state than it would in a smaller city. Hence, if we were to compute the economic impact of international students’ spending on the entire state, we would find significant increases in aggregate output, earnings and employment.

Table 8: Estimates of budgetary allocations of International Students in Ohio

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average expenditure</th>
<th>Total expenditure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>$3,337</td>
<td>$62,295,116</td>
<td>17%</td>
</tr>
<tr>
<td>Food</td>
<td>$1,453</td>
<td>$27,124,604</td>
<td>8%</td>
</tr>
<tr>
<td>Education</td>
<td>$10,963</td>
<td>$204,657,284</td>
<td>57%</td>
</tr>
<tr>
<td>General Retail</td>
<td>$1,228</td>
<td>$22,924,304</td>
<td>6%</td>
</tr>
<tr>
<td>Utilities</td>
<td>$768</td>
<td>$14,337,024</td>
<td>4%</td>
</tr>
<tr>
<td>Health insurance</td>
<td>$598</td>
<td>$11,163,464</td>
<td>3%</td>
</tr>
<tr>
<td>Transportation</td>
<td>$805</td>
<td>$15,027,740</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>$19,151</td>
<td>$357,510,868</td>
<td>100%</td>
</tr>
</tbody>
</table>

An important question arises at this point: what would be the impact of the loss of all foreign students on the Ohio economy? The departure of all international students from Ohio would have a devastating effect on the economic, cultural and scholarly development of the state economy.
3. Employment after graduation

From the previous section, we understand that international students pour money into their residing communities, which fosters job creation, higher earnings and more goods and services produced. The loss of international dollars, expertise, and cultural diversity will be detrimental to the economy of host communities. Hence, businesses in the region should recruit international students either during their study for internships or after graduation for full-time positions. Most foreign students aspire to participate in the flourishing American economy, which imparts them with the practical and unique business practices of corporate America.

Like their American peers, a number of international students usually seek full-time employment after graduation to acquire practical experience in their field of study. Most of them justly believe that it is the only way to enhance their marketability, upon return to their home countries. While working in American companies, they educate their co-workers about thought patterns, cultural knowledge and business practices in their respective countries and often present alternative approaches to solving problems. All of which work together to benefit decision-making, marketing, and operations. Also, they facilitate business connections between America and their respective home countries, thereby adding more jobs to the market.

For the past four years, however, the U.S has experienced an economic slump, which has created a less than full-capacity use of creative international and national graduates. Dr. Traynor, Professor of Economics in the Raj Soin College of Business, explained that job losses occurred throughout the nation. U.S employment stands at nearly 130 million jobs, down 1.7 percent. Firms that usually hired recent graduates have
stopped hiring and are reluctant to offer paid internships. Recent estimates of the leading indicators show that the job market is picking up; however, this latest upbeat does not impress future graduates who are still pessimistic about the nation’s job market.

At the local level, Dr. Traynor reveals that the Miami Valley’s job market is still struggling. In 2003, total employment in Clark, Greene, Miami and Montgomery counties fell for the third consecutive year, he said. He further explained that recoveries in employment opportunities are expected to lag behind increases in GDP. Also, he expected firms to fill new jobs positions with experienced workers first before hiring new graduates.

Cheryl Krueger, director of W.S.U’s career services, said that students should visit the office and meet with an advisor one-on-one to begin their job search process. Krueger said they offer resume, cover letter, job search and interviewing help, but also recognized that no one strategy will work for everyone. The career services office does a lot of targeted recruitment where it co-host networking events and job fairs. She encourages students to visit the Career Services website for more information on programs offered to help students with their job search.

Even tough international students add to the American job market by bringing their unique experience, creativity and knowledge to American companies, they may not be given the opportunities to do so fully in the current job market atmosphere.

