Journal of Global Business and Trade

Vol.10 No.2 November 2014

IAGBT
International Academy for Global Business & Trade

Journal of Global Business & Trade
Vol.10 No.2 November 2014
IAGBT

ISSN : 1946-5130

Journal of Global Business and Trade
Vol.10 No.2 November 2014

Published by
International Academy for Global Business & Trade
IAGBT
www.iagbt.com

ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

Perceptions of UP Los Banes Agribusiness Management Graduates on Their Job Preparedness

Jewel Joanna S. Cabardo[a] and Jeanette Angeline B. Madamba[b]

[a] *Department of Agribusiness Management and Entrepreneurship, College of Economics and Management, University of the Philippines Los Baños, Philippines*
[b] *Department of Agribusiness Management and Entrepreneurship, College of Economics and Management, University of the Philippines Los Baños, Philippines*

Received 5 August 2014 Revised 20 September 2014 Accepted 16 October 2014

ABSTRACT

This study primarily assessed the Bachelor of Science in Agribusiness Management (BSABM) degree program of UP Los Baños (UPLB) through its graduates' perceptions of their readiness on the job front. Specifically, the study focused on ascertaining the career paths taken by the graduates after attaining their degrees, identifying which subjects/skills the graduates perceived as having contributed to their job preparedness, determining the factors affecting the graduates' perception of their job readiness and recommending changes for the improvement of the BSABM curriculum based on suggestions obtained from the respondents. Data collection was done through a survey of 150 BSABM alumni selected through purposive sampling. Results from descriptive data analysis indicated that career paths, demographic characteristics, parameters pertaining to college life and job satisfaction indicated the respondents' preparedness for their jobs. Perceived gaps in their training by the graduates were recognized to suggest changes for the improvement of the BSABM curriculum.

Keywords: agribusiness, curriculum, job, management, perceptions, preparedness

Ⅰ. Introduction

It is widely touted that human capital is a nation's wealth. Likewise, a country's agribusiness sector is only as good as the human resources which manage it. Thus the job preparedness of a country's human resources hinges on how well educational and training institutions match their programs with government and industry requirements.

Tullao (2000) considers readiness of professionals to compete internationally from various perspectives. It can be viewed as an improvement of human resources as preparation for foreign competition here and abroad but also as an investment in human capital and part of expanding the infrastructure of the economy.

Human capital development through various forms of schooling and training aims to address the competitiveness of local professionals in light of a liberalized environment with accompanying social costs. The loss of educated manpower through brain drain, one of the social ills brought by overseas employment, may not be fully compensated through foreign exchange remittance flows into the economy. The problem of brain drain and the exodus of manpower to overseas

employment, however, are the result of the educational system's inability to create domestic demand for educated manpower. Retention of an educated manpower supply in the country shall reap the benefits of investment in human capital. (Tullao, 2000).

A recent labor market study, "Project Jobs Fit: The Dole 2020 Vision", conducted by the Philippine Department of Labor and Employment (DOLE), predicts that agribusiness will emerge as a key employment generator (KEG) in the next five to ten years since the agribusiness sector boasts a number of "hard to fill in demand posts." The recent developments in the Philippine agribusiness sector triggered investor interest in the industry, which opens up employment opportunities in Philippine agribusiness (Bureau of Local Employment, 2009). With bright prospects in the agribusiness sector, particularly as KEG, it is imperative to ensure that the human resource complement is more than ready and equipped for the challenges in the sector. Thus, this study is being pursued to determine how the students of the Bachelor of Science in Agribusiness Management (BSABM) can gauge their readiness on the job front as a BSABM graduate.

The study's main objective was to primarily assess the BSABM degree program of UP Los Baños (UPLB) through its graduates' perceptions of their readiness on the job front. Specifically, the study (1) ascertained the career paths taken by the graduates after attaining their degrees; (2) identified the subjects/skills the graduates perceived as having contributed to their job preparedness, (3) determined the factors affecting the graduates' perception of their job readiness, and (4) recommended changes for the improvement of the BSABM curriculum based on suggestions obtained from the respondents.

Ⅱ. Methodology

Data collection was done through survey questionnaires sent either via email or personal delivery to 300 BSABM alumni selected through purposive sampling. Out of the 300 released questionnaires, only 150 respondents became willing participants in the study. One of the limitations of the study is the respondent's willingness to participate and cooperate in the survey as a lot have chosen to withhold the information being required in the questionnaire. Data analysis was made through the use of descriptive data analysis.

Fraser (2003) defines job preparedness as the level at which an individual perceives he/she was equipped for the present job by his/her job training. Fraser came up with a list of variables that could be considered for job preparedness. For the purposes of this paper, we shall delimit our interest to the relevant issues from the BSABM graduates of the Department of Agribusiness Management (DAM), College of Economics and Management (CEM), UPLB. These variables include:

a. Demographic characteristics of the respondents
b. Career classification
c. Student performance using actual grades obtained
d. Skills/training developed during the under graduate program
e. Participation in extra-curricular activities
f. Perceived gaps in the curriculum
g. Suggestions made by alumni to improve the curriculum with respect to their job
h. Job satisfaction based on employment status, career type and retirement option for the current job position

The four point Likert-type scale (highly, moderately, slightly, not at all related) was used for selection of their perceptions of job preparedness. Employment outcomes considered included the time taken to get a job, job status (temporary or permanent), area of specialization (business or some other field), and job satisfaction. Confidentiality was assured and anonymity was enabled by assigning numbers to the questionnaires before processing. Questions requiring open-ended statements or comments cover the following topics:

a. Choice of course/degree
b. Participation in extra-curricular activities

c. Reasons for the kind of performance exemplified in subjects under the BSABM curriculum
d. Dream job or career
e. Degree of importance of courses taken under the BSABM curriculum
f. Level of job preparedness of graduates from the courses taken during college
g. Suggestions on curricular changes or improvements

Vreyens and Shaker (2005) adopted two categories of skills in his survey: general skills and technical skills. These disciplines are the major areas of study currently found in the approved national curriculum in agriculture universities. General skills include communication, management and computer while the technical skills are extension and training, horticulture, agronomy, animal science, food technology and agricultural economics. The study at hand attempts to capture the perceived skills and training that the BSABM degree was able to provide them so categorizing as such was found to be unnecessary.

The graduates were also asked to select two responses on a five-point scale and these pertain to the level of importance of the courses/subjects taken under the BSABM degree, which then translates to its effect on the level of job preparedness for the BSABM graduate.

Table 1. Level of Importance of the Courses/Subjects Taken under the BSABM Degree and Effect on the Level of Job Preparedness for the BSABM Graduate

Level of Importance		Level of Preparedness	
1.	Not applicable for the job	6.	Not prepared
2.	Not important	7.	Somewhat prepared
3.	Somewhat important	8.	Prepared
4.	Important	9.	Very prepared
5.	Very important	10.	Prepared

In a study by Beachboard and Beachboard (2010), they constructed the study variables which were further classified into independent, dependent and control variables. Participation in multiple enrichment activeties were combined into a single variable (ENRICH) while student participation in activities considered to be academically productive are internship/practicum, community service, formal learning community, and conducting research with a faculty member. For purposes of this study, the following variables were employed as shown in Table 2.

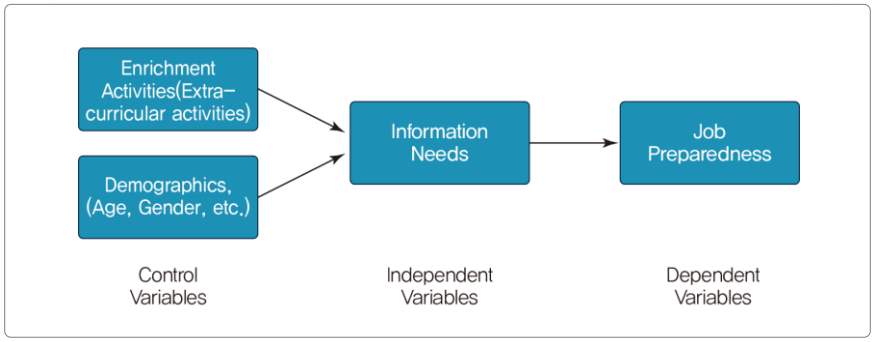
Table 2. Independent, Dependent and Control Variables Used in the Study

Independent Variable(s)	Information needs*
Dependent Variable(s)	Job preparation
Control Variable(s)	Enrichment (Extra-curricular) activities Demographic (age, gender)

Note: Information needs – is determined by the level of importance of a particular subject/course as perceived by the respondent in relation to his/her BSABM degree.

The conceptual framework of the study based on the research model developed by Beachboard (2010) is shown in Fig. 1.

Fig. 1. Conceptual Framework of the Research Study



Ⅲ. Literature Review

Beachboard and Beachboard (2010) examined the relationship between the assignment of higher order thinking activities during programs of study and student perceptions of the extent to which their universities have contributed to their general academic development and job preparation. Faculty members in general have wrestled with the pedagogical challenges associated with helping students in improving their critical thinking and communication skills. He further mentioned the identification of information needs and information-seeking behavior as the emphasis of the literacy concept rather than how information is actually used in most information literacy researchers. Yet the information-seeking and information-valuing processes are critical to the conduct of critical thinking (Beachboard & Beachboard, 2010). On the other hand, our study attempts to look into the information needs and information-seeking behavior more than how information is actually used according to the students' perception of their information needs with respect to his/her course and the respondents' interest on the subject/course at hand, respectively.

McDonald's study (2003) attempted to link job preparedness with employment outcomes, wherein the perceived level of job preparedness did not appear to influence employers in terms of offering permanent or temporary positions. Job preparedness is critical for the quality of expertise in the workplace so that if training does not adequately prepare the graduates for the workplace then the economy is at stake. The study of McDonald is considered timely and practical as it emerged at a time when there was stakeholder dissatisfaction, particularly employers who were concerned about their employees in relation to their preparedness for their jobs at hand. In today's information age, issues of efficiency, effectiveness, continuous quality improvement, and quality control standards appear to be the daily concern of employers. Moreover, use of highly trained personnel to mediocre ones favors a reduction in current available resources at workplaces, thereby pushing for the worldwide shift from individualism to globalization since the focus is on the employer taking responsibility for his or her own performance. Thus, this study is relevant in today's changing times and specifically, in trying to meet the demands of prospective students of the BSABM as well as their future employers. Moreover, this study could provide invaluable assistance to decision makers, planners, policy makers and stakeholders in industry. In addition, the academe could tailor instruction and pedagogical skills in curriculum delivery to include skills needed in industry thereby facilitating enhanced job performance on the part of employees. One notable limitation of the McDonald's study is that it did not investigate the interaction effects between factors like age, gender, present job status and other variables which the present study attempts to address.

Rogers and Taylor (1998) distinguished learning outcomes among four general areas: knowledge, understanding, skills/competencies and attitudes. The

study of Vreyens and Shaker (2005) focused on the skills or competencies, which are outward manifest-tations showing that someone knows how to do something and thus, reflects an understanding of principles and theory as one applies knowledge. One of the purposes of the present study is to ascertain the skills developed by students under the BSABM degree as well as the applicability of these skills in the workplace or their chosen careers.

Vreyens and Shaker (2005) made use of the skills-gap analysis as an outcome assessment tool designed to measure skills or competencies as well as the difference between expectations, or reality, and the needed ability or level of performance. The skills-gap analysis permits backward planning of the curriculum reform in the Agricultural Export and Rural Income (AERI) project wherein the expectations of skills and abilities desired by employers in college graduates compared to the perceived competency and use of these same skills on the job by recent graduates were measured. Moreover, it served to establish a baseline study for the purpose of setting new directions for curriculum revisions and reforms with the end goal of defining the skills necessary to educate market-ready graduates for the agricultural private sector in Egypt. In the case of the study being pursued, one of its aims is to identify the gaps where improvements in the curriculum are necessary.

Vreyens and Shaker (2005) focused on the survey of graduates in tandem with interviewed employers within the agriculture sector to rank the importance of this same list of skills compared with their assessment of the level of competence of newly hired university graduates. Overlaps in skills, especially in communi-cation, management and computer-related fields were still not being addressed in the curriculum. The same set of skills identified by both employers and graduates as essential or very important and reflecting a low level of preparation or competency. In such case, the study at hand initially looks into the side of the graduates making it a pilot assessment study regarding the BSABM curriculum.

Ⅳ. Results and Discussion

4.1. Career Paths

Fig. 2. Career Classification of BSABM Graduates

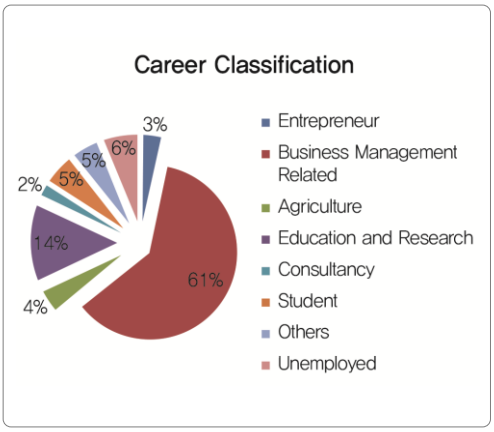


Fig. 2 shows the career classification largely under-taken by the BSABM graduates that fall under the business management related fields at 61 percent of total respondents. This implies the applicability of the BSABM curriculum in their careers as most of them have landed jobs covering the business functions: marketing (sales), personnel, production and finance.

This is followed by the Education and Research (14%), and the Unemployed (6%) career groups. The unemployed group also covers the graduates who have chosen to become full time housewives and those who have just resigned from a previous job.

On the other hand, the Entrepreneur group (3%) had the least number of respondents pursuing such a career. It can be noted that Entrepreneurs are also one of the expected careers to be undertaken by BSABM graduates since one may be expected to operate his own business in pursuit of this degree.

4.2. Skills and Training

The survey generated a total of 444 answers enumerating a list of skills, training or traits being required for the job of the respondent. Out of these responses, 82 sets of skills, training or even traits being called for by the respondents' jobs were tallied. The most sought after skills, training or traits are given in Table 3, the top three of which are communication skills, interpersonal/social/people networking skills and analytical/critical thinking.

The study results of Wachenheim and Lesch (2002) indicate an increase in communication course requirements or adding writing and presentation assignments to existing agricultural economics courses that help students become more proficient communicators. Moreover, they mentioned that the industry indicated that graduates need to be proficient in working and communicating with others.

In 2004, Wachenheim and Lesch added that graduates rated the general marketing and interpersonal skills as the most important for them, followed by tools that facilitate international marketing. These include an understanding of international business and culture, language fluency, and analytical and quantitative skills, wherein development of the overall manager in an international setting (e.g., from an in-country internship) is the secondary focus. Results of the present study support Wachenheim and Lesch's claim, particularly in terms of communication skills, interpersonal skills, and marketing skills (Table 3).

Table 3. Skills, Training or Traits Required for Careers of BSABM Graduates

	Skills/Training/Traits	No. of Respondents
1.	Communication skills (written and spoken)	43
2.	Interpersonal/social/people/networking skills	39
3.	Analytical/critical thinking	34
4.	Marketing concepts/skills	19
5.	Leadership	16
6.	Management/managerial experience	15
7.	Planning (strategic management)	14
8.	Technical know-how	13
9.	Basics in financial management	12
10.	Computer/IT	12
11.	Blank/No answers	12

Table 4. Reasons Why the BSABM Curriculum Partly or Did Not Prepare Them for the Job

• Ended up in a non-BSABM field	• Less exposure to field work
• Business is non-ABM in nature	• More realistic approach/real-life experiences
• Lack in computer applications	• Not prepared in the field of QSR
• Learn from work what is required for the position	• Training specific only for company
• Indirect application	• More knowledge on technical subjects
• Process of the whole BSABM experience not the course per se (character)	• Entrepreneurial experiences are highly required
• On-the-job training (OJT)	• Courses are mostly theoretical in nature
• Need for teacher to teach more practical courses	• More intensive training on the application of theories/case studies
• Understanding of economics and the financial world	
• A big part learned from my college organization and sorority	• A lot of subjects are not applicable or important

After enumerating the skills/training attributed to the BSABM degree, twenty-seven percent of the respondents answered that their undergraduate degree has prepared them for the job and they can find the above mentioned skills training or even traits being developed during their college years under the BSABM curriculum. On the other hand, 69 % said they perceive that the BSABM degree has partly prepared them for their jobs while 3% answered "No." Table 4 gives a listing of the reasons as to why the BSABM degree did not or just partly prepared them for the job with respect to what is being required of them in their workplace.

Ⅴ. Factors Affecting the Graduates' Perception on Job Readiness

5.1. Demographic Characteristics

A summary of the demographic characteristics such as gender, age, and civil status is shown in Table 5. With respect to gender, almost 61% female respondents participated in the survey. They say that perceptions of women and men vary greatly, but the data shows otherwise. On the other hand, the respondents under each age group are not evenly distributed. Thus, one could not infer the correlation of the respondent's age with respect to his perception of job preparedness. These three demographic characteristics indicate that regardless of their differences in gender, age, and civil status, one's perception of job preparedness generating a majority of responses that the BSABM degree has partly prepared them for their respective jobs.

5.2. General Weighted Average (GWA)

A student's general weighted GWA is seen as an indicator of his performance of his college academic performance which usually serves as a basis of getting hired upon graduation. In the study, two factors were identified as contributory to a students' job readiness with his GWA as one of the initial indicators. These include the background information in terms of making BSABM as truly his degree of choice and the other is the students' participation in extra-curricular activities.