4. Social Impact in the Miami Valley

It is clear that international students provide large monetary inflows to their host communities but their contributions do not stop there. Though this study has not monetized the social benefits of international students on local economies, we will
examine the diverse multicultural programs patronized both by American and foreign people. For more than three decades, the Dayton International Festival Inc. has organized an annual multicultural festival called “A World A’Fair”, where American and foreign people come together during spring to experience international cuisine, dance, and arts from various country representatives. Initiated by Steven Lyons, W.S.U has its own multicultural festival, “the International Friendship Affair”, celebrated annually during spring. These cultural festivals and other events are the perfect vehicles to promote mutual understanding, to recognize the cultural richness and creativity of international people, and to boost Dayton’s diversity. In addition, the University Center for International Education at W.S.U sponsors “the International Friendship Program” which gives an opportunity to American families to interact with international students and eventually become a host family for the students.

The presence of international students in the region has promoted diversity and helped create new businesses, which cater to them. Restaurants and specialized food shops offer products coming from these international students’ countries. Even store chains such as Meijer, Kroger, and Dorothy Lane Market have an international food section to accommodate their growing international customer base.

The quantitative and qualitative impact analysis reiterates the financial and cultural benefits of having international students in local communities. Given these substantial contributions, international educators have asked policymakers to pass clear and fair immigration laws designed to allow the flow of international scholars into the U.S while protecting American citizens.
III. POLICY ISSUES

In this section, we will examine the history of immigration policies in the U.S and determine if it reflects the positive contributions of international students, scholars and professional in this country. We strongly believe that the latest regulations, designed to monitor the movement of international students in the U.S, have deterred the inflow of foreign students to the U.S.

Goodman explained that in the early part of the twentieth century, there was no policy for international scholars coming in the U.S (IIE Network). Eighty years ago, he contended, the Institute of International Education led a national effort to help foreign students who had dilemmas with the U.S immigration authority. At the time, U.S laws classified such students as immigrants subject to highly restrictive quotas imposed in 1917; hence, they were detained at Ellis Island (IIE Network). After multiple debates, the Institute was successful in having international students classified as temporary visitors in 1921. The Institute then developed a standard application form and process for international students to ease the identification process and needed paperwork required by university officials and U.S consular officers (IIE Network).

During the cold war, it became necessary for Americans to be knowledgeable about the world and allow future world leaders, through a U.S education, to learn more about American values. At the end of the cold war, U.S foreign policymakers did not foresee that other international ethnic conflicts could percolate in the U.S and in a way abandon an effective and cohesive international education policy. On February 26 1993,
the attitude of disinterest in international affairs changed when international terrorists bombed the World Trade Center. An investigation of the event revealed that one of the terrorists entered the U.S with a student visa and had planned to attend a university but later dropped out. According to an official at the U.S House of Representatives, the Immigration and Naturalization Services (I.N.S) had no way to estimate the number of international students coming to the U.S. with student visas who were in violation of their student status (Curry). Michael Becraft, acting deputy commissioner of I.N.S, corroborated these facts and added that the agency’s limited staff could not even begin to pursue violators due to obsolete databases and fraud at various stages of the visa process. Rep. Lynn N. Rivers, a Michigan Democrat, noted that Congress had been trimming agency payrolls in recent years to streamline government; however “we always want bigger government when we’re afraid,” she said (Curry). These shocking revelations have definitely turned the heat under the immigration agency.

1. Effects of Immigrations Policies on the Nation

We will examine how the events of September 11 have required tougher immigration policies to filter out future enemies of the U.S. At the same time, though, these policies have deterred an American higher education.

September 11 was definitively a turning point in American history because on that day international education and immigration policies became a national security imperative. Since post-September 11 investigations revealed that a few terrorists had been on student visas, it became imperative for Congress to adopt policies that would establish safe yet open relationships between the U.S. and the rest of the World.
In response to the attack, Congress passed the *Illegal Immigration Reform and Immigration Responsibility Act* to create an electronic reporting and tracking system for international students. A year later, there was still no national system tracking the movements of international students; however, efforts were made to test a pilot version of an electronic tracking system designed to trace the activities of students, professors and researchers of 21 universities. The Coordinated Interagency Partnership Regulating International Students (C.I.P.R.I.S) was the agency overseeing these tests. Developed in 2000, the Student and Exchange Visitor Program, an offspring of C.I.P.R.I.S, facilitated the introduction of the Student and Exchange Visitor Information System (S.E.V.I.S). Upon its inception, Becraft and Ryan both testified in favor of accelerating the use of S.E.V.I.S, which would monitor the whereabouts and enrollment status of foreign students in the U.S. The system would fill many of the security gaps that now plague I.N.S' current paper-based system, Becraft said. Mary A. Ryan, the State Department’s Assistant Secretary for Consular Affairs, said that financing the computerized student tracking system would be the quickest, most cost-efficient improvement that Congress could authorize to answer the security risks posed by foreign students.