Table 5. Demographic Characteristics of BSABM Graduates and Their Job Preparedness

Parameters	No. of Respondents	Percentage	Job Preparedness							
			Yes	%	Partly Yes	%	No	%	NA/ Blanks	%
Gender										
Male	59	39.33	17	11.33	40	26.67	2	1.33	-	
Female	91	60.67	23	15.33	61	40.67	3	2.00	4	2.67
Age Group										
20-29	118	79	31	20.67	79	52.67	4	2.67	4	2.67
30-39	22	15	3	2.00	18	12.00	1	0.67		
40-49	5	3	2	1.33	3	2.00				
More than 49	4	3	4	2.67						
Civil Status										
Single	125	83	32	25.60	86	57.33	4	2.67	3	2.00
Married	24	16	8	33.33	14	9.33	1	0.67	1	0.67
Separated	1	1			1	0.67				

5.3. BSABM Degree as 1st Choice

Fig. 3. Comparison of GWA of Respondents Who Made BSABM Degree Their 1st Choice Versus Those Who Did Not Respond

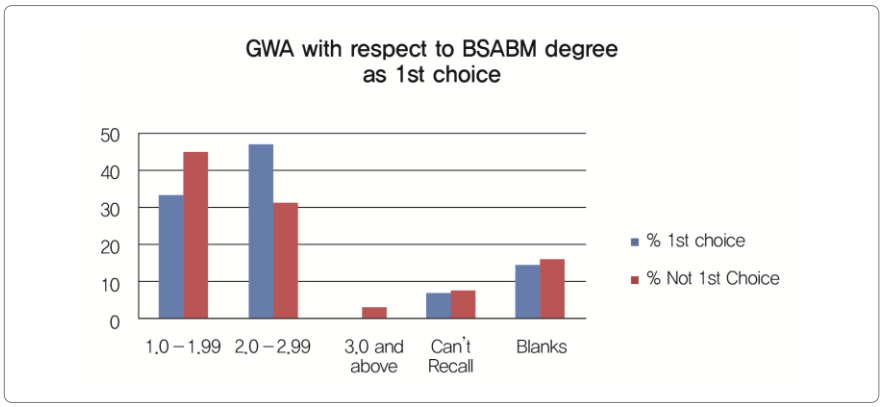


Fig. 3 shows the comparison of academic performance with GWA as an indicator. For the upper limit grade (1.00-1.99), those who did not choose BSABM degree as their 1st choice had better academic standing than those who made the BSABM degree their 1st choice. On the other hand, the case was otherwise for the 2.0-2.99 GWA range. This is somewhat contrary to what has been common knowledge that one tends to fail if he does not like what he does, i.e., the degree he is enrolled in is not his 1st choice.

A majority of the respondents (73%) were active in extra-curricular activities while the rest were not. Most of their reasons are shown in Fig. 4. This shows that higher GWA is achieved by students who are non-active in extra-curricular activities against those who are active. These can be attributed to the amount of time a student can allot for preparing for his subjects as compared with those who actively participate in extra-curricular activities and often have to deal with time management issues. Table 6 lists down reasons for being active and not active in extra-curricular activities.

5.4. Participation in Extra-curricular Activities

Fig. 4. Comparison of GWA of Respondents Who Were Active in Extra-curricular Activities Versus the Non-active Respondents

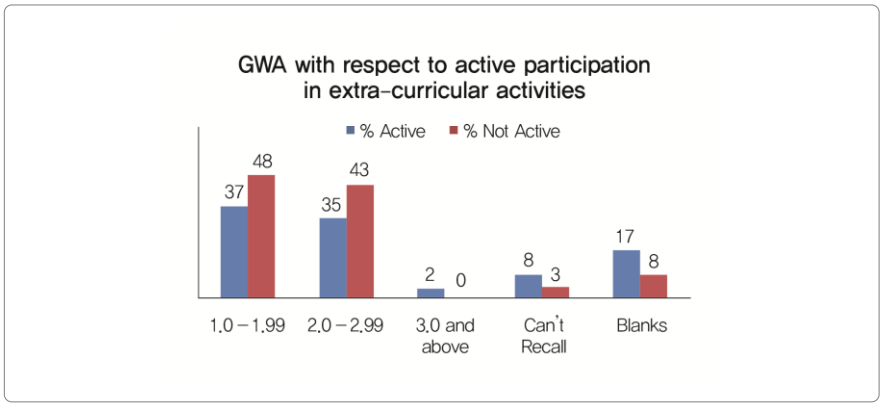


Table 6. Reasons for Being Active and Not Active in Extra-curricular Activities

Active	Non-active
• Holistic (i.e. personality, social and character development) • Learning • Enjoy life and more fun • Break monotony in school-house life • Widen horizons • Shared interests and hobbies • Enhance skills/capabilities not learned in class • Gain more friends and network building • Boost leadership skills • Harness skills and talents • Practice and application of the course • Balanced college life	• Focus on studies • Aim to graduate with honors • Maintain good academic standing for scholarship • Negative feedback on organizations • Constraint on time management and finances • Not interested • Not allowed by parents/guardian

VI. Time to Job after Graduation

At the time of the survey, six respondents were unemployed and have not yet had their first jobs. Only 144 respondents were considered in evaluating how long it took them to get a job right after graduation as summarized in Table 6. Out of 144 respondents, 85% were able to land a job within a year after graduation. Despite the short period of waiting for a first job, almost 67% of the respondents seem to think that the BSABM curriculum did not fully prepare them for the jobs they took while 28% perceive that they are ready for their jobs after undergoing training under the BSABM curriculum (Table 7).

Table 7. Time to Job after Graduation with Respect to Job Preparedness

Time to Get a Job	No. of Respondents	Percentage	Job Preparedness							
			Yes	%	Partly Yes	%	No	%	NA/ Blanks	%
Less than 12 months	123	85.42	35	28.46	82	66.67	5	4.07	1	
12 months to 24 months	16	11.11	3	18.75	13	81.25		0.00		0.00
More han 24 months	5	3.47	1	20.00	4	80.00				
TOTAL	**144**		**38**		**95**	**65.97**	**5**	**3.47**	**1**	**0.69**

VII. Job Satisfaction

Job satisfaction can be measured or evaluated in various ways. For this study, the researchers came up with these questions to get an initial assessment of their job satisfaction: (a) "Did they get their dream job/career as of today?" and (b) "Do they consider their current job as the last job they will be retiring from?" The following graphs indicate the following responses:

a. Yes-Yes: (a) Achieved their dream job; and (b) consider their present job as their last job till they retire.
b. Yes-No: (a) Achieved their dream job; and (b) do not consider their present job as their last job till they retire.
c. No-Yes: Achieved their dream job; (b) consider their present job as their last job till they retire.
d. No-No: (a) Achieved their dream job; and (b) do not consider their present job as their last job till they retire.

These combinations of answers were generated from the BSABM respondents as these responses were categorized using the following variables: (a) civil status; and (b) employment status of the respondent.

7.1. Civil Status

It is a common saying that one's civil status may affect an individual's way of life, actions and even way of thinking because of the responsibilities they hold as well as the change of status in society. The "single" group, who largely dominate the respondents' pool, are mostly young, dynamic, adventurous, and have not yet established a chosen career. The No-No response make up 64% of their answers as most of them are still starting on their respective careers wherein they still have not found yet their dreams jobs and do not see themselves retiring in the current position they hold. The Yes-Yes respondents have signified much enthusiasm and enjoyment in the jobs that they currently hold.

For the married respondents, the Yes-Yes answers make up 40% of the responses. Being married and having a family requires a stable career to sustain the family's needs and even wants. Thus, married people usually choose dream careers that they would want to retire into. For one to find such, he must be passionate about it and find fulfilment in the things that he ought to do till he retires.

7.2. Employment Status

Respondents were asked regarding their employment status and were classified as follows: (a) Employed full time; (b) Employed part-time; (c) Employed full time with also another part-time job; (d) Self-employed; and (e) Unemployed. These were evaluated with respect to the respondent's job satisfaction in their employment history. The same set of questions used in the civil status category generated the same set of answers. Only 121 respondents gave the abovementioned responses as the rest of the respondents gave vague answers such as:

- Yes-blank
- Yes-too early to tell
- Yes- blanks
- No-NA
- No-can't be determined
- No-blank
- Can't answer yet, still waiting
- Partly- can't say
- Blank
- Yes and no-not sure

For the respondents with full time employment status, 56% of the 98 respondents did not get their dream job as of today and do not consider their present job as their last job till they retire or the No-No response. This is because they did not get the opportunity to land their dream job, making them grab whatever kind of job is available, especially if there is a need for them to provide an immediate source of income right away upon graduation. Another reason is for those who have dreams of putting up their own business in the future, making them take any job that allows them to establish start-up funds for their future business. Lastly, others feel that they are still working their way up the corporate ladder, thus, their dream job is not yet within reach.

Four respondents are employed full time and yet still maintain part-time jobs while only seven respondents fall under the self-employed status. The self-employed respondents love what they do and pursue their passion, making them achieve their dream jobs and find a sense of fulfilment. Therefore, they see themselves retiring in this entrepreneurial career. The rest are either part-time employed or unemployed.

These days, it has already become difficult for one to find his dream job and also be able to work and consider this as your last job until you retire. This is because every individual still searches and aims for greener pastures. However, those who see themselves retiring in their current jobs could have found satisfaction and fulfilment in what they do such that even higher career positions or better income do not pose an opportunity or even a threat to the current position they hold.

Ⅷ. Gaps

In identifying gaps in the BSABM curriculum, courses/subjects taken were classified into the following categories: general education (GE), agriculture,

economics, management and electives. The respondents were asked under each category what they perceived as lacking.

Under the GE category, only 60 respondents gave their answers and the top 3 include (1) Language electives at 43%; (2) IT/Computer applications and programming at 30%; and (3) Communications and Research at 20%. Each respondent was allowed to give multiple answers.

For Language electives, most of the respondents find it very useful in their respective jobs, especially in dealing with foreign clients. Thus, they prefer the Chinese language. More so, in applying for a job, knowledge of a foreign language is an advantage, especially in business-related companies. In fact, according to Wachenheim and Lesch (2002), a better understanding of diverse cultures, international finance, customs, regulations, and other skills necessary to compete in a global environment are the requirements for future hires of firms competing in international markets.

Knowledge of IT/Computer applications and programming is a requirement these days. With fast-paced technology, the graduates should be able to keep up with such advancements. Basic MS applications such as MS Word, Excel and Powerpoint are also basic requirements for any common job these days which are not being taught as part of the curriculum. These things we learn as we do them and encounter them. These basic tools would enable our graduates to skip the training sessions on MS applications once they enter the real world.

Communication is not something to be learned overnight. From preschool days, students already have communications subjects to start with. From basic to tertiary education, communication becomes complex, yet there is a need to simply convey the message. Results revealed that both English courses, ENG 1, ENG 2 and SPCM 1 (Speech) seem to provide inadequate training ground for the graduates to be fully equipped in both written and oral communication. As most respondents have signified, they need training on business communication for both oral and written forms and improvement in their presentation skills.

Research skills, on the other hand, also require communication in the form of technical writing. ENG 10 (Writing Scientific Papers) ideally tries to address this need. However, one course in one semester is still not enough to cover research training. On the other hand, ABM 180 (Agribusiness Research Methodologies) and ABM 190 (Special Problem) could also help address this concern as research output that is specific for BSABM students is expected, making it more customized for future undertakings of the BSABM graduates. Moreover, an exploratory and learning mindset must be developed so that a certain research culture could be achieved.

For the Agriculture category, only a few concerns were raised such as food processing and emerging issues such as global trade, GMOs and organic farming. It is the desire of a few respondents to cover such topics during their undergraduate degree as a technical field. For electives, topics include contemporary marketing topics (i.e. internet market-ing), project management, culinary tourism, and diplomacy courses.

Some gaps identified in the economics courses include tools for Statistical analysis (i.e. TSP, STATA, etc.), economic concepts related to agriculture, and forecasting prices of various products using indicative commodity price fluctuations as long-term planning for viability of businesses. In management courses, a few special topics were identified such as business writing, advertising-related subjects, bestselling skills, making “Investment Management” as a major course, IT in agribusiness, supply chain management, and farm management.

In the case of the Economics and Management categories, these were given special attention since a large portion of a BSABM student’s academic load is covered by these two fields. In the questionnaire, the respondent was asked if the economics/management courses were enough preparation for their recent/ current jobs. For economics courses, 61% of the respondents answered YES while 31% answered NO,

implying the usefulness of basic economics concepts in their current/recent jobs. However, those who answered NO find it difficult to apply the concepts they have learned in their economics courses to their current jobs, particularly the higher economics courses such as ECON 101 (Macroeconomics) & ECON 102 (Microeconomics).

Alternatively, for the management courses, 59% of the respondents answered YES while 35% answered NO. A majority found the management courses to have really prepared them well for their careers. Some even mentioned how the case analysis and exposure to various cases have significantly contributed in developing analytical thinking. Despite the fact that there was no field of specialization on the four business functions, BSABM graduates become "jacks-of-all-trades", allowing them to become flexible in the career paths they took. Aside from that, the management concepts/principles, theories and even applications were evident in everyday situations making it useful not just for a BSABM graduate.

IX. Suggestions

Out of the 150 respondents, only 134 gave their comments/suggestions in addressing the perceived gaps in through their BSASBM and the changes for the improvement of the BSABM curriculum. The rest either left the question blank or just felt that such suggestions were not necessary.

A total of 274 suggestions were received from the respondents. The suggestions given by the respondents were classified into 83 categories. One respondent could have more than one suggestion regarding improvements on the BSASBM curriculum, thus all of these were considered with the most common answers summarized as follows:

9.1. Require an OJT/Internship/Practicum/ Apprenticeship Program

Many respondents expressed that after graduation, they have realized that it is necessary for one to at least have an idea of what it is in the real world through exposure, awareness and actual experience of working for a business firm. Most of them find it very useful in their careers, especially those who were able to undergo OJT/Internship/ Practicum/Apprenticeship programs since they had an opportunity to get hired by those companies for which they have become trainees, interns or apprentices.

9.2. Foster an Entrepreneurial Mindset and Hands-on Training

One of the expected careers of a BSABM graduate is to become an entrepreneur. In the BSABM curriculum, one of the subjects that prepares the students to become entrepreneurs is ABM 171, or the "Organization of Small Business" course. One of the suggestions is to include entrepreneurship in the curriculum. ABM 171 used to be offered as an elective so not all BSABM graduates get the hands-on training and exposure of becoming entrepreneurs for one semester. Just recently, ABM 171 was made part of the BSABM list of prescribed courses.

In addition, one of the recent developments in the Department of Agribusiness Management (DAM) which already addresses one of the suggestions of the respondents pertains to Entrepreneurship. The course is known as ENTR1: Unleashing the Entrepreneurial Spirit, which was institutionalized and has just recently been implemented as an RGEP course last 2nd Semester 2011-2012 with 200 students as its 1st batch of enrollees. This also led to the renaming of the Department of Agribusiness Management (DAM) to the Department of Agribusiness Management and Entrepreneurship (DAME) to accommodate such changes. This recent development hopes to address the honing of an entrepreneurial mindset not only of a BSABM student but any UPLB student with ENTR1 being an RGEP course.

9.3. Have a Specialization/Degree Major on the Four Business Functions

As BSABM graduates usually start at the bottom of the corporate ladder, they must perform a job in

which they have been specifically trained for. This would also give the student the opportunity to choose which area he/she wants to excel in as well as define the career path to take. The jobs offered by companies were highly specialized. Having at least a concrete background on a particular business function usually results in companies choosing someone with 'specific' degrees for a position. This has been one of the common problems raised by the respondents during the job applications when employers inquire about their major or specialization.

9.4. Include Computer and Information Technology (IT) Subjects to Enhance Knowledge of Software Programs such as SPSS

The use of software applications as tools aid in better understanding the practicality of various management subjects. Aside from IT as learning tools, this could also equip and prepare the students once they graduate and enter the real word. Even the basic knowledge of MS Office applications or knowledge of operating such programs would be an advantage for our graduates as they become part of the recruitment populace.

9.5. Expose Students and Make Them Aware of the Industry Practices and Developments/Trends and Updates.

As they say, it is not enough that a student limits his learning within the four walls of the university. The student should be able to exploit all possibilities that would allow him to learn more than from a book or from classroom knowledge. Field trips are being required in the major subjects in the BSABM degree, especially those being taken during their junior and senior years in college. This allows them to get a glimpse of what it is in the real world. Another could be continuous updates on the industry practices and development/trends through participating in seminars, symposia, workshops, conferences, and the like.

9.6. Incorporate Hands on Software for Quantitative Management Subjects and Other Management Related Applications

These days quantitative management subjects and other management courses make use of software specific for the said subjects. Adoption of such does not only foster learning but also practicality of usage in common applications of the said software.

The rest of the suggestions are widely spread in the pool of answers since perceived gaps among students vary considering that some changes have been incorporated in the curriculum through the years. One of which is the institutionalization of the Revitalized General Education Program (RGEP) starting from the 1st Semester of 2002-2003 for the UP Los Baños campus. The RGEP paved the way for the revision of the BSABM curriculum to accommodate other General Education (GE) Courses. Those who were covered by RGEP had the opportunity to choose more GE courses and adopt the modified BSABM curriculum as compared to those who pursued the BSABM degree through a prescribed curriculum.

X. Conclusion

The study has shown several factors that affect the job preparedness of BSABM graduates. Career paths chosen by the BSABM graduates are still business-related in nature. However, the entrepreneur career had one of the lowest percentages among the other careers in the sample. It is hoped that with the institutionalization of ENTR 1 as part of the revised BSABM curriculum the number of BSABM entrepreneur graduates can be increased.

Demographic characteristics such as gender, age and civil status did not show any significant difference in their perceptions of job preparedness, wherein most of them perceive that they only were partly prepared for job. The effects on the General Weighted Average (GWA) on the two factors such as (a) BSABM degree as 1st choice of course in college, and (b) participation in extra-curricular activities vary. On the other hand,

participation in extra-curricular activities have shown to have an effect on the academic performance of the BSABM graduates since more graduates who were not active in extra-curricular activities exemplified good academic performance. Eighty-five percent of the respondents were able to land a job within a year after their graduation, thus indicating that BSABM graduates are market-ready. Despite the short period of waiting for a first job, the majority of the respondents still seem to think that the BSABM curriculum did not fully prepare them for the jobs they took.

The most sought after skills, training or traits of BSABM graduates include Communication skills (written and spoken), Interpersonal/social/people/networking skills, Analytical/critical thinking, Marketing concepts/skills, Leadership, Management/managerial experience, Planning (strategic management),Technical know-how, basics in financial management, and computers/IT. These results can be supported by the study of Vreyens and Shaker (2005), which is a baseline survey of the skill gap between graduates' preparation to enter the labor force and the needs of prospective employers. The results of the study revealed the most critical skills required on the job compared to the level of preparation or competence which will be used for adapting the curriculum for all five faculties of agriculture. This is to ensure that market ready graduates enter the current agricultural labor force of Upper Egypt with the skills required by the private sector. Therefore, the skill gap identified by the present study's respondents must be addressed to ensure the market readiness of BSABM graduates.

Under the GE category, Language electives, IT/Computer applications and programming, and Communications and Research were the identified gaps. In Agriculture, food processing and emerging issues such as global trade, GMOs and organic farming were pointed out. Suggested electives include contemporary marketing topics (i.e. internet marketing), project management, culinary tourism, and diplomacy courses. Economics courses called for additional tools for statistical analysis (TSP, STATA, etc.), economic concepts related to agriculture, and forecasting prices of various products using indicative commodity price fluctuations as long-term planning for viability of businesses. In management courses, the list includes business writing, advertising-related subjects, best-selling skills, making "Investment Management" a major subject, IT in agribusiness, supply chain management, and farm management. Despite the identified gaps, a majority of the respondents found the economics courses and the management courses to have really prepared them well for their careers.

Suggested improvements for the BSABM curriculum are as follows: (a) require OJT/Internship/ Practicum/Apprenticeship program; (b) foster an entrepreneurial mindset and hands-on training; (c) have a specialization/degree major on the four business functions; (d) include computer and IT subjects for knowledge of software programs such as SPSS; (e) expose students to and make them aware of the industry practices and developments/trends and updates; and (f) incorporate hands-on software for quantitative management subjects and other management-related applications.

Career paths, demographic characteristics, parameters pertaining to college life and job satisfac-tion indicated varied effects on the respondents' preparedness for their jobs. The perceived gaps in training by the graduates as well as the suggested improvements could serve as a basis in looking into how future modifications could be made to address issues concerning the changing times. With the fast-paced technology environment that the agribusiness sector is faced with, the crafting of an improved BSABM curriculum would try to address the job preparedness of the BSABM. Doing such could eventually become a driver of change in the bigger picture wherein agribusiness plays a key role in the economy. Thus, well-equipped and high caliber agribusiness human resources would be a contributory factor for success.

XI. Recommendations

a. Further processing of data results, particularly in translating the descriptive data into corresponding

numerical data regarding the level of importance of a particular subject/course in the BSABM degree as well as the level of job preparedness of the respondent. Doing so could lead to the pursuit of other statistical data through means of research tools such as SPSS.

b. Conduct of periodic tracers such as every 5 years of our BSABM graduates to be made available for DAM-CEM to get regular feedback for future curriculum revisions. A regular update on the curricular program in order to keep up with the changes in the market, changes in technology and to benchmark with some of the best academic programs in the region are further suggested.

c. An exploratory research area also includes studying the industry counterpart, through invest-tigating the demands and requirements of the existing and prospective employers of BSABM graduates to ensure 'job-matching' is achieved upon graduation.

d. Pursuit of benchmarking studies in determining the relevant topics that could be offered and incorporated in the curriculum particularly in neighboring Asian countries to adapt to the changing times and globalization of agribusiness.

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ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

The Quantity-Quality Transition of Children: Evidence From The Philippines

Jana Crissia DC. Estacio[a] and Rodger M. Valientes[b]

[a] *Department of Economics, College of Economics and Management, University of the Philippines Los Banos, College, Philippines*

[b] *Department of Economics, College of Economics and Management, University of the Philippines Los Banos, College, Philippines*

Received 11 August 2014 Revised 24 September 2014 Accepted 20 October 2014

ABSTRACT

This study looked at the quantity-quality transition of children in the Philippines. Quantity-quality transition is the decline in lifetime fertility of women while increasing human capital investment per child. Using data from the 2010 Labor Force Survey (LFS), fertility and child-completed schooling models using Ordinary Least Squares (OLS), Ordered-Probit, and Probit were constructed to show the quantity-quality transition. The transition implies both slower rates of labor force growth and higher levels of human capital per worker, fundamental components of economic development. The level of education of mothers and fathers, place of residence, and household income were the household variables of interest used to influence the transition. Among the variables considered, mother's education provides the most convincing evidence of the quantity-quality transition of children in the Philippines.

Keywords: human capital, lifetime fertility, quantity-quality transition

Ⅰ. Introduction

The tradeoff between quantity and quality of children has been attributed to the rising marginal cost of both child quantity and quality. The trade-off has been recognized with the declining direct cost of childrearing and the rising opportunity cost induced by rising market wages and household income. Families experiencing affluence have been noted to substitute an additional unit of child for a specific amount of child investment. Perrin (2012) explained that the progressive rise in demand for human capital and changes in lifetime fertility habit stimulates the investigation of an interaction between education and fertility.

Montgomery, Kouamé, and Oliver (1995) said that the quantity-quality tradeoff has its roots in the perceived benefits and costs of child schooling; labor markets come to display significant differentials in earnings according to schooling level. Parents then begin to view schooling as an investment which may pay dividends in the future. Yet education is costly both in terms of direct and opportunity costs of foregone child labor; it is generally too costly for parents to give each child schooling and continue to bear the number of children appropriate to traditional circumstances. Some element of household expenditures must give way, and typically fertility falls as household investment in education per child increases.

The relationship between the quantity of child per household and the quality invested for each has always been an intriguing matter. It is apparent that a special negative relationship can be observed between them. The works of Becker, Duesenberry and Okun (1960), Becker and Lewis (1973), Becker and Tomes (1976), and Willis (1973) introduced a quantity-quality model such that a clearer picture of the relationship between family size and child outcome arose. The key feature of this interaction is that the shadow price of children with respect to their number (i.e., the cost of an additional child, holding their quality constant) is greater the higher their quality is; similarly, the shadow price of children with respect to their quality (i.e., the cost of a unit increase in quality, holding number constant) is greater, the greater the number of children. Therefore, parents would think twice before adding another child since it would not only increase the cost of an additional child but also the cost of its quality. One important key mechanism for the stimulation of the quantity-quality transition is the liquidity constraint (Montgomery, Arends-Kuenning, & Mete, 2000). In the study, it is argued that one basis of parents in deciding the amount invested in their child's education is the income they would generate in the future. Parents are motivated to invest in higher education as their child's potential future income increases. However, they are limited by present income. Take note that parents cannot borrow the future incomes of their child; therefore, parents cannot spend more than they currently earn.

With these in mind, the main purpose of this study is to identify the factors that induce the tradeoff while bearing in mind the systematic association between lifetime fertility and child schooling (two endogenous variable taken individually) which reflects the full set of opportunities and constraints facing household (Montgomery, Kouamé, & Oliver, 1955). The exogenous factors involved in the tradeoff should negatively affect lifetime fertility while positively influencing the investment in human capital per child. This relationship must be done simultaneously in order to showcase the presence of a quantity-quality transition. Specifically, this study aims to present evidence of a quantity-quality transition and identify family-level factors that contribute to its occurrence and to determine the rate of trade-off between quantity and quality of children.

This paper is organized as follows. The first section outlines some views on lifetime fertility and schooling that motivates the study. Following this, the study presents the quantity-quality trade-off models used and the estimations conducted. The final section presents a discussion of the results and conclusion.

VI. The Trade-off Models

Understanding the "quantity-quality transition" is essential in thinking about population policy (at least in the long term). Parents choose a combination of lower quantity of children and higher quality of children for a number of reasons. One reason is because increased child survival makes this a more viable childbearing strategy; it could be that better access to family planning services gives women the ability to choose a low lifetime fertility option. Furthermore, another important reason is because with economic development parents begin to see increased returns to investing in their children. Economic growth brings forth increased returns to human capital, including education and health. Parents begin to see that a child with good schooling can do well in the world. This is one of the reasons why parents move to a strategy of low lifetime fertility and high investments in their children.

With this in mind and with inspirations from the work of Montgomery, Arends-Kuenning, and Mete (1999), the models in this study start with the assumption that families and their decision making are grounded in an environment whose parameters are established by both markets and government. While some parameters are exogenous to the families, aggregated family-level decisions can shift the exogenous parameters (Montgomery, Arends-Kuenning, & Mete, 2000). The models assume a newly married couple making a decision about the number of children to bear

and the education to be invested in each child. The ability of the couple to produce children is being constrained not only by the reproductive years of the mother but also by the education investment that will continue to be made even after the reproductive years.

Using data from the Labor Force Survey (LFS) 2010 conducted by the National Statistics Office (NSO), a nationwide household survey, three models are estimated: (i) lifetime fertility model; (ii) woman's birth for the last five years; and the (iii) completed schooling model. The first two models show the quantity of children while the third refers to the quality of children.

2.1. Lifetime Fertility Model (Model 1)

To measure lifetime fertility and capture the long-run demand for quantity of children, the number of children born to a specific woman was assumed to be a function of the level of parent's education, residency, urbanity and permanent income. In functional form:

$$F = X\beta + \varepsilon \quad (1)$$

where F represents the number of children born to a specific woman as of the survey date and X is a vector of explanatory variables such as household income, geography/urbanity, age of mother, and the educational attainment of parents. Becker and Lewis (1973) said that income acts as a basis for deciding how much child to produce since it is the financial foundation that sustains the family. As family income increases, the impact on lifetime fertility is ambiguous since it results to an increase in the demand for another child and decrease in demand for market goods or vice versa, all other things constant. Hakim (2003) forwarded a contention that the education of parents influences their outlook on family perspective, consequently influencing their preferred number of child. In other words, the higher the educational attainment of parents, the lower will be their preferred or expected level of lifetime fertility. Households living in urban areas have relatively greater access to information about family planning and reproductive health as compared to households living in rural areas. In fact, according to Benefo (2005), average family or household size in urban areas tends to be smaller than in rural areas.

2.2. Woman's Birth within the Last Five Years Model (Model 2)

The second model determines if a specific mother had given birth within the last five years using the same explanatory variables with Model 1. This model captures the short term demand for children of an average couple and the decision of parents with regard to birth spacing. Equation 2 shows the model of women's birth within the last five years:

$$P_i = F(z_i) \quad (2)$$

where P_i is the probability of birth within the last five years modeled as a cumulative density function (cdf) of Z_i, where Z is a function of the same variables used in Model 1. Using probit, the model assumes Z_i is normally distributed. The dependent variable (D) will take the value 1 if the mother has given birth within the last five years and 0 otherwise.

2.3. Completed Schooling Model (Model 3)

The probability that a child may eventually reach and earn tertiary or even higher degree was estimated using an ordered probit analysis, modeled against the same independent variables used in Models 1 and 2 with an addition of covariates specific to a child. This method would be beneficial to know if the specific variables aid in the probability for a child to earn higher degrees of education. The functional form of the model is represented as:

$$\Pr(S_i = 4) = X\beta + \mu \quad (3)$$

where S represents the child's educational attainment [S = 1 no grade completed; S = 2 at most high school; S = 3 at most college; and S = 4 college graduate and beyond. The model centers on the probability of having the highest level of education (S = 4). With respect to the dependent variables, Becker and Lewis (1973) forwarded as contention that an

increase in family income also increases the investment in child schooling and investment in education of children is costly and it is imperative that sustainable income support must be present. Furthermore, Reich (2012) said that educational attainment of parents implies greater understanding of the relative weight of educational investment on child development, implying that higher educational attainment of parents can lead to a higher supply of schooling for their child. Urban and rural living denotes differences in access to education services and Benefo (2005) said that average child schooling in urban areas is relatively higher than in rural areas.

A trade-off or quantity-quality transition is evident if the exogenous variable negatively affects the demand for an additional child but at the same time increases demand for a child to attain higher levels of schooling. The signs imply the existence of the trade-off.

Ⅲ. Results and Discussion

This succeeding discussion presents how specific family-level factors affect the lifetime fertility and child schooling at the same time. The explanatory factors considered were mother and her spouse's education, classified as those with no educational attainment, at most high school (including elementary undergraduate, elementary graduate and high school undergraduate), at most college (including high school graduate and college undergraduate) and college and beyond (including college graduate, Masters and PhD), their residence (classified as either rural or urban) and an indicator of their permanent income measured by aggregate household wage per day.

3.1. The Data

Using data from the 2010 Labor Force Survey (LFS), a total of 18,017 households were considered and used for Models 1 and 2. Model 3, on the other hand, used a total of 41,260 children from the households in the earlier models.

Table 1 shows that a majority (about 72%) of the households in the sample have at most three children and about 56% of the children from these households attained at most high school (at least 10 years of schooling). A little over 8% of the children were able to complete at least a tertiary degree. Furthermore, approximately 41 percent of the households have mothers who have given birth for the past five years (reference year is 2010). Most of the households are from urban areas (55 %) and a large proportion of them (42%) have at most three children.

About 81 and 85 percent of the households contain mothers and fathers with at most high school to some college years of formal education respectively. It is also apparent from Table 1 that the educational attainment of children mirrors the educational attainment of their parents. It is interesting to note a large proportion of children who reached at most high school are from mothers who also reached at most high school. The same effect is also seen on father's education.

Ⅳ. Model Estimation Results

Table 2 presents the estimation results for the three models; the cumulative fertility model (Model 1) in Column 1, Probit regression (Model 2) was employed for the recent fertility model in Column 2, and Column 3 for completed schooling model (Model 3).

4.1. Lifetime Fertility Model (Model 1)

Table 2 shows that all the explanatory variables used to measure lifetime fertility are statistically significant. Note that relative to mothers with no formal years of education, lifetime fertility decline as mothers obtain or complete higher levels of education. If a mother finished at most high school to college and beyond, lifetime fertility falls by 0.485 to 0.804 units as compared to mothers with no formal education. This pattern is consistent with the observations of Basu (2002), Li, Junsen, and Zhu (2007), Breierova and Duflo (2004), and Hakim (2003). Increasing education

opens up more economic and gainful opportunities outside the home. With higher opportunity cost, mothers are expected to give up lifetime fertility. Also, being educated develops cognitive skills, deeper understanding, and more reformed decisions including reproductive health and fertility regulations.

The increasingly negative effect on lifetime fertility of increasing educational attainment is not robust for fathers' educational attainment. The negative effect on lifetime fertility can only be observed for households with fathers who managed to reach and finish college education and beyond. Furthermore, the model also shows that households living in urban areas have fewer children (-0.193) relative to households in rural areas. This can be explained by the fact that urban areas generally have a relatively higher cost of living and demands higher wages or income at least for subsistence to support a family. The direct effect of increasing wages on lifetime fertility on the other hand is positive albeit marginal (0.0004 per unit increase).

4.2. Woman's Birth within the Last Five Years Model (Model 2)

Most of the explanatory variables showed statistically significant results. If the mother attained at most high school, there is a 10 percent decrease in the probability of having recent births than those mothers with no formal education. If a mother attained at most college, there is a 9 percent decrease in the probability of a recent birth than those mothers with no formal education. Similar with the Model 1, no discernible decreasing pattern of decreasing fertility can be observed with regard to schooling of fathers. In fact, it appears that the negative effect on fertility of mother's education appear to be countered by their spouse's education level.

An increase in the household wage per day signifies a 0.000 percent increase in the probability of recent birth in an average household. Families living in urban areas have a 3 percent decrease in the probability of recent birth as compare to those in rural areas.

4.3. Completed Schooling Model (Model 3)

It is ostensible that the probability of a child in attaining the highest level of education increases with mother's educational attainment. If a mother has attained at most high school, the probability of a child to attain the highest level of education increases by 1% relative to mothers with no formal education. The likelihood or probability of child reaching and finishing college increases by 2% when mothers reached at most college and by 5% when mothers reached college or higher, relative to the children of mothers with no educational attainment. Excluding those with at most high school educational attainment, the same probability effect with mother's education applies with father's educational attainment. A father who had reached at most college increases the probability of a child to attain college or more by 0.04% as compared to fathers with no formal education. Consequently, if a father had reached the highest level of education, there is a 0.04% increase in the probability of a child to attain college or more. Highly educated fathers are more aware of their responsibility to the family. Heltberg and Johannesen (2002) emphasized this finding. These authors said that it is not the parent's education per se but the cognitive skills acquired in education.

Relative to families residing in rural areas, living in urban areas increases the probability of attaining the highest educational level. Specifically, if families reside in urban areas, there is a 0.09% increase in probability that a child would complete schooling relative to families living in rural areas. Living in an urban setting generally requires households to have a higher degree of education to economically participate and come to terms with higher cost of living. As such, families appear to be more focused on investing in the quality of each child rather than having another child.

Furthermore, an increase in household wage increases the probability of a child to finish or complete college more by 0.0003%. An increase in income tends to increase parents' motivation and improve their relative capacity to send their child in school. Households with relatively low-income tend

to have a reduced motivation to engage their child in schooling because of credit constraint or lack of resources at home, norms and role model which would encourage education investment, and lack of avoidance on activities leading to early pregnancy.

There is a 0.5% higher probability that a female child would attain college education than a male child. Heltberg and Johannesen (2002) said that gender asymmetries are significant for school admissions. Mother's education most commonly affects female child schooling while father's education probably is biased in male child schooling. There is a recent increase of awareness for mothers to attain education, thus, female children have given more access to education as well.

4.4. The Quantity-Quality Tradeoff

Quantity-quality trade-off exists if the variable in question negatively affects lifetime fertility and positively affects child's schooling. Table 3 summarizes the results presented in the earlier section. As shown in the table, there is a consistent quantity-quality trade-off present with mother's education. With respect to father's education, only those who finish college and above proved to influence the trade-off. The residence variable also gives a significant trade-off. Household wage also appears to promote transition.

4.4.1. Mother's Education

An interesting result is that better-educated women have lower lifetime fertility and equip their children with greater education. The negative effect of the woman's education on her lifetime fertility is apparent and the effects on the level or years of children's education are also substantively important. As the study seeks to understand the quantity-quality tradeoff, this variable merits prime consideration. Lifetime fertility reduction is apparent whenever a mother completes a level of schooling and an increasing probability for her current child to attain high school.