The Bush administration requested $11.7 million to cover the first-year costs of the system; however, Senator Diane Feinstein, and college lobbying groups were calling for additional monies, $36 million, to finance the system. Higher-education officials said that though they supported increased monitoring of foreign students studying at their institutions, they objected to making the students pay a $95 fee to finance the tracking system. Such a cost would be a barrier to those students enrolling in U.S colleges, they said, arguing that the tracking system should be completely federally financed. David
Ward, president of the American Council on Education, supported the idea of a federally financed program through an annual appropriation to I.N.S. The Department of Homeland Security, on the other hand, has already expressed its desire to levy S.E.V.I.S fees on incoming international students.

A few months later, Congress passed the USA Patriot Act, which reinstated a January 30, 2003 deadline for colleges and universities to get I.N.S authorization to use S.E.V.I.S. In 2002, I.N.S gave the final approval to colleges and universities to use S.E.V.I.S; however, the system has shown many flaws. Colleges and universities have complained about the time consuming task involved in entering hand typed information required by S.E.V.I.S and the failure to connect S.E.V.I.S to colleges and universities’ own databases. In addition, S.E.V.I.S was unable to process J-1 visa applications, which most international professors and researchers had. In August 2002, improvements were made to SEVIS to allow universities and colleges to connect their databases to it. The U.S Department of State was scheduled to release regulations that would enable the tracking of J-1 visas through SEVIS25.

Throughout this period of national debate about S.E.V.I.S, Barmak Nassirian, Associate Executive Director of the American Association of Collegiate Registrars and Admissions Officers, wondered whether putting so much effort toward S.E.V.I.S might divert resources from more-effective security measures. He contended that government agencies should monitor both the entry and the stay of all visitors in the U.S rather than focusing strictly on students. According to him, the government demanded much more knowledge of backgrounds and itineraries before it issued a student visa than it asked

25 http://opendoors.iienetwork.org/?p=29411

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from the other 98 percent of visitors who entered the U.S under other visas. The I.N.S had no idea where tourists went or what they did after they entered the U.S.

In 2002, Congress passed the *Homeland Security Act*, which established the Department of Homeland Security as an executive department of the United States. The mission of the new Department is threefold: to prevent terrorist attacks within the U.S borders, to reduce the vulnerability of the U.S to terrorism, and to minimize the damage, and assist in the recovery, from terrorist attacks that do occur within the U.S. At the outset of his Homeland Security Council, President Bush expressed the need to tighten visa policies to protect U.S citizens. A number of lawmakers have proposed a six-month freeze on new foreign student visas until the inception of a tracking system for them. President Bush denied their request but strongly encouraged the cooperation between government agencies in fighting terrorist organizations, keeping suspected terror group associates out of the country, and locating any foreigners who were engaging in terrorism (Associated Press).

The follow-up of foreign students in itself is not a big concern among the international student community. What is disconcerting is the profiling of all international students, especially the ones from the Middle East, Southeast Asia and Africa. In an article written by Raymond Thibodeaux, Pakistani student Khurram Rauf expressed his concern about the immigration officials cracking down on Middle Easterners suspected of violating their student visas. He was among a growing number of international students fearing that the U.S government may violate their civil liberties by conducting improper searches of apartments and background checks. Paul Witter, a British student majoring in computer science, was not at ease knowing that his
information might be in the hands of any government agents. He said that he trusted the
system but not the people. Erline Germaine, a political science major from Haiti, was
also skeptical. She argued that this kind of practice slowly usurped people’s civil rights.
Other students voiced the same opinion but understood why the old system needed to
change. They warned that the U.S would lose potential students and scholars to other
countries who did not require so much. The last remark resonated at both the national
and the local level. Indeed, NAFSA revealed that other countries – i.e. the U.K, Australia
and Canada –launched aggressive recruitment strategies to attract international students.
The U.S share of the international student market dropped nearly ten percentage points
from 1982 to 1995, and further declines are expected if current practices continue.