4.4.2. Father's Schooling

The schooling of the father tends to reduce fertility, although it is true only for fathers who reached and completed college. In fact, father's schooling generally has a positive influence on fertility. Where children's education is concerned, the father's schooling usually exerts a significant positive influence, although the magnitude of the effect tends to be smaller than for the woman's schooling.

4.4.3. Urban Residence

Access to family planning services and schools as mentioned earlier is enhanced in urban areas. Results indicate that urban residence is interesting in promoting the trade-off. It is ostensible that residence exerts an important positive influence on children's educational attainment.

The results showed that mother's education has a strong influence on the rate of tradeoff relative to other examined variables. Programs which would increase the access to education of parents, particularly mothers, would more likely improve human capital of their child and reduce lifetime fertility.

Ⅴ. Summary and Conclusion

Using the 2010 Labor Force Survey from the National Statistics Office, we verified the existence of quantity-quality trade-off in the Philippines and determined factors that explain its occurrence. Several family level variables were considered such as mother's education, father's education, residence and household income. Three models were used for analysis; lifetime fertility model, birth last five years model and completed child schooling model. The first two models where used to measure child quantity while the third was used for measuring child quality.

The quantity-quality transition exists if the explanatory variables negatively affect lifetime fertility while increasing the probability of a child to complete its schooling. The models showed that there is an

obvious tradeoff between quantity and quality of children. What is interesting from the results is the central role played by women's education. Much attention has been placed in the fertility effects of women's education, but less contemplation has been given to its influence on the education of children

One could deduce that better educated women have greater access to economic opportunities, consequently putting them and their household in a better spot to help meet the costs and finance the schooling of her children. Education of women likewise enhances their bargaining power in the household to secure more household endowments appropriated for investment in the education of their children. Education also enhances women's access to social capital and other relevant information that can help enhance their appreciation of the net benefits of investing in human capital.

In summary, the study points to the conclusion that children of better educated parents tend to be educated themselves. This observation is made possible by the ostensible quality-quantity transition of children as a robust response to women's education.

Table 1. Percentage Distribution and Means of Samples by Variable, 2010

Variables	Model I Number of Children Per Household N=18,017					Model II Birth last five years N=18,017			Model III Child Schooling N=41,260				
	1-3	4-6	7-9	10-13	Total	With birth last five years	Without birth last five years	Total	No Educational Attainment	At most High school	At most College	College and Beyond	Total
Number of Families	72.420	24.288	3.097	0.194	100.00	41.319	58.681	100.00					
Number of Children									8.413	55.633	27.722	8.233	100.00
Mother's Education													
No formal education	0.660	0.305	0.061	0.000	1.026	0.294	0.732	1.026	0.194	0.683	0.092	0.017	0.986
At most high school	28.939	12.499	2.115	0.122	43.675	15.935	27.74	43.675	4.062	28.657	12.133	1.987	46.840
At most college	27.785	8.753	0.794	0.050	37.382	18.167	19.215	37.382	3.032	19.050	11.287	3.345	36.714
College and beyond	15.036	2.731	0.128	0.022	17.917	6.923	10.994	17.917	1.125	7.242	4.210	2.884	15.460
Total	72.420	24.288	3.098	0.194	100.00	41.319	58.681	100.00	8.413	55.633	27.722	8.233	100.000
Father's education													
No formal education	0.599	0.345	0.117	0.000	1.061	0.439	0.622	1.061	0.215	0.902	0.172	0.016	1.304
At most high school	27.779	13.554	2.401	0.117	43.851	18.483	25.368	43.851	4.597	30.074	11.626	1.693	47.990
At most college	30.114	9.689	0.885	0.072	40.760	18.322	22.438	40.760	3.199	20.206	11.696	3.781	38.881
College and beyond	11.882	2.362	0.072	0.013	14.328	5.57	8.758	14.328	0.835	5.708	3.051	2.230	11.824
Total	70.374	25.950	3.475	0.202	100.00	42.814	57.186	100.00	8.845	56.889	26.544	7.721	100.000
Residence													
Rural	30.443	12.344	1.909	0.122	44.819	19.661	25.158	44.819	4.559	29.338	11.966	2.571	48.434
Urban	41.977	11.944	1.188	0.072	55.181	21.658	33.523	55.181	3.854	26.294	15.756	5.662	51.566
Total	72.42	24.29	3.10	0.19	100.0	41.319	58.681	100.00	8.413	55.633	27.722	8.233	100.000
Child's sex													
Male									4.697	31.425	14.675	3.563	54.360
Female									3.715	24.207	13.047	4.670	45.640
Total									8.413	55.633	27.722	8.233	100.000
Mother's age (years)					46.080			46.080					46.080
Household Wage (PhP)					490.787			490.787					490.787

Source: National Statistics Office (2010).

Table 2. Fertility and Schooling Models, 2010

Variables	Lifetime Fertility						Children			
	Model I Lifetime Fertility(OLS)		Model II Any Births last 5 years (Probit)				Model III Completed schooling (Ordered Probit)			
	Coefficient		Coefficient		dy/dx		Coefficient		dy/dx	
Mother's schooling										
At most high school	-0.485	***	-0.298	*	-0.085	*	0.714	***	0.010	***
At most college	-0.804	***	-0.365	**	-0.104	**	1.069	***	0.022	***
College and	-1.160	***	-0.216	**	-0.062	**	1.212	***	0.048	***

beyond										
Father's schooling										
At most high school	0.339	***	0.383	***	0.110	***	0.040		0.0003	
At most college	0.107	***	0 .250	***	0.072	***	0.291	***	0.0004	***
College and beyond	-0.144	***	0 .252	***	0.072	***	0.313	***	0.0007	***
Residence										
Urban	-0.193	***	-0.120	***	-0.034	***	0.083	***	0.0009	***
Household wage	0.0004	***	0.0001	***	0.000	***	0.0003	***	0.0000	***
Mother's Characteristics										
Mother's age	0.158	***	-0.059	***	-0.017	***	0.084	***	0.001	***
Mother's age ²	-0.002	***	-0.001	***	-0.0002	***	-0.0019	***	-0.000	***
Child's Characteristics										
Child's age							0.225	***	0.003	***
Sex							0.374	***	0.005	***
Constant	0.257		3.297	***						
No. of observations	18,017			11,917				41,260		
R^2	0.1322									
Pseudo R^2				0.2495				0.4193		

Source: Labor Force Survey (2010).

Notes: 1. * = significant at 10%, ** = at 5%, ***= at 1% .
2. The base dummy for educational attainment is no grade completed.
3. The base dummy for residence is ARMM.
4. The base dummy for sex is male.
5. Ordered probit cut-points are omitted.
6. The marginal effect if predicted outcome of Educational attainment of child is college and beyond.

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ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

An Analysis of Household Rice and Noodle Consumption in the Philippines

Jefferson Amparo Arapoc

Department of Economics, College of Economics and Management, University of the Philippines Los Baños, Philippines

Received 12 August 2014 Revised 27 September 2014 Accepted 22 October 2014

ABSTRACT

By applying a Seemingly Unrelated Regression Model on Family Income and Expenditure Survey (FIES) data, the study examines the relationship of household rice and noodle consumption in the Philippines. Results show that noodles are already a substitute good for rice, but rice is not a substitute good for noodles. In addition, their respective demand exhibits negative relationship with their own prices and positive relationship with respect to household income which supports the idea that both rice and noodles are normal goods. A number of significant variables on the characteristics of household heads suggest the importance of household heads in determining consumption decisions. These include age, sex, marital status and educational attainment. Spouse employment is also found to negatively influence rice consumption. Lastly, the study also reveals that households in the urban area, particularly in Luzon, which is the biggest island in the Philippines, are most likely to have lower demand for rice as compared to their rural counterparts. Meanwhile, the opposite is true for noodle consumption.

Keywords: consumption analysis, household consumption, noodles, rice

Ⅰ. Introduction

1.1. Rice and Noodles: Complements or Substitutes?

Rice is a good and cheap source of carbohydrates that are essential providers of energy. According to the Food and Nutrition Research Institute (as cited by Aguilar, 2005), rice and rice products remain the major source of carbohydrates to an ordinary Filipino, comprising 34 percent of Filipinos' total food intake in 2003. However, urban areas, particularly the National Capital Region (NCR), have registered considerably lower rice consumption than their rural counterparts. One possible reason for their relatively lower rice consumption is the fact that they are confronted with a variety of substitutes for rice. In support of this claim, Metro Manila posted the highest per capita consumption for other cereal products, including noodles. The same noticeable trend is true for households in the Southern Tagalog region. Such shifts in consumption are often ascribed to the heightening tempo of urbanization and industrialization. Aguilar (2015, p.15) points out that the demands of working in an urbanized setting could potentially change consumers' preferences and consumption habits. Workers in urban areas, specifically in Metro Manila, have higher valuation of time that forces them to allocate it more efficiently.

Since preparation of rice is time-intensive given that it cannot stand alone as a meal, workers may opt to reduce rice consumption in favor of other foods that are easier to prepare; making instant noodles one of the perfect commodities to replace rice.

On the other hand, the results from the Family Income and Expenditure Survey (FIES) conducted by the National Statistical Office in 2009 show that poor families, particularly in the lower middle class (0.34 percent), have higher percentage share of noodle consumption in total food expenditure. Aguilar (2015, p.17) states that existing anecdotal evidence reveals that poor families use instant noodles and its chemically-enhanced flavors as viand for rice; a pack of instant noodles serves as a supplement to make rice palatable for a whole family. In this case, a household's noodle consumption does not displace rice, but rather fish, meat, and vegetables, making rice and noodles complements. These conflicting claims and evidences, however, cast doubts on the actual relationship of rice and noodles in the context of household consumption.

In light of the abovementioned issues on rice and noodle consumption, this paper seeks to identify the relationship between the households' demand for rice and noodles. To be more concise, the objective of the study is to estimate a demand function for both rice and noodles in relation to its own price, cross price, household income, and demographics. These estimates are based on a microdata set which permits the measurement of demographic variables as well as prices and income effects.

Ⅱ. Conceptual Framework

2.1. Demand Analysis and Household Consumption Behavior

This study adopts the unitary model by Becker (as cited by Alderman, 1995) to establish the link between the household decision process and demand. As the framework posits, it assumes that the household acts as if it were maximizing a single utility function, in which households will avail a set of "goods" that will afford them the highest welfare or "utility" in consideration of resource constraints. Becker (1974, 1981) describes the head of a household as an individual with altruistic behavior to transfer income or other resources among the family members. Such behavior is manifested in the head's utility function:

$$U_{hh} = U(X_{hh}, \sum_{i=1}^{n} U_i) \quad (1)$$

Where U_{hh} and X_{hh} is the utility and consumption of the household head, respectively, andwhile $\sum_{i=1}^{n} U_i$ is the summation of other household members' utility.

Given that the utility of other members appears in the head's utility function in a purely consumption setting, we can now substitute $\sum_{i=1}^{n} U_i$ with $\sum_{i=1}^{n} X_i$, where $\sum_{i=1}^{n} X_i$ is the summation of other household members' consumption level as seen below.

$$U_{hh} = U(X_{hh}, \sum_{i=1}^{n} X_i) \quad (2)$$

By following the techniques of utility maximization, demand functions can be derived by setting up a Lagrangian expression. Solving the necessary conditions of a utility maximum for the optimal level of each goods will result in a demand as a function of prices and income as seen in the following equations.

$$x^* = x(p_x, p_y, \boldsymbol{I_H}) \quad (3)$$

$$x^* = x(p_x, p_y, \boldsymbol{I_H}) \quad (4)$$

The demand framework can be used to predict a household's level of consumption for these two goods with respect to exogenous parameters-income and prices-known as economic factors.

2.2. Demand Relationships with Income and Prices

Standard microeconomic theory suggests that it is natural to expect a rising demand for a particular good as a person's purchasing power rises, denoting that in normal circumstances, rising income has a positive

effect on demand. In contrast, increasing price of a given commodity decreases a person's purchasing power, which implies that own price and demand have a negative relationship. For some goods, however, the relationship of a person's purchasing power is negatively related with demand. Such odd cases are known as inferior goods. Meanwhile, the direction of cross price effects (effect of the price of a related good to a particular good) shows the demand relationship between these two goods. Positive direction of cross-price effects suggest that the involved goods are substitutes, otherwise, they are complements.

For this study, a demand function will be estimated for both rice and noodles. The estimated functions will be used to analyze the relationship of household rice and noodle consumption in the Philippines.

Ⅲ. Methodology

3.1. Model Specification

In this section, we describe the model used in this paper, which is the Seemingly Unrelated Regression Model (SUR) formulated by Zellner (1962). Like the Ordinary Least Squares model, SUR model is also a linear approximation of the observed responses in the dataset that minimizes its sum of squares. In this this study, linear demand functions for rice and noodles were estimated using the SUR method by considering a random sample of households, index $n = 1,2,..,N$, where each sample household has information on their quantity demanded for both rice and noodles, denoted by vectors $\boldsymbol{Y_{rice}}$ and $\boldsymbol{Y_{noddles}}$. The basic demand model for each good is a function of the aforementioned economic factors-including its price of rice (P_n^R), price of noodles (P_n^N), and income (I_n), other factors $\boldsymbol{\sigma_{nxa}}$ and an additive error term θ_n^{rice} and $\varepsilon_n^{noodles}$ for each estimated demand functions, to wit:

$$\boldsymbol{Y_{rice}} = \beta_n P_n^R + \gamma_n P_n^N + \delta_n I_n + \boldsymbol{\omega_{nxa}\sigma_{nxa}} + \theta_n^{rice} \quad (5)$$

$$\boldsymbol{Y_{noodles}} = \beta_n P_n^N + \gamma_n P_n^R + \delta_n I_n + \boldsymbol{\omega_{nxa}\sigma_{nxa}} + \varepsilon_n^{noodles} \quad (6)$$

Where β_n, γ_n, δ_n, and $\boldsymbol{\omega_{nxa}}$ are vectors of parameters to be estimated

However, since multiple demand functions were estimated, OLS models may overlook the possibility of these two equations to be "somewhat" related; especially in the case of demand functions where consumption decisions are not on a "take it or leave it" basis. Estimated equations may be related by the fact that a subset of the right-hand side variables are the same and/or there is a "contemporaneous" correlation among the errors across the two equations. An OLS estimated demand function can be considered contemporaneously correlated if disturbances across equations are correlated (Wooldridge, 2006). Mathematically, this can be shown by:

$$Cov\left(\theta_n^{rice},\ \varepsilon_n^{noodles}\right) \neq 0 \quad (7)$$

where the covariances of the error terms for both equations are not equal to zero.

In light of the potential drawbacks of solely using OLS, this study used SUR to address such problems. The SUR model is a generalization of multivariate regression using a vectorized parameter model, allowing for the simultaneous solution of the coefficients in closed form and producing estimates of the standard errors that take the contemporaneous correlations into account (Avery, 1977).

3.2. Data

The study used a sample of 76,868 observations by merging the 2006 and 2009 Family Income and Expenditure Survey (FIES) dataset, which contain income and non-income based indicators, and provides information on the socio-economic profile of households, to estimate the demand equation model for both rice and noodles. Regional prices of rice (per kilogram) and noodles (per pack) from the Bureau of Agricultural Statistics (BAS) and the Department of Trade and Industry (DTI) were also merged with the FIES dataset. Table 1 provides the summary statistics of the variables to be considered in the study, such as their

means, standard deviation, and minimum and maximum values.

3.3. Dependent Variables

Quantity demanded for rice and noodles were derived by dividing the total expenditure for both rice and noodles by their respective price. The result was also divided by the number of persons for family size to express the quantity demanded in per capita terms. The annual rice consumption of an average household ranges from 0 to 959.79 kilograms, and averages about 100.46 kilograms. Meanwhile, annual noodle consumption ranges from 0 to 896.91 packs, and averages to about 5.80 packs annually.

3.4. Explanatory Variables

To capture economic factors that could affect household demand for rice and noodles, data on retail prices for both goods and per capita household income were used in estimating the demand functions. The average retail price of rice ranges from Php23.09 to Php39.95 per kilogram, translating to an average of Php30.74 per kilogram. Obviously, a pack of noodles is indeed much more affordable than a bag of rice as its average retail price ranges from Php7.13 to Php9.52 per pack, translating to an average of Php8.26 per pack. Retail prices of respective goods are expected to negatively influence household demand for each, given the assumption that both rice and noodles are normal goods. On the contrary, we expect ambiguity in the relationship of cross-prices with respect to household demand for each good. This is because of competing anecdotal evidence on the connection between rice and noodles-which are either complements or substitutes. On the income side, household total income is expressed in per capita terms. Annual income of households ranges from Php1.58 thousand to Php10.11 million per capita, and averages about Php45.01 thousand per capita. This translates to an average income of roughly Php2.75 thousand per-capita. These Fig.s suggest that most of the sample is distributed on the lower end of the scale, and that sample households mostly belong to the lower income class. Higher income is expected to reinforce household demand for normal goods; therefore, income is supposed to have a positive relationship with demand for rice and noodles.

Characteristics of household heads are likewise specified in the model since they are believed to influence the household head's consumption demand decisions. By looking at the household profiles, the number of dependents is used to proxy for family size since the explained variables are expressed in per capita terms, where usage of family size may result in estimation problems. Family members below 7 and above 60 years old are considered dependents in this study. Household dependents range from 0 to 9 members, where an average household has approximately one dependent member. With regards to household heads, the mean age is approximately 49 years old and about 80.8 percent are males. Moreover, about 83.8 percent of the respondents are employed and 79.2 percent are married. On the education side, most household heads are either elementary undergraduates or graduates. In addition, the employment status of spouses is also taken into account. In a study conducted by Ashraf (2009), results show that spouse characteristics have causal effects on the financial choices of married individuals in the Philippines. According to the data, 39.8 percent of the spouses of household heads are employed.

About 58.6 percent of the respondents are from Luzon and 11.4 percent of these respondents are from the NCR. In the Mindanao region, there are more respondents compared to the Visayas region (9 percent more). Davao comprises the bulk of respondents from Mindanao with 5.4 percent, while Western Visayas respondents dominate the Visayan regions with 6.9 percent. Lastly, a year dummy variable is also specified in the model to capture the possible change in consumer preference over the years.

Table 1. Summary of Descriptive Statistics of Variables

Dependent Variables	Descriptions	Obs	Mean	Std. Dev.	Min	Max
Quantity_Rice	Per capital demand for rice	76868	100.5	47.2	0	959.8
Quantity_Noodles	Per capital demand for noodles	76868	5.8	11.8	0	896.9
Independent Variables						
Economic Factors						
Rice_Price	Average retail price of rice	76868	30.7	5.7	23.1	40
Noodle_Price	Average retail price of noodles	76868	8.3	1.0	7.1	9.5
Incper_Capita	Income per capita	76868	45010.6	77369.2	1576.2	10100000
Household Characteristics						
Age_hh	Age of household held	76868	49.24	14.00	11.0	99.0
Male_hh	1 if male, 0 otherwise	76868	0.81	0.394	0.0	1.0
Married_hh	1 if married, 0 otherwise	76868	0.79	0.406	0.0	1.0
Widowed_div_sep_hh	1 if separated/widowed/divorced, 0 otherwise	76868	0.17	0.375	0.0	1.0
Elem_hh	1 if elementary undergraduate/graduate, 0 otherwise	76868	0.42	0.493	0.0	1.0
Highschool_hh	1 if highschool undergraduate/graduate, 0 otherwise	76868	0.33	0.471	0.0	1.0
College_hh	1 if college undergraduate/graduate, 0 otherwise	76868	0.22	0.413	0.0	1.0
Employed_hh	1 if employed or with business, 0 otherwise	76868	0.84	0.368	0.0	1.0
Dependents_hh	Number of dependents below 7 and above 60 years old	76868	0.99	1.001	0.0	9.0
Spuse_employment	1 if wife is employed, 0 otherwise	76868	0.40	0.489	0.0	1.0
Community Characteristics						
Urban	1 if urban, 0 otherwise	76868	0.45	0.498	0.0	1.0
Ilocos	1 if from Ilocos region, 0 otherwise	76868	0.06	0.236	0.0	1.0
Cagayan	1 if from Cagayan valley, 0 otherwise	76868	0.05	0.217	0.0	1.0
Central_Luzon	1 if from Central Luzon, 0 otherwise	76868	0.08	0.271	0.0	1.0
Calabarzon	1 if from Calabarzon, 0 otherwise	76868	0.09	0.293	0.0	1.0
Mimaropa	1 if from Mimaropa, 0 otherwise	76868	0.04	0.203	0.0	1.0
Bicol	1 if from Bicol region, 0 otherwise	76868	0.06	0.234	0.0	1.0
Wester_Visayas	1 if from Western Visayas, 0 otherwise	76868	0.07	0.254	0.0	1.0
Central_Visayas	1 if from Centeral Visayas, 0 otherwise	76868	0.07	0.247	0.0	1.0
Eastern_Visayas	1 if from Eastern Visayas, 0 otherwise	76868	0.05	0.221	0.0	1.0
Zamboanga_p	1 if from Zamboanga Penninsula, 0 otherwise	76868	0.04	0.200	0.0	1.0
Nothern_Mindanao	1 if from Nothern Mindanao, 0 otherwise	76868	0.05	0.208	0.0	1.0
Davao	1 if from Davao, 0 otherwise	76868	0.05	0.227	0.0	1.0
Soccsksargen	1 if from soccsksargen, 0 otherwise	76868	0.05	0.218	0.0	1.0
Car	1 if from Car, 0 otherwise	76868	0.04	0.197	0.0	1.0
Armm	1 if from Armm, 0 otherwise	76868	0.04	0.201	0.0	1.0
Caraga	1 if from Caraga, 0 otherwise	76868	0.04	0.200	0.0	1.0
Year Variable						
Year 2009		76868	0.50	0.500	0.0	1.0

Ⅳ. Results and Discussion

Results of the study provide supporting evidence of the law of demand for both goods, where rice prices are negatively related to quantity demand for rice, which is also true for the demand for noodles and its own price. The negative relationship between the demand for both commodities and their espective prices reveals that rice and noodles are both normal goods. Meanwhile, price of noodles is a significant factor affecting household demand for rice; the price of noodle has a positive relationship to rice consumption. It only shows that noodles can be considered a substitute good for rice.

Meanwhile, per capita income significantly induces household rice and noodle consumption. This supports the idea that larger income translates to higher household purchasing power. These results are consistent with the previous assertion that rice and noodles are normal goods.

Most household characteristics happen to also influence the demand for both rice and noodles. Estimates reveal that almost all household head characteristics included in the model, except for employment status and spouse employment (for the case of noodle consumption), significantly influence household rice and noodle consumption. Results suggest that older household heads are more likely to

induce higher rice and noodle consumption compared with their younger counterparts. We can deduce that older head of households placed more importance on food consumption, causing them to allocate more funds for both rice and noodles.

Interestingly, it was shown that households that are led by males are more likely to consume rice than its counterparts. This relationship could be explained by the fact that males, in general, have voracious appetites for rice; in effect, male household heads could induce higher rice demand for the entire household. On the other hand, the opposite results are found for noodle consumption.

As gleaned from the results, a household's number of dependents positively impacts household rice and noodle consumption. This result is quite intuitive since more people are expected to generate higher demand for both commodities.

Marital status has also a significant impact on households' consumption of rice and noodles. Estimates show that a married household head has a higher tendency of consuming both commodities. The same results are also reflected for households led by divorced, separated or widowed heads.

As expected, higher educational background for the household head would induce higher rice and noodles consumption. Educated people are expected to consider the importance of food in a household. Household head employment, on the other hand, appears to be insignificant with regard to influencing demand for both commodities. This is intuitive because rice and noodle intake is common in almost any type of household.

Lastly, estimates suggest that a spouse's employment status is negatively related to household rice consumption. Aside from the fact that cooking rice is relatively time consuming, rice alone could not be considered a meal without viands (e.g., Filipino viands such as *sinigang*, *menudo*, among others) that are also hard to prepare. Employment of spouses would mean less time to allocate for household production (e.g., cooking); thus, spouse employment is believed to deter rice consumption. For noodle consumption, spouse employment is not a significant variable.

The estimates show that urbanization has a significant negative effect on household rice consumption. Such result is consistent with literature which states that people living in urban areas are confronted with a lot of substitute goods for rice. Meanwhile, the Visayas variable has a positive relationship on the demand for rice. We can expect that rice consumption remains to be higher in the Visayas region as compared to Luzon. On the other hand, the Mindanao variable is insignificant. One possible reason for this outcome is the presence of other commodities that can substitute rice as a source of carbohydrates in the Mindanao region. Interestingly, the opposite is true for the case of noodle consumption. Urbanization has a significant, positive effect on household consumption of noodles. This result supports the claim that urban living lifestyle favors convenience in consumption; making noodle consumption a favorable option. In addition, both regional variables, Visayas and Mindanao, have significant negative relationships with noodle consumption. This only proves that noodle consumption is more pervasive in the Luzon region as compared to Visayas and Mindanao.

Remarkably, households in 2009 were said to consume more rice than their counterparts in 2006, regardless of the unfortunate events that transpired between the two periods; this includes the looming global food crisis, the price crisis, and the height of the Global Financial Crisis, which all transpired in 2008.

Table 2. Parameter Estimates for Demand for Rice and for Noodles

Dependent Variables	Descriptions	Obs	Mean	Std. Dev.	Min	Max
Quantity_Rice	Per capital demand for rice	76868	100.5	47.2	0	959.8
Quantity_Noodles	Per capital demand for noodles	76868	5.8	11.8	0	896.9
Independent Variables						
Economic Factors						
Rice_Price	Average retail price of rice	76868	30.7	5.7	23.1	40
Noodle_Price	Average retail price of noodles	76868	8.3	1.0	7.1	9.5
Incper_Capita	Income per capita	76868	45010.6	77369.2	1576.2	10100000
Household Characteristics						
Age_hh	Age of household held	76868	49.24	14.00	11.0	99.0
Male_hh	1 if male, 0 otherwise	76868	0.81	0.394	0.0	1.0
Married_hh	1 if married, 0 otherwise	76868	0.79	0.406	0.0	1.0
Widowed_div_sep_hh	1 if separated/widowed/divorced, 0 otherwise	76868	0.17	0.375	0.0	1.0
Elem_hh	1 if elementary undergraduate/graduate, 0 otherwise	76868	0.42	0.493	0.0	1.0
Highschool_hh	1 if highschool undergraduate/graduate, 0 otherwise	76868	0.33	0.471	0.0	1.0
College_hh	1 if college undergraduate/graduate, 0 otherwise	76868	0.22	0.413	0.0	1.0
Employed_hh	1 if employed or with business, 0 otherwise	76868	0.84	0.368	0.0	1.0
Dependents_hh	Number of dependents below 7 and above 60 years old	76868	0.99	1.001	0.0	9.0
Spuse_employment	1 if wife is employed, 0 otherwise	76868	0.40	0.489	0.0	1.0
Community Characteristics						
Urban	1 if urban, 0 otherwise	76868	0.45	0.498	0.0	1.0
Ilocos	1 if from Ilocos region, 0 otherwise	76868	0.06	0.236	0.0	1.0
Cagayan	1 if from Cagayan valley, 0 otherwise	76868	0.05	0.217	0.0	1.0
Central_Luzon	1 if from Central Luzon, 0 otherwise	76868	0.08	0.271	0.0	1.0
Calabarzon	1 if from Calabarzon, 0 otherwise	76868	0.09	0.293	0.0	1.0
Mimaropa	1 if from Mimaropa, 0 otherwise	76868	0.04	0.203	0.0	1.0
Bicol	1 if from Bicol region, 0 otherwise	76868	0.06	0.234	0.0	1.0
Wester_Visayas	1 if from Western Visayas, 0 otherwise	76868	0.07	0.254	0.0	1.0
Central_Visayas	1 if from Centeral Visayas, 0 otherwise	76868	0.07	0.247	0.0	1.0
Eastern_Visayas	1 if from Eastern Visayas, 0 otherwise	76868	0.05	0.221	0.0	1.0
Zamboanga_p	1 if from Zamboanga Penninsula, 0 otherwise	76868	0.04	0.200	0.0	1.0
Nothern_Mindanao	1 if from Nothern Mindanao, 0 otherwise	76868	0.05	0.208	0.0	1.0
Davao	1 if from Davao, 0 otherwise	76868	0.05	0.227	0.0	1.0
Soccsksargen	1 if from soccsksargen, 0 otherwise	76868	0.05	0.218	0.0	1.0
Car	1 if from Car, 0 otherwise	76868	0.04	0.197	0.0	1.0
Armm	1 if from Armm, 0 otherwise	76868	0.04	0.201	0.0	1.0
Caraga	1 if from Caraga, 0 otherwise	76868	0.04	0.200	0.0	1.0
Year Variable						
Year 2009		76868	0.50	0.500	0.0	1.0

Ⅴ. Conclusion

Results in this study provided evidence on the validity of the law of demand for both rice and noodles. It can be deduced that household consumption decisions for both goods are responsive to changes in price and income. In addition, the study also offered insights on the relationship of these two commodities. Results suggest that the consumption of rice is affected by the price of noodles, indicating that noodle consumption is a substitute for rice consumption.

Moreover, the study also reveals the importance of household heads in the household consumption decision process. Household head characteristics such as age, gender, marital status and educational attainment are proven to affect motivation for the consumption of both rice and noodles. By extension, it can be deduced that household heads can influence household food intake that would be crucial in the nourishment of the entire household.

Lastly, results also reveal that rice consumption remains to be more prevalent in the Visayas region, as compared to Luzon and Mindanao. On the other hand, the study validated the anecdotal hypothesis that noodle consumption is more common in urban areas, specifically in the Luzon area, as compared to rural counterparts.

Ⅵ. Limitations of the Study

Since the study only used the FIES dataset, there is a suspected omitted variable bias, particularly as the data is not able to capture important indicators such as

provincial income (or level of economic activity), number of rice/noodle retailers in the province, and religion (or other variables that would capture taste and preference). The study also fails to capture the elasticities of demand (own-price, cross-price and income elasticities) because of the presence of households with zero consumption of rice or noodles in the FIES dataset, limiting the model to be in level-level form. Inclusion of elasticities could potentially deepen the analysis on the relationship of prices and income with respect to the demand for rice and demand for noodles.

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ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

Plans for the Reorganization of Korea's Rules of Origin System Preparation for the Unification of Trade between the South and North

Won-Gil Cho[a] and Kyung-Soo Cho[b]

[ab]*Department of International Trade, Namseoul University, South Korea*

Received 17 August 2014 Revised 28 September 2014 Accepted 22 October 2014

ABSTRACT

North-South trade has virtually been suspended due to the front of the May 24th Action due to the Cheonan Incident occurrence on March 26, 2010. Increased inter-Korean economic cooperation projects allowed construction of the Kaesong Industrial District, which started at Geumgang Mountain tourism in 1989. However, as unification is expected to take place in our nation, and not far into the future inevitably many feel, trade is expected to grow significantly even before the unification of North-South trade.
In particular, recent government initiatives in Eurasia (2013.10) actively promoting unification through Infrastructure, etc., now is the time necessary for restructuring measures laid across the customs administration.
The purpose of this study is to present the issues and problems related to the restructuring plan of customs system of preferential trade expanding to meet the objectives of these inter and non-preferential rules of origin compared with the north-south trade expansion and associated rules of origin.

Keywords: country of origin, country of origin regime, inter-exchanges, inter-trade, non-preferential origin, preferential origin, unification

Ⅰ. Introduction

The inter-Korean economic cooperation started in 1989 with the development of the Kaesong Industrial District in Geumgang Mountain. However, trade between North and South Korea has been suspended due to the May 24th Action, or the provisional suspension of inter-Korean trade brought by the Cheonan sinking incident on March 26, 2010. Despite this development, it is still expected that the resumption of trade and the unification of the North and South will take place in the near future.

The cooperation between the North and South was institutionalized through the 1992 North-South Basic Agreement. This resulted in the enactment of rules for the customs administration and rules of origin which included the origin verification and validation criteria for traded goods.

Recent government initiatives in Eurasia 2013.10 actively promoted the unification of the North and South through infrastructure development, among others. Hence, this is the opportune time to lay down

the necessary restructuring measures in the customs administration.

The purpose of this study is to present the issues and problems related to the restructuring plan of the customs system on preferential trade. The aim is to develop rules of origin that are responsive to the expansion of trade between the North and South.

Ⅱ. A Comparison between the North and South Korea's Preferential and Non-preferential Rules of Origin for Traded Goods

2.1. The Concept of Preferential and Non-Preferential Rules of Origin

2.1.1. Preferential Rules of Origin

Preferential rules of origin (preferential ROO) are applied when trade partners enter into trans-boundary agreements that exempt or cut the tariff of certain traded goods. The parties who signed the agreement determine the imported goods that will become the target of preferential tariffs. In other words, all regional trade agreements (RTA) contain preferential rules of origin. It provided preferential measures among member countries of the Free Trade Agreement (FTA) and the Customs Union. It classified the goods to be subjected to preferential tariff measures and preferential exclusion.

Preferential rules of origin, as a fundamental element of regional economic integration, attempt to prevent free-riding (also called trade deflection) of offshore goods that qualify for the preferential tariff (or low import tariff) among the FTA countries.

In addition, preferential rules of origin are applied to grant tariff preferences on a unilateral or bilateral basis, without applying first the most favored nation (MFN) principle of the 1994 General Agreement on Tariffs and Trade (GATT). Preferential tariffs under the Generalized System of Preferences (GSP) apply to regional economic communities such as the European Union (EU), the North American Free Trade Agreement (NAFTA) and that of developing countries (e.g. GSTP, TNDC, APTA).

In recent years, the exclusive trade regime that applies low tariffs and tariff agreements is common. Hence, the preferential rules of origin have become popular around the world, but it is relatively more strict and demanding than the non-preferential rules of origin.

The ROO stipulates that the laws, regulations and administrative decision that would apply to determine the country of origin of a product is composed of origin criteria, proof of origin, destination and origin verification method, among others.

The Asia-Pacific Trade Agreement (APTA) and Global System of Trade Preferences (GSTP) adopted a process based origin of added value. In FTA, negotiations are complicated by mainstream value-based criteria specific processes and a composite benchmark.

2.1.2. The Non-preferential Rules of Origin (Non-preferential ROO)

The non-preferential rules of origin (non-preferential ROO) are being harmonized among WTO member countries. The rules are being used for all kinds of commercial policy measures such as anti-dumping duties, countervailing duties, origin, safe-guards, discriminatory quantitative restrictions and trade policy instruments. Distinguishing the origin of the goods facilitates government procurement and trade statistics.

The national law of the importing country may prescribe the criteria for determining the origin of the imported goods. However, the WTO's unified rules of origin provided the basic principles and the recent international trend so that the rules of origin of different countries will be harmonized (Choi Yang-Sik, 2005).

Countries around the world used the Kyoto Convention Annex as the basis for the rules of origin. The WTO agreement harmonized the non-preferential rules of origin for each country.

Under the GATT 1994, the non-preferential rules of origin apply to preferential trade policy measures such as the most-favored-nation treatment, anti-

dumping duties, countervailing duties, safeguard measures, origin marking requirements and nondiscriminatory restrictions.

Moreover, the GATT 1994 Article 1 granted the exception of the anti-MFN trade agreements and preferential trade agreements to some developed countries when giving preferential tariff treatment to developing countries. The preferential rules of origin are used when a Generalized System of Preferences (GSP) is practiced.[5]

With respect to non-preferential rules of origin, the WTO Rules of Origin Agreement (Agreement on Rules of Origin), determines the rules on uniform standards that apply to certain items.

In the case of the two Koreas, the background and objective of the rules of origin may have differences when the national law, with its regulatory provisions, and the governing FTA are considered. Table 1 shows the applicable law systems on preferential and non-preferential rules. It is apparent that here are several laws that governed the rules of origin when the treaty and domestic law are considered.