2. Effects of Immigration Policies on the Local Area

We have seen that austere immigration policies are discouraging international
students from an American higher education. The purpose of this part is to look at the
effects of these policies on local universities and colleges.

The story of Mr. Hadi Hadizadeh is one in the long list of international scholars
who have been delayed in their application process or denied access to the U.S because of
stringent post-9/11 policies. Hadizadeh, a former graduate from Ohio University with a
degree in nuclear physics, was initially denied access to the U.S fearing that he might
divulge strategic knowledge and technologies to U.S enemies. Eventually, Hadizadeh
was allowed to enter the United States in October, after more than a year of interviews
with consular officials in Dubai.

In an interview conducted by Jessica Garringer, Mr. Steven Lyons, Director of
International Student and Scholar Services, explained that security issues discouraged

26 http://opendoors.iienetwork.org/?p=38408
foreign students from coming to the U.S to study. The problem was prevalent among graduate and post-graduate international students, who rather tried their luck in countries with lesser restrictions. Chief on a list of multiple limitations is the U.S National Security Council’s Technology Alert List, which hinders international students and scholars from studying certain scientific fields with potential military importance. Anyone studying those areas can be screened for months before being allowed to enter the U.S, even if they have previously studied or worked in the country for years. The list includes research areas with clear military significance, such as bio-weapons, navigation and laser technology, microbiology, much of chemistry and physics, and even seemingly mundane areas: urban planning, landscape architecture, housing and civil engineering.

Lyons further noted that W.S.U was continuing its efforts to internationalize its campus and was proud of its 650 international students from 60 nations during the academic year 2003-2004. Lyons explained that internationalization was not limited to students but also extended to faculty members willing to travel outside the U.S to gain practical international expertise. Overall, the internationalization of curricula is beneficial to American students and faculty who gain from the exposure to different cultures and systems.

In the end, whether policymakers like it or not, foreign-born experts lead America’s scientific community. Indeed U.S scientific leadership rests so much on international expertise that the American research community is now deeply worried about the effects of post-September 11 immigration controls on scientific exchange. The U.S has to attract the world’s best talent and a completely open research system is needed to do so. What policymakers need to understand is that not all Middle Easterners, Asians
Other foreign students, on the other hand, brave the odds by turning a bad situation into another life’s lesson and bring these international dollars to the communities of their choice. Standing there to help them are a few policymakers and international educators. This remnant is still working on a coherent international education policy that will 1) enhance the ability of legitimate international students to pursue higher education opportunities in the U.S, 2) attract students from strategically important regions of the world (including the Middle East and Southeast Asia), and 3) treat those who observe the terms of their visas as valued visitors while they are here and provide employment and internship opportunities to maximize their exposure to American society.

If the terrorist attacks taught us anything, it is that the U.S needs an international education policy that will reform the American educational system by targeting American students. This policy will 1) promote cultural and foreign language study in primary and secondary schools thereby ensuring the mastery of at least one foreign language upon college entry, 2) encourage the international expertise of Americans in strategic regions and fields of study, and 3) incorporate study abroad programs into every curriculum.

International students from Muslim and Arab countries, however, still wonder how the United States can simultaneously fight a war with people of a certain ideology and religion, and build lasting friendships with people of the same region. What are the guarantees that legitimate Muslim and Arab students will not get caught in the middle? Unfortunately, the other lesson of September 11 is that there are no guarantees. Innocent bystanders are often the first victims of a war. The lesson that must be learned is that American scholars need international expertise in all geographical regions as much as
international students around the world need to learn American values. International education is the best medium to achieve the goal of mutual understanding. Should the U.S sever its exchange relationships with the Middle East, Southeast Asia or any other region, and shut down the access for Arab and Muslim students to the U.S, the effects on national security would be devastating.
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