Table 1. Country of Origin Applicable Law System

Division	Treaty	Domestic law
Preferences Areas	<FTA preferences> FTA (current 48 countries fermentation)	<FTA preferences> FTA Tariff Act on Special Cases
	<Between developing countries preferential> APTA, TNDC, GSTP	<General Preferences> - Customs - Grant preferential tariff provisions for least developed countries
Non-preferential areas	The WTO Agreement on Rules of Origin	- Foreign Trade - Customs - Law on South-North cooperation - Agricultural and Fishery Quality Control Act - Act on the process screen display and advertising
Preference / non-preference	WCO Kyoto Protocol (Annex K)	- Foreign Trade - Customs

2.2. Preferential Rules of Origin for the Traded Goods of the Two Koreas

2.2.1. The Significance of the North and South Preferential Rules of Origin

The preferential rule of origin is an agreement on traded goods agreed upon by certain parties. Once concluded, the rules provide policy for the waiver or reduction of tariffs. The preferential rules of origin of the two Koreas refer to the tariff exemption of the North Korean goods. The trade between the North and the South involves the sale, exchange, lease, use, and transfer of goods between North and South Korea.

Preferential rules of origin include the direct transfer of goods between the two Koreas as well as via a third country. Even if a third country moved the goods between the two Koreas, the North-South trade corresponds to the export-import. When South Korea imports North Korean goods which are thereafter exported to a third country, the goods are classified as imported goods due to the North and South Trade Practices.[6]

North-South trade was also characterized by consignment arrangement, i.e. exports of goods after processing the raw materials of the product. In general,

5 Notice also the sub-regulation of the Ministry of Unification, Ministry of Industry Trade, The Agriculture, Forestry and Fisheries and Customs, among others.

6 North and South Korea could trade goods and services (including intellectual property which includes intangible goods in electronic form) in accordance with the Article 50 Tariff Schedule and Customs Act, Chapter 98, Article tariff classification tables and statistics integration. Intangible goods items and services and electronic form, which means the prescribed items Article 2 and the Enforcement Decree No. 1 and Article 4 and Article 3 of the foreign Trade.

China, acting as a broker, is involved in the trilateral North Korean agricultural products import business. Consignment processing in trade refers to the traded goods that were brought back after it was processed. In other words, the raw materials were processed by another party in North Korea.

The North-South trade is distinguished from other imported goods in terms of cross-border transactions. Cross-border transactions are transactions inside and not based on ethnic origin. It does not impose customs duties and other import charges for imported goods that have been confirmed by the North.

Therefore, the Law on South-North Korea trade customs cooperation to import or to export the goods does not impose tariffs on inter-Korean trade since it is considered a trade within a nation.

2.2.2. Preferential Rules of Origin Related to North and South Korea Trade Goods

As the special rules of origin for the North and South Koreas trade in goods have already been implemented in 1992, the Agreed Framework has been adopted after the South-North cooperation was institutionalized. The rules of origin, including verify-cation and validation criteria of the traded goods of the two Koreas were determined by the Act on the North-South cooperation. It implements a policy that North and South Korea will establish a separate Notice of Special Rules of Origin on trade goods on the customs administration (Go Jun-Seong, 2007).

The country of origin criteria and inter-related transaction agreements for goods were formulated. In the same agreement, the full production standards with regard to origin criteria essentially stipulates the criteria and disclaimer transformation process in relation to the essential characteristics of the goods that have been transformed based on a sufficient level of actual production for processing or manufacturing process.

In addition, the same agreement is made to specify the detailed standards in the country of origin. The rules that will apply in the future on both sides are still being negotiated by the Origin Working Committee.

The Notice of the Inter Trade Goods Customs Administration (Customs Announcement No. 2013-38, 31/05/2013 Revised) Chapter 3, "Law on South-North cooperation, Article 26, Article 50, paragraph 2 of the Enforcement Decree and Regulations" establishes the requirements necessary for the origin verification pro-cedures on how goods traded between the South and the North in accordance with the agreement, (herei-nafter referred to as the South-North Origin agreement) regarding verification of origin of goods traded in the two Koreas (South-North Origin Agreement, 2003).

There is economic cooperation between the North and South as implied by the basic spirit of the Joint Declaration which was agreed upon by the two parties. The agreement includes the origin verification methods and procedures for goods traded between the North and South as a nation with intercompany transactions.

In Chapter 5 of the customs administration, the origin verification criteria prescribed for the trade of goods between the North and the South was based on the items and the substantial change. There are three variants based on the HS 6 units of standard copper. There is no provision for machining processes by item basis or value-added basis.

The Regional Trade Agreement (RTA) made the applicable tariff based on rules of origin important. The increase in tariff changes depending on the country of origin. When the effect of the company's investment throughout the production system, including import and export trade, is considered, the legal system becomes a problem.

Preferential rules of origin are different from non-preferential rules of origin. Unlike the rules of origin determined in accordance with national laws, the structure of trade negotiations between the parties, including industry sensitivity, trade or negotiating power and the contents of each agreement become very complex.

Various preferential rules of origin are also side effects of cross-talk that occurs on the enforcement and implementation costs (compliance cost) as it increases the spaghetti bowl effect. Moreover, in each of the agreements on preferential rules of origin, domestic

legislation is necessary to implement a distributed system in a number of laws and regulations because the disruption and inconvenience had been gradually increasing.

International agreements containing preferential rules of origin involve a situation in which the relevant domestic legislation has been promoting a system where South Korea is not recognized as the country of origin of North Korean Kaesong products.

In addition, there remains a debate regarding the legal aspects of the trade between North and South Korea (Choi Won-Mok, 2008).

2.3. Comparison between the Origin of North and South Korean Trade

2.3.1. Problem Recognition Specificity and Origin of North and South Korea Trade

Trade between North and South Korea are to be carried out in a special relationship. A variety of international legal rules are based on fundamental logic and do not apply to transactions inside the nation. The "Special Act on the Implementation of the WTO Agreement" prescribes that transactions between the North and South Korea are not seen as a deals between the country .Under this Agreement it is considered as a nation of intercompany transactions.

The international community has a 'Korean origin' recognition problem. These products should be recognized as the nation expanded the internal business foundation for the Kaesong Industrial Complex business. The production projects under the North and South economic cooperation in the Kaesong Industrial Complex recognized the logic that Korea is the origin.

In fact, the government settled the Kaesong Industrial development of inter-Korean economic cooperation in the district according to the principles and practices of the nation's internal transactions and stipulates that the international community should try to accept this recognition. The law on the Kaesong Industrial District is supported and backed by law (Choi Won-Mok, 2008).

However, for North Korean goods, there is no problem in sensitivity to South Korea and the United States because it is regulated by the enemy countries for trade law (Trading with the Enemy Act of 1917, USA). It grants preferential treatment to the North Korean goods.

The agreement signed by North Korea and South Korea with regards to inside trading was a bilateral treaty between the South and the North. However, South Korea violated its obligations to multilateral treaties under GATT with a third country. The multilateral treaties block provisions of the bilateral treaty between the North and South.

In addition, the terms of the WTO Subsidies Agreement with other member states were allegedly violated. An ethnic insider trading claim is directed toward seeing North Korea as part of the territory (one Korea). Consignment processing trade with South Korea is not a reward for the deal between the states. The products that are processed in the North and imported into the South bear a problem.

South Korea will not provide foreign aid to North Korea, but it provided a variety of support for the domestic industry under the WTO Subsidies Agreement.

For South Korea, it is necessary to go beyond the national insider trading logic to get the 'Korea country of origin' recognition for Kaesong exports. It must provide a logical development and institutional arrangements that are internationally accepted.

The trade of goods between the North and South is governed by the "Act on North and South Cooperation." The country of origin and customs, particularly in the case of the Kaesong area, was specified in the Act.

For the final production of goods in the North, the Unification Ministry announced an agreement for the North and South on the notice regarding the origin verification of the South-North traded goods (the two Koreas originating notice). The Customs, which announced the "Notice of the Inter Trade Goods Customs Administration," will determine the country of origin through the North-South trade goods customs examination.

In December 2004, the companies at the Kaesong Industrial Complex (KIC) started production. With respect to the goods produced, the "Kaesong Industrial District Notice regarding the import and export goods vehicle traffic clearance" (Customs Notification No. 2014-6 Issue) origin criteria is applied.

The raw materials are exported from the Southern part to be manufactured and processed at the Kaesong Industrial Complex. The goods will be imported back to the South again. The North-South trade goods customs administration origin criteria provides special provisions for these imported goods.

Accordingly, in 2003, the special provisions for the Kaesong Industrial Complex exported goods were enacted. It unified the "Notice regarding the origin verification of the South and the North of trade goods."[7]

2.3.2. Non-taxation of Goods Imported from the North and the Rules of Origin

Trade with North Korea is not regarded as a transaction with domestic tariffs. Not all North Korean goods and imported goods will have non-tariff tax treatment from the North. In order to become non-tariff imported goods that are subject to imported product tax treatment from the North and the South, approval from North and South Korea is important.

2.3.2.1. North and South Korea Trade in Goods Received Import Approval Subject to the Merchandise

North Korean imported goods shall be subject to approval by the merchandise trade under the South-North Law Section Article 13 of the Inter customs cooperation in order to receive tax-free treatment. Koreas' trade, import and export require approval pursuant to the notice of the approval process. This comprehensive export-import procedure was approved by the Minister of Unification. Exports and imports that require approval may be brought to the Minister of Unification individually for approval.

Therefore, when the South-North Customs approve the trade of merchandise, the export and import could get tax-free customs clearance. However, according to Article 14 of the Foreign Trade Law, the imported samples of a product to be used to promote normal commerce of goods are exempted from import and export approval. The Enforcement Decree Article 27 of the Regulation stipulates that the approval is not required for imported North Korean goods.

2.3.2.2. Check the Omission of Origin

To be eligible for tariff exemption on disposal of the goods imported from the North, the North-South cooperation, Article 26 of the rules of origin states that it should be confirmed at the customs import clearance.

How to check the origin of the imported goods:

a. Certificate of origin
b. Indication of origin marked on goods issued by the North
c. Transport documents such as bills of lading, among others that comprehensively identify the country of origin.

However, if a certificate of origin is submitted for the following values, it may be recognized as North Korean. In this case, the objective is to meet the requirements of the customs (Notice Article 14 of the Inter trade goods customs administration).

First, the tax rates on (price of specific duty calculated pursuant to Part 15 of the Customs Act) normal trade goods do not exceed 100 Euro.

Second, the mail (except for the Customs Act No. 258, paragraph).

Third, the individual consignment, sent forward as a small amount of additional goods or goods sent does not exceed 500 Euro, a tourist trap.

Fourth, the re-exported goods' conditional temporary admission.

Fifth, the kinds of goods, properties, shape or trademark, producers, persons, goods originating in and recognized by manufacturers.

2.3.2.3. Imported Goods to South Korea from North Korea via a Third Country

7 If the proportion of the total direct cost of materials supplied by the company at the industrial complex is more than 60%, it is regarded as domestic.

Origin of goods imported from North Korea is subject to the principle of direct transport, i.e. goods that are transported directly to the South from the North.

However, if you fall under any of the following sub-paragraphs, the only time that the goods in a third country will be recognized is when there are no other actions other than direct transport of goods which South Korea acknowledges.

First, by reasons of transshipment or transit by third countries in the temporary device consisting of goods, and, second, fair, after the event to showcase pursuant thereto or used for display purposes only its exhibition of the goods as the goods exported to third countries South Korea refers to export goods.

In the case of goods imported via a third country of origin, recognition is given when each of the documents regarding the certificate of origin is submitted to the Customs:

First, a copy of the bill of lading (in the transit country, transit country in the North, South)

Second, the Customs documents recognized as a valid certificate issued by that Government in customs, etc. of the transit country or authority

Customs checks the transport path and the actual shipping route on the export market and the Bill of Lading Certificate of Origin submitted. In other cases, the captain of the ship confirms whether the vessel carrying the imported good was harvested in North journals.

2.3.3. The Export of Imported Goods Originating from the Kaesong Industrial Complex Special Recognition

If, according to the notice of the Inter trade goods customs administration (Article 22), the goods exported from South or North Korea fall under any of the following sub-paragraphs, the middle of the following sub-paragraphs shall be defined as a primer to recognize the South or the North.

First, all of the items are from South Korea or the production, processing, manufacturing are in the North (the application of full production basis), and;

Second, if the goods produced, processed or manufactured for more than two countries have the essential characteristics of the goods that are sufficient to confer substantial production, processing or manufacturing performed in the North or South (application of substantial transformation criteria).

Therefore, in the case of substantial modification of the above criteria, the origin of the goods to the customs, statistics integrated classification item numbers and other representations of item numbers used in the production of goods for the final product produced in South Korea and North Korea, the country of origin will not be recognized if you fall under any of the following sub-paragraphs.[8]

First, the actual production of the item is sufficient to confer an essential characteristic of change. It is difficult to prove rough machining or manufacturing process. The Customs Administration requirements specified additional items.

Second, the main process that takes into account the added value.

The examination of the origin and unification of the two Koreas' traded goods are established (Article 11). There are rules of origin on the special recognition on imported GIC exported goods as stated below:

First, the origin of the goods imported from the Kaesong may be omitted in the confirmation of the customs declaration for the importer.

8 Also, if the following shall not recognize the origin also seen as "simple process" (Article 22, paragraph 4 East Notice). ① When produced in a third country via a simple process at the South or North, ② simple packing in the North or South, labeling, product classification, cutting, cleaning, or simple assembly only, ③ in transit or storage in the North, ④ If the country of origin or in the range of the South do not change the characteristics of the goods in the North, only mixed with other goods, ⑤ If only slaughter operations in the North or South, ⑥ dried, chilled frozen, milled, salted, simple heating (including fry or bake it), if only the rough bark and seed removal operations, ⑦ everything else decided by the South and the North.

Second, Kaesong Industrial Complex manufacturing and processing. If you wish that the origin of the product is from the South, the Kaesong Industrial Complex is a temporary subsidiary where a constant process of importing the goods back is practiced. Each of the following requirements shall be regarded as a domestic:

> First, the whole goods are imported directly from Kaesong. Second, the ratio of the cost of materials supplied by the country of the registered company producing the goods from the Kaesong is more than 60%.[9]

2.3.4. The Non-preferential Rules of Origin of South Korea and North Korea Trade

Koreas' non-preferential rules of origin provides policy measures for misrepresentation, quarantine import restrictions, diversified customer base, origin confirmation for import restrictions, anti-dumping, countervailing, safeguard, origin for quota management purposes, trade measures and trade statistics. The unified international non-preferential rules of origin for each item have not been established. It is the discretion of the individual countries to enact or amend the decision criteria for the country of origin and the accompanying laws and regulations.

Thus, the difference occurs in the country of origin determination criteria applied to the same item by a country of origin. The variation for the same product, depending on the importing country, is unreasonable.

If a purchase of specific items is allocated in the two Koreas, origin verification is required in order to manage the quantity imported by the country. The Law on South-North cooperation of the Ministry of Unification, announced the North-South trade policy measures on confirmation of origin and the FTA Tariff Act on Special Cases such as anti-dumping duties, the imposition of countervailing duties, safeguard measures nine minutes or endangered wildlife destination country for such a regulation protection, quarantine for public health, and trade statistics.

For the North and South Korea to apply the non-preferential origin of goods by the Kyoto Protocol, the importer needs a separate origin criteria since only the Republic of Korea is recognized as the country of origin.

If the origin of the imported goods is the North, according to Article 8 of the origin verification of the North-South trade goods, the origin of the imported goods can be determined autonomously. However, the Customs Commissioner, in agreement with the Minister of Unification, in the case of products originating from third party countries, will determine the origin of the goods.

If goods are imported from North Korea, which will be the country of origin, the goods must indicate the origin such as "North Korea Product" or "Made in DPRK".

Ⅲ. Comparison of the Problems of the North and South Korea Traded Goods' Preferential and Non-preferential Rules of Origin

3.1. Comparison of the North South Trade and the Preferential Rules of Origin

The North South Preferential Certificate of Origin to check the merchandise to be imported from the North is based on legislation and the Act on the North-South Cooperation and the Notice of the Inter-trade goods customs administration. In addition, there are laws relating to proof of origin, foreign trade, the Customs Act, the FTA Act on Special Cases, the Inter-Korea Exchange and Cooperation Act and proof of origin. Foreign trade, the non-preferential rules of origin (country of origin labeling) and preferential rules of origin (issuing of export goods certificate of origin, certificate of origin issued preference) can coexist.

The North-South trade, in general, looks at the legal basis of the rules of origin. The goods before July

9 In this case, goods with domestic origin may be expressed this way: Made in Korea, Made in Korea (Kaeseong), Korean, or Korean (Kaeseong or KIC).

31, 2003 adopted "Agreement on verification of origin of goods traded between the North and South" (hereinafter referred to as the South-North Origin Agreement). The South-North law cooperation is required on confirmation of origin in consultation with the head of the administrative agency Unification Minister. It does not have detailed information, regulations and mandate to specify the origin.

The "North-South trade confirmation notice about the origin of the goods", the North-South cooperation under Article 26, the Enforcement Decree Article 50 paragraph (2), and the country of origin for goods traded between South and North Korea according to the "South-North Country Agreement" determine and define the requirements and procedures necessary for the origin. It also added a part that has not been prescribed. The 'Notice of the Inter trade goods,' the customs officials and the Unification Minister defined the specific criteria, such as country of origin. The goods clearance process and origin verification guidelines were entrusted to the Customs Administration and the North South cooperation law, customs and South Korea under the North Country Agreement for the North South trade. It appointed the South Korea Customs Service to ensure the adequacy of customs clearance facilitation and trade to North Korea.

The details, such as the evidence and Customs Notification, are in the domestic legal system of the 'Unification notice.' Customs plays an important role in the unification of the North-South trade.

Korea's trade rules of origin for goods are divided into domestic law and the trade agreements of the two Koreas. It has relevant rules of origin on the North-South trade.

In the case of the Kaesong Industrial District, the export and import policy measures on vehicle traffic clearance are governed by the national legisla-tion. In general, the two Koreas share the same GIC and rules of origin for imported goods. In March 2005, the GIC on imported goods and the origin criteria and verification procedures were enacted for the Kaesong Industrial Complex.

Korea's trade-related domestic law on rules of origin is currently allowing the import from North Korea. Korea's trade of goods is recognized as a "nation of intercompany transactions" since it does not impose tariffs. The preferential rules of origin applied to imported North Korean products allow stability and security in the transaction. It paves the way to plan the implementation for a future North-South trade that is based on a proper operation of rules of origin. This would be tantamount to a special kind of preferential rules of origin. However, it is interesting to note that there is still a need for the examination of the non-preferential rules of origin function and the origin indicator.

The rules of origin between the two Koreas also apply to goods manufactured in the Kaesong Industrial District. The goods processed and manufactured in the North Korea Kaesong Industrial District are distinguished from other imported goods.

Possession of more than a 60% share of South Korean imported goods from the GIC and the direct provision of origin criteria entail additional costs since the two regions, specifically North Korea, established a separate origin criteria. It takes into account the general criteria of the corporation's personality. Most South Korean companies were founded by South Korean technology and capital.

3.2. Comparison of the Non-preferential Rules of Origin of the Two Koreas' Goods

The non-preferential rules of origin stipulate the tax preference. There is no indication of a relationship between origin and tariff. As mentioned earlier, it is important to show the name of the country of origin on the product. Regulations on marking products need to be created for trade where North and South Korea are the country of origin. For example, it is important to determine the country of origin if a mixed fruit juice concentrate is created from imported Chinese and American cherry plum juice.

Table 2. Comparison of Origin Criteria for Goods Imported from Outside the Kaesong Industrial Complex and GIC

			Kaesong Industrial Complex imported goods	Other North Korea imported goods
Origin criteria	Legal basis		- Notice regarding the origin of the two Koreas trade goods confirmation (MOU notification) - Kaesong Industrial notice about global export and import goods vehicle traffic Customs (Customs Notice)	Notice of the Inter trade goods Customs Administration (Customs Notice)
	Full production standards		Regulations	Regulations
	Substantial transformation criteria	HS6 unit tax code changes based on	Regulations	Regulations
		Value-added criteria	No regulations	No regulations
		Machining process based on	Regulations	Regulations
	Restricted standards		Regulations	Regulations
	Exemption	Shooting motion picture films, accessories tools, packaging supplies, etc.	Regulations	Regulations
		Kaesong Industrial Complex temporary admission applies special items	Regulations	No regulations

Source: Go Jun-Seong (2007).

FTA combines the two Koreas trade-related rules of origin. It is important to look at the background of such. Introducing a commission and processing trade in the North-South trade is a simple way to guarantee export markets for South Korean and inter-Korean products. It is a concept with a narrow goal. There is a concern if the two Koreas are willing to trade goods and create instruments relating to large-scale projects in the Kaesong Industrial Complex. The sale at the Industrial Complex is key in forming secondary export outlets at the national level.

This is a problem because the rules of origin are determined by North Korea and the poor export conditions in the country are putting tough economic sanctions on North Korea to receive tariff benefits.

With respect to these matters, the government adopted a method of deriving an agreement so that there will be the same treatment of the South Korean and North Korean goods. This is via bilateral FTA negotiations. An FTA that included the proper technique was defined such as in the case of Singapore FTA and the Korea-EFTA.

If GIC products are to be exported to overseas territories, it should be checked prior to export to determine if it fits the rules of origin criteria. The tariffs depend on the origin. The outlet strategy should take into account the awareness of consumers about North Korea. This is in addition to the established applicable quota.

According to the general criteria and export of domestic raw and auxiliary materials to produce the finished GIC, the product would most likely be judged as 'North Korean.' However, after the production of semi-finished products or parts exported to South Korea in Kaesong, the origin is determined in accordance to the exported products' countries of origin. Hence, if semi-finished products are exported, the decision depends on the country-specific rules of origin. Next, the WTO unified rules of origin are confirmed on semi-finished products.

Table 3. Method Process Marked by Type of Origin

Production (machining type)	Method of Export	Country of Origin
Packaging the finished product	Export after export to Korea	North Korea products
Unpackaged finished product	Exports from South Korea after packing	North Korea products
Semi-finished products (parts)	Export after processing in Korea	North or South products

Indication of origin should consider the above mentioned provisions. If the exporting country does not have this provision, the provisions of the two Koreas will govern the goods of the importing country.

The origin can be determined according to the rules of origin of the target countries. It should take into account the free trade agreement (FTA), even if the preferential tariff was received.

North-South trade is based on the "general trade goods" and "GIC imported goods" and it has a different dualistic system.

In the absence of substantial modification, the state specific criteria for the standards under the Customs examination apply. A complete production standard has been described using a definition that only the 'HS 6 units criteria changed.

3.3. Koreas Trade Issues on International Law Applicable to Rules of Origin

The enactment of the agreement between the two Koreas made trade active and larger.

This applies to the various national institutions. Therefore, the harmonization with international norms of procedure on the rules of origin appears to be an important issue for the North-South trade. It should be made to fit international norms. The South-North confirmation notice on the country of origin allows imported goods from the North not to show the country of origin since there is no clearance. However, Customs checks the products to facilitate clearance.

The provisions of the products' (such as imported goods, approved tourist goods, including exemptions) origin are attached to or printed in the packaging material. It prohibits products from North Korea with slogans pertaining to praises to the North and anti-state organizations and activities of its members, promotion of information, praise to the communist ideology or system and the promotion of its content, or denial of the legitimacy of the Republic of Korea. This will affect the order of the state and may have an adverse effect on security.

Korea trade rules of origin were enacted in the national legislation system. It focused on paving the way for the export of goods produced from the Kaesong Industrial Complex. The problem is in applying trade rules in accordance with the international norms on rules of origin.

3.4. The Problem with Kaesong Industrial Complex Origin Criteria

The problem on the government rules of origin related to inter-trade barriers has to be settled through the FTA provisions in order to activate the GIC.

However, it should be noted that it should be applicable to the production of other inter-Korean Kaesong traded goods going through the FTA regulations. It should also include other industrial districts in the North. This will supplement the gradually expanding institutional needs that are keys to the unification of trade between the two Koreas.

In the case of a limited production of GIC items, the Singapore FTA inserted a GIC Special provisions relating to outward processing (outward processing) standards.

However, if the Korea-EFTA is specified, certain areas of the Kaesong Industrial Complex Agreement may be in violation of the WTO MFN principle of reciprocity. Accommodating such does not conform to the principle that the target area oriented products actually produced or manufactured in satin should have HS 6 units 153 items for outward processing.

In this case, the local restrictions on businesses that operate in other regions, such as North Korea's consignment processing other than GIC, do not observe any direct transport rule.

KORUS FTA also configured the peninsula's outward processing zones through the Committee on Outward Processing Zones on the Korean Peninsula. It has determined the details of the outward processing zones operation.

The products produced within the outward processing areas receive the same preferential tariffs granted under certain conditions in Korea. The Kae-song Industrial Complex also has provisions to be selected for outward processing zones.

However, the annex to the FTA has expressly provided for the denuclearization of the Korean Peninsula to be considered for an outward processing zone. This would have an impact on inter-Korean relations, environmental standards, labor standards and practices.

The rules of origin set by the North-South Trade Commission held an Outward Processing Agreement that were enforced one year after the establishment of the Korean Peninsula. However, the Commission must determine if it is prepared to meet the criteria of outward processing zones. It must set the maximum percentage of the total value added in the product to receive the preferential tariff for outward processing zones.

The interpretation of the two sides on the outward processing zones must be recognized by the United States. The terms of outward processing zones in North America must be met.

The US will argue that the production at the Kaesong Industrial Complex does not currently comply with the FTA. Hence, it cannot be recognized as originating from Korea when exported to the United States.

3.5. Problems in the Method of Displaying the Origin

Article 16, paragraph 2, of the Inter-trade goods customs administration states that "Hangul or Certificate of Origin shall be labeled in English" However, notification 2-1, paragraph 2 states that the institution where the goods originated should indicate a "certificate of Korean origin to be written in English or French". In this regard, "there is some confusion in the country of origin and there is an issue of whether we admit it if labeled in French" (Notice Article 10 paragraph 2 of the North South trade goods customs administration).

In addition, the country of origin labeling regulations is not enforced with respect to North Korea and its goods. The reason why the origin must be specified for imported foreign goods, especially intimate products and raw food from North, is the concern over the cleanliness of the production area.

With the increasing cooperation between South Korea and North Korea, the Customs Administration has legal and regulatory function with regards to the notice of origin. In other words, it is necessary to have the Customs Act. In addition, the law enforcement agency, which is the Korea Customs Service, must place a limit on the clearance on the basis of the obscure origin of the product.

3.6. Problems in Verifying the Authenticity of Origin of North Korean Goods

Under the Inter-Korea Exchange and Cooperation Act of imported goods, transactions with North Korea are recognized as domestic transactions under a single nation. Hence, it is exempted from customs duties. Recently, Chinese goods are under a resolution that is very demanding and with complex operating procedures. It is aimed to demonstrate that North Korean imported goods are really from the North. There are cases when imported goods are disguised as a North Korean.

In the case of seasonal goods or when long-term storage is required, slow clearance process and delays in the confirmation of origin by the customs affect a number of businesses.

Because of such delays from customs processing, some imported North Korean goods are disguised so that there will be exemptions on South-North customs procedures and regulations for traded goods. In this regard, Unification Minister Chung, in consultation with the Secretary of the authorities, looked at the methods for determining the origin of North Korean goods.

These complex origin verification processes increase the cost of logistics. The delay in customs processing causes problems such as instability of the delivery time which ultimately serve as a major obstacle to inter-Korean trade.

3.7. Issues in Inter-agency Cooperation for Verifying Origin

North Country Cooperation Organization members do not trust the certificate of origin if not formed by the two Koreas. However, it is difficult to confirm cooperation between institutions. In other words, the certificate of origin is legitimate if you have any doubts as to whether the agency issued a valid judgment. However, it stipulates that the Korea Customs Service Commissioner may request a confirmation objection to the Issuer and the relevant authorities with regards to the relevant issuer certificate of origin and customs authorities. In the North, there is no formal mechanism for close cooperation and the effectiveness is questionable.

Thirty (30) days from the date of receipt of the confirmation request and without notification from the North Korean origin verification agencies, the current law on requesting confirmation from the Korea Customs Service Administration (If you notice that you extend the notice period, the notice within 30 days from the date) confirms the origin of the importer or exporter. It was determined that the origin recognition should not exclude North of South Korea or North Korea.

Ⅳ. The Rules of Origin and the Improvement of Trade Between the Two Koreas

4.1. Improvement of Rules of Origin Related to the Expansion of Inter-Korean Trade

4.1.1. The Kaesong Industrial Complex Foundry Goods 'Korean' Origin Recognition

It is necessary to develop and establish logical and internationally recognized institutional arrangements on exports with "Korean" origin.

Especially in the United States, there is a need to strengthen diplomatic contacts to reduce the hostile treatment of North Korea.

The United States applies differential tariffs across countries separated by Column 1and Column 2. The tariff applied to North Korean products is under Column 2. It is interesting to note that the difference between a tariff in Column 1 and Column 2 is up to 2-10 times.

Thus, North Korean products become less competitive in terms of price. The US Treasury Department's permission, under the North Korean enemy trade law, is needed for the import of North Korean products. The United States carefully checks the product and this poses a difficult problem.

In addition, there is an aggressive effort to include the recognition of the Kaesong Industrial Complex products in the negotiations of Korea FTAs.

4.1.2. Ensuring Cooperation between the Two Koreas' Certificate of Origin

As the trade between the two Koreas is increasing, the case of imported goods disguised as North Korean occurs frequently. It causes a lot of problems because North Korea has no means to verify the authenticity of the certificate of origin issued.

Therefore, for North-South trade to progress, consultation and cooperation between the two Koreas in terms of the investigation of issuer's certificate of origin are essential.

The most important thing in inter-Korean cooperation is the verification scheme for the certificate of origin issued by agencies. The validation scheme is expected to be an indirect verification method given the situation in North Korea. In addition, the harmonization and standardization of the format of the origin criteria are also the type of cooperation targeted by the two Koreas.

4.1.3. North and South Korea to Build Relevant Certificate of Origin Customs Administration Computer Network

Documents that must be submitted to the Customs for verification of origin are important to the North-South trade. These include shipping documents issued by the North, certificate of origin and inspection certificate, logbook, and a copy of the contract.

However, these documents were written by hand in North Korea, a government that is not ready for computer network. Such documents are not recognized as official.

A system must receive the certificate of origin issued online. This could be developed in the medium to long-term using information and communication technologies such as the Internet.

4.1.4. Elaboration of Management for Customs Import Disguised as Anti-North Korean

There have been cases where production duties with respect to goods imported from North Korea and South Korea under the law on cooperation were exploited. Recently, imported products from China and Russia were disguised. Hence, there is a need for a more refined and stringent customs clearance process.

This phenomenon has become a factor in inter-Korean trade. Delays and increased logistics costs at the customs are very important issues. There is a need to ensure the stability of the South and North Korea trade exchanges and cooperation.

Therefore, in order to prevent this problem, it is necessary to conduct a separate customs administration. The high tariff agricultural products and the high risk products that are disguised must be subjected to proper management techniques.

4.1.5. Uniform Regulations Related to the Provision of Origin

The North-South trade, as well as the current rules of origin applied to foreign countries, are different from each other. Each has preferential rules of origin and non-preferential rules of origin. These customs rules, the Foreign Trade Agreement, the FTA Tariff Act on Special Cases, and quality control on agricultural products have been governed by several laws and treaties. The public finds these rules very difficult to understand.

Therefore, it is urgent to establish unified rules of origin contained in one law. Preferably, the unified law would include the preferential and non-preferential rules of origin for goods traded between the two Koreas. A case in point is when goods or foundry are exported from Korea to South Korea.

In this case, the non-preferential rules of origin need to be unified so that the rules will be harmonized with the WTO.

4.1.6. Maintenance of the Rules of Origin for Trade Remedies

If separate rules of origin for trade with North Korea are provided, the determination of origin could be reliable since maintenance of trade remedies maintenance is required. In particular, there is no need to provide adequate provisions for the current trade remedies in order to achieve the basic objectives of the South-North flow because it does not contain separate provisions for goods imported from the North.

4.2. Restructuring Plan Related to the Unification of the Country of Origin Regime

Since the North and South continuously trade goods, the restructuring plan on origin regime discussed above is imperative to further expand the North-South trade. The economic cooperation between North and South Korea, as discussed above, suggests an expansion of trade in foundry goods at the Kaesong Industrial Complex, and the goods produced under the Korea 'origin' recognition. Furthermore, there is a need to strengthen the following: cooperation between the two Koreas' issuer certificate of origin, certificate of origin customs administration, computer network, North Korean refinement of the customs administration for the prevention of disguised imports, the relevant provision of origin in unified laws, and the maintenance of the rules of origin for trade remedies.

On the other hand, the two Koreas should understand the various treaties signed for the goods produced in North Korea. The unification of origin regime needs to be established.

Ⅴ. Conclusion

For the exports outside the nation to be recognized as being of 'Korean' origin, it is necessary to develop and establish logical institutional arrangements that can be internationally recognized. Especially in the United States, there is a need to strengthen diplomatic contacts to achieve the reduction of unfavorable treatment against North Korea.

The issuer of the North and South Korea certificate of origin must be agreed upon by the two Koreas. The research cooperation on the country of origin will be implemented with the North-South trade. The most important thing in inter-Korean cooperation is the verification scheme between the issuer and the certificate of origin. The validation scheme and origin verification are inevitable.

Harmonization and standardization of the format of the origin criteria are important. It is necessary to promote cooperation between the two Koreas in terms of an online certificate of origin system that capitalized on information and communication technologies.

A guarantee on the stability of the North-South cooperation is a very important issue that has implications in trade. Therefore, there is a need to perform a separate customs administration to avoid the risk of disguised North Korean import tariff rates that are much higher for agro-fisheries and other selected items. High level risk management techniques need to be performed. It is urgent to establish unified rules of origin as an administrative law that governs the exchanges of the North and South Koreas' traded goods, including the North Korean goods, must be governed by unified laws on preferential and non-preferential rules of origin. In this case, the non-preferential rules of origin need to fit, as much as possible, with the established rules of origin in the WTO.

If separate rules of origin for trade with North Korea are provided, judgment is to be used as a basis in determining the applicable trade remedies.

A restructuring plan on the origin regime, as discussed above, with respect to the North Korean trade is most needed in order to expand North-South cooperation.

The economic cooperation between the two Koreas would include the KIC temporary processing of material, 'Made in Korea' origin recognition, ensuring cooperation between the issuer of the two Koreas' origin certificate, certificate of origin related to the two Koreas customs administration, computer network deployment, refinement of the customs administration for import protection from disguised products, the provision of the unified laws on origin, and the maintenance of trade remedies.

On the other hand, it is a necessary step for the two Koreas to unify the origin regime. The Union has recognized the problems. The reunification is based on the premise that the 'Made in Korea' products must be understood by parties that entered into a treaty with the South Korea.

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ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

Estimating the Potential of the Economic Sectors of Lipa City, Batangas, Philippines as a Source of Growth

Rowena A. Dorado

Department of Economics, College of Economics and Management, University of the Philippines Los Baños, Philippines

Received 22 June 2014 Revised 28 September 2014 Accepted 24 October 2014

ABSTRACT

The City of Lipa in the province of Batangas in the Philippines is rapidly urbanizing. Business establishments, population and demand for decent housing have been steadily increasing since the 1980s. Rapid urbanization can exert pressure on a community's limited resources. The limited amount of land available for development in Lipa City heightens the need for efficient allocation of land to the sectors that can enhance economic growth. This study provides the city government with an analytical tool to systematically determine the potential of the sectors to improve the economy of the city in terms of output, earnings and business tax collection. Identification of which sector(s) to focus on and an estimate of its possible impact to the local economy translates to effective economic development plans that can attain target progress and openness to trade, not just for the LGU but the nation as well.

A 10 x 10 sector transaction table was constructed using the "rows only" method and was balanced using the Friedlander method. This table was used to analyze the economic structure of Lipa as well as the interlinkages of its sectors. The study shows that manufacturing is the dominant contributor to the total output of Lipa and that the trade sector has strong interlinkages with other industries.

Keywords: Batangas, input-output, Lipa city, local development planning

Ⅰ. Introduction

Republic Act No. 7160, otherwise known as the Philippine Local Government Code, was passed by our Congress on October 10, 1990 and immediately implemented in 1991. It is the first significant legislative milestone towards local autonomy and decentralization. The 1991 Local Government Code devolved substantial power, responsibility, and resources from the national government to the local government units (LGUs). Their new tasks include but are not limited to the effective provision of public services, efficient allocation of resources and creation of their own sources of revenues. The role of LGUs became more complicated from the mere collection of tax and management of public markets, slaughterhouse and the like, to amore corporate role that includes development planning for the economic welfare of their locality and their constituents.

However, LGUs are still dependent on the internal revenue allotment (IRA) from the national government and most LGUs did not attain much economic progress. According to ADB-WB (2005) one of the major reasons of the LGUs poor performance is the lack of financial management skills and weak institutionalized planning. The formulation of most

development programs/projects of LGUs lacks a rational basis. Serrano (2003) affirmed in their review of the local development plans of four provinces a lack of a systematic analysis of the plans which resulted in the failure to identify critical issues and in development gaps. Also, project prioritization was mostly done on an ad hoc basis with the course of action being determined subjectively by the local chief executives.

Economic development implies the restructuring of an economy and restructuring can be achieved more rapidly with the use of modern analytical tools (Miernyk, 1965). Economic development planning as stated by Blakely and Bradshaw (2002) must be based on a solid analytical framework that precisely depicts the local economy. Also, any intervention in economic development entails an in depth analytical understanding of the local economy to determine which anticipated changes should be encouraged or denounced. Thus, it is necessary to have an analytical tool/framework in order to develop an efficient development plan that would achieve the growth potential of a certain locality.

Ⅱ. Lipa City, Batangas, Philippines

Lipa City is located in southern Luzon and is about 85 kilometers south of Manila. The city is located at the center of Region IV and is almost at the heart of the Province of Batangas. The total land area of Lipa is about 20,940 hectares. It is composed of 72 barangays. Lipa City has slowly turned from a coffee-producing agricultural town to an emerging city (CPDO, 2004 and 2005).

Moreover, Lipa City is moving towards urbanization at a fast pace and with it comes challenges and issues that the city administrators need to tackle head-on. The urbanization of Lipa City is characterized by an increasing number of business establishments, decreasing agricultural activities and increasing population. Business establishments mushroomed in the city starting in the 1980's. It increased several fold that in a span of 14 years the number of registered business establishments in Lipa more than doubled. At some point, the increase was over 240 establishments in a year. The banking sector also thrived in the city such that the number of banks swelled from 69 in 1989 to 192 in 2003. (Cuenca & Dometita, 2004)

The population of the City of Lipa is also steadily increasing. According to the National Statistics Office of the Philippines, the city's population growth rate (PGR) reveals a rapid increase compared to the national PGR. The City of Lipa's PGR for 2000 was 4.5 while in 2007 and 2011 its PGR was 2.55 and 2.85, respectively. This is higher than the national PGR of 2.36 in 2000, 2.04 in 2007 and 1.90 in 2010. Since the birth rate was at a steady pace, the most likely culprit is in-migration.

Rapid urbanization can exert pressure on a community's limited resources. The 1996 Comprehensive Land Use Plan (CLUP) of Lipa (CPDO, 1996) stated their concern on how their limited resources can accommodate the steady rise of the number of business establishments, the growing population and its effect on the demand for decent housing and provision of welfare. With a limited available land for development, the city officials should systematically determine which economic sectors can enhance total output, earnings and business tax collection so as to maintain the standard of living of the Lipeños and efficient provision of services. This task needs careful analysis and comprehensive understanding of the local economy. Therefore, it is vital to have an efficient selection process where decisions and development plans are based on an analytical framework. This is where input-output models may help.

Input-output (IO) provides a complete accounting of the transactions among firms and households in the economy (O' Sullivan, 2005). It allows policy makers to examine the structural changes in the economy as well as equip decision makers with tools that are fundamental in evaluating the industries and their relationship to the rest of the economy (Guo & Planting, 2000). Another important aspect of an IO model, besides its ability to provide a descriptive tool of the economy, is its predictive capacity. Through

impact analysis the model can illustrate how the different sectors as well as the entire economy will respond to an external change. Overall, an IO model can help analysts and policymakers have a better understanding of their economy, which is crucial in making a sound development policy. Also, policy-makers will be able to evaluate the policies based on the outcomes of the impact analysis.

Leatherman (1994) used an IO model as a tool for the economic development planning of the Kickapoo Valley regional economy. The IO model enabled the local policy-makers to identify economic opportunities, determine which policies are apt to yield utmost return and predict the outcome of economic development decisions.

The Monitoring and Assessment Team Institute for Policy Research and Evaluation of Pennsylvania (2001) developed an IO model for its economic base assessment of the counties of Delta and Montrose, Colorado. A large fraction of the population of the counties of Delta and Montrose are employed in services and retail and they wanted to identify the other sector(s) that have the potential to improve their economy other than the unstable employment in services and trade.

Due to decentralization, a bottom-up approach is practiced. However, it is important for the local government of Lipa City (henceforth called Lipa) to have an analytical tool that can help them in the formulation of an effective economic development plan to attain economic growth and development. This study provided the first input-output model of Lipa to serve as an analytical tool in determining the sectors that can enhance economic growth of Lipa in terms of output, earnings and business tax collection. The local government officials of Lipa can utilize the IO model as a systematic instrument for a better understanding of their local economy and as an aid in their decision-making processes to attain target progress and openness to trade. Equipping LGUs with analytical tools that illustrate the response of an economy to external changes can help local policy-makers in creating crucial decisions and formulating systematic and efficient economic development plan(s) that can lead to the economic progress of the LGU and the nation as well since the progress of LGUs is reflected in the national economy. Thus, progress attained by an LGU reflects a positive effect on the Philippine economy and such progress can also translate to openness and competitiveness in trade.

2.1. Sources of Data

The study followed the sector classification of national input-output. Mining and quarrying are not included since there is no such activity in Lipa. The sectors' classifications were as follows: Agriculture, Manufacturing, Construction, Electricity and Water, Transportation, Communication and Storage, Trade, Finance, Real Estate and Dwellings, Private Services and Local Government Services.

In this study, the full survey method was used. This method requires sampled establishments to give information on both their sales and purchases among the other sectors of the industry, sales to final consumers, exports and final payments made to owners of resources, taxes and imports (Hewings, 1985). The questionnaires used for this study were similar to the questionnaire of the 2005 Annual Survey of the Philippine Business and Industry (ASPBI). Sample size for the study included 200 households and 400 business establishments.

The problem with constructing an IO for a local government unit level is the availability of data. Although the LGU has information on the total value of sales of each of the business establishments, they do not have information on the financial activities of these businesses and their interaction with one another. Hence, three different surveys were conducted, namely household, business establishments and poultry and piggery enterprises which are the dominant economic activities in Lipa.

Two questionnaires were developed, one for the household survey and the other for the business establishments and the poultry and piggery survey. The questionnaire for the household respondents comprised questions about the source of income of the

family and if their incomes were earned in the city or not. Expenses on food, transportation, utilities, rendered services, and taxes paid were asked as well as if the expenses were made inside or outside Lipa. Questionnaires for the business establishments concentrated on their expenses and sales. The companies were both asked where they buy their inputs and where they sell their outputs. The information gathered from the survey on the financial activities of the economic sectors of Lipa was used in the construction of the city's IO transaction table. However, the totals used for each column of the IO transaction table were the total sales of each business as reported to the Lipa City Assessor's office. To balance the IO transaction table, this study used the Friedlander method.

2.2. Households

The population of each barangay within the City of Lipa was made available by the City Planning and Development Office. This information was then used with the GOFORDEV program to determine the sample for the household sector. This program grouped the barangays into 3 clusters according to population, namely, the High, Medium and Low clusters. The GOFORDEV program also determined which barangay in each cluster will be included as well as the number of respondents for the chosen barangay. The respondents in each barangay were chosen randomly.

2.3. Business Establishments

The business establishments surveyed include manufacturing, construction, electricity & water, transportation, communication & storage, trade, finance, real estate & dwellings, and private services. The sampling method used for this survey was adopted from the ASPBI where all the dominant establishments were surveyed while the medium and small sizes were randomly selected. The lists of business establishments in the city were provided by the LGU and were classified into different sectors using the description of the Philippines National IO.

2.4. Agriculture

The data on agriculture includes crops, poultry and pigs. The data used for crops were 2005 secondary data which were provided by the LGU. However, a survey was conducted on poultry and piggery because of non-availability of data. The sampling procedure was the same as the business establishments; a full survey of the dominant poultries/piggeries and random sampling for small and medium size establishments. In this study, a poultry farm with more than 3,000 heads was considered dominant while a piggery should have over 300 heads. The list of poultry farms and piggeries as well as the number of chickens and/or pigs each farm owned was provided by the Office of the City Veterinarian.

2.5. Local Government Unit

The statement of income and expenses and other vital information were provided by the Office of the Central Planning and Development Coordinator (CPDO) and the City Treasury Office.

Ⅲ. Analytical Procedure

3.1. Input-Output Framework

The IO model illustrates a comprehensive account of sales and purchases of goods and services among producing industries, resource owners and final consumers. The model follows an accounting framework in which total sales must equal total purchases, so total output must equal total input and, hence, the name Input-Output. There are three essential tables in the IO model; the transaction table or flow table, table of direct coefficients and the Leontief inverse. The latter two tables are derived from the transaction table.

The basic IO model equation can be represented as

$$(I - A)^{-1} x = d$$

where:

I = identity matrix
A = direct requirement matrix
x = variable vector
d = final demand .

So, if industry 1 is to produce output just sufficient to meet the input requirement of the *n* industries as well as the final demand of the open sector, its output level x_1 must satisfy the following equation:

$$x_1 = a_{11}x_1 + a_{12}x_2 + \ldots + a_{1n}x_n + d_1 \quad \text{or}$$

$$(1 - a_{11})x_1 - a_{12}x_2 - \ldots - a_{1n}x_n = d_1$$

$(I - A)^{-1} x = d$ Using the above equation we can represent equation in matrix form

$$\begin{pmatrix} (1-a_{11}) & -a_{12} & \cdots & -a_{1n} \\ -a_{21} & (1-a_{22}) & \cdots & -a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ -a_{n1} & -a_{n2} & \cdots & (1-a_{nn}) \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ \vdots \\ x_n \end{pmatrix} = \begin{pmatrix} d_1 \\ d_2 \\ \vdots \\ \vdots \\ d_n \end{pmatrix}$$

3.2. Construction of the Transaction Table

Although the study did a full survey method, the technique used in the construction of the transaction table was the "rows-only" method. This method was first used by Hansen and Tiebout (1961). The method generates only one entry per cell. This method avoids the strenuous reconciliation of entries that a full survey entails. Since producers are more concerned with their sales, it is also less complicated to request information on sales amount and destinations of their goods and services from the producers than input information (Bonfiglio, 2005). This is also the case in this study where information on sales is more reliable and complete than the information on inputs.

This study applied the same technique used by Schaffer (1976) and Jensen et al. (1979) where a combination of survey and non-survey methods were used in constructing regional IO. The data used for the construction of the LipaCity IO was the data collected from the survey and the secondary data provided by the LGU.

3.3. Balancing Procedure

A common feature of most IO analysis is that the source of data for the total output (row total) and the source of data for a sector's sales to other sectors (row entries) are usually different with the total output deemed to be from a more reliable source. In this study, the row entries come from our sample survey while the row totals (except for Electricity/Water & Final Payment sectors) were provided by the City Treasury Office. As such, there is no guarantee that the actual sum of the row entries would equal the assumed total output. The same phenomenon might be true of the column entries. Hence, often, there is a need to adjust the allocation of output to the different sectors to ensure that row (column) sums equal assumed row (column) totals. This process is called the balancing procedure.

This study used the Friedlander method (Bartholody, 1987) method which assumes that:

$$a_{ij} = a_{ij}^0 \left(1 + r_i + s_j\right) + e_{ij}.$$

The unbiased estimate of a_{ij} is given by $a_{ij}^* = a_{ij}^0 \left(1 + r_i + s_j\right)$. If $\sum_j a_{ij}^* = u_i$ and $\sum_i a_{ij} = v_j$ but then again, we have an unbiased solution to the balancing problem. A solution to the balancing problem using this method, if it exists, is given by the iterative equations as follows:

$$a_{ij}^{2n-1} = a_{ij}^{2n-2} + \left(u_i - \sum_j a_{ij}^{2n-2}\right) \frac{a_{ij}^0}{\sum_j a_{ij}^0}$$

$$a_{ij}^{2n} = a_{ij}^{2n-1} + \left(v_j - \sum_i a_{ij}^{2n-1}\right) \frac{a_{ij}^0}{\sum_i a_{ij}^0}.$$

Note that the method, in effect, allocates the discrepancy in each row total to each sector in proportion to the size of the initial estimate of the row entry for the sector. It can be shown that the Friedlander estimates also define the solution to the minimization problem, to wit:

$$Min\sum \frac{\left(a_{ij}^{*}-a_{ij}^{0}\right)^{2}}{a_{ij}^{0}} \text{ subject to } \sum_{j} a_{ij}^{*}=u_{i}, \sum_{i} a_{ij}^{*}=v_{j}.$$

This is nothing more than minimization of a weighted least squares error and, hence, the Friedlander estimates are analogous to the generalized least squares solution of a model based on the initial estimates.

The dominant balancing procedure in IO analysis is the RAS method however, just like the RAS method, the Friedlander method exhibits both conceptual and computational simplicity. In addition, Friedlander estimates are analogous to minimum mean square error estimates. Because of this, the study adopts the Friedlander method instead of the more popular RAS method.

3.4. Input-Output Multipliers

The input-output multipliers that were calculated in the study are Type I and Type II output and earnings multipliers.

3.4.1. Type I Multipliers

3.4.1.1. Type I Output Multipliers

Output Multipliers of each sector were determined by summing up each column of the total requirement table. The mathematical representation of the output multipliers is as follows:

$$\text{Output Multiplier} = \sum_{i=1}^{n} bij$$

b_{ij} where is an element of the total requirement table (Leontief inverse matrix).

3.4.1.2. Type I Earnings Multiplier

The earnings multipliers were calculated by multiplying each row of the total requirement matrix by the direct earnings technical coefficient of the sector corresponding to the row. This is expressed mathematically as follows:

$$C = L \cdot B$$

where:

C = final demand income multiplier table

L = n x n matrix containing the *i*th sector's direct earnings coefficient for its *i*th diagonal and zeros elsewhere

B = total requirements table

I_j^{FD} The Type I final demand earnings multiplier for the sector j () is computed as:

$$I_j^{FD} = \sum_{i=1}^{n} c_{ij}$$

3.4.2. Type II Multipliers

Type II multipliers are calculated the same way as Type I multipliers except that the households are endogenous in the model.

3.5. Impact Analysis

Using the Leontief inverse impact analysis was done to quantify the consequence of an alteration on the demand/supply of a particular sector on the other sectors in the economy. This is calculated by post multiplying the "change matrix" to the Leontief inverse:

$$D = B \cdot \Delta X$$

where

D = the impact vector; impact due to the change in demand

B = Leontief Inverse

ΔX = change in the economy .

Ⅳ. Results and Conclusion

A 10 x10 sector transaction table (Table 1), measured using purchaser's price, was constructed for the City of Lipa. The transaction table illustrates the sales and purchases among the various aggregated sectors of the City of Lipa. Primary inputs were broken down into five components such as compensation of employee (CE), non-local labor (NLL), business tax

(BT), other payments (OP) and Imports (IM). Household (PCE), other final demand and exports are the categories for final demand.

The IO model of the city of Lipa provides a detailed description of its economy. The transaction table itself divulged vital information that is relevant in the evaluation of the local economy like the input and demand structure as well as import dependency. It also shows the relative importance of the sectors in terms of their contributions to the economy.

The Lipa transaction table (Table 1) shows that the share of the manufacturing sector to the total output of Lipa is about 34 percent. The manufacturing sector is the dominant contributor to the total output of Lipa followed by electricity & water, which accounts for about 32 percent, while trade registered at 13 percent of the total output.

On the aggregate, the industries of Lipa use more primary inputs than intermediate inputs and that final demand is greater than intermediate demand. The industries that use more intermediate inputs are real estate and construction while the industries that use more primary inputs in their production of goods and services are LGU and electricity. Industries in Lipa are still import dependent with nearly 44% of inputs being imported or bought from outside the city. Electricity & water, agriculture and manufacturing are the top three industries that employ more imported inputs in their production of goods and services.

Looking at the aggregate demand, there is greater final demand than intermediate demand. The LGU (100%), manufacturing (83%) and private services (74%) are the industries that have greater final demand for goods and services. Note that the sector with the highest aggregate demand is the manufacturing sector. However, the high aggregate demand in the manufacturing sector consists of over 80 percent exported goods.

Table 1. 10 X 10 Transaction Table of Lipa City, Batangas, Philippines, 2005

	Sector		01	02	03	04	05	06	07	08	09
Intermediate Demand	01	Agriculture	2,460,200	21,663,979	104,559	53,451,370	748,869	6,010,730	20,008,833	35,696	1,197,903
	02	Manufacturing	8,329,068	513,562,837	21,496,497	2,261,825,766	41,350,261	152,545,032	46,075,228	50,194,740	167,417,023
	03	Construction	-	781,637	1,582,146	155,753,731	364,183	12,122,849	36,991,019	44,807	1,339,242
	04	Electricity & Water	-	1,182,779	14,264,805	115,442,225	3,428,391	38,240,952	109,311,755	105,533	2,576,382
	05	Transportation, Communication & Storage	-	390,000	4,753,966	4,592,475	276,521	62,740,536	21,877,056	9,141,594	4,183,401
	06	Trade	133,664,509	215,834,975	72,574,629	338,118,026	2,332,750	863,797,155	56,003,268	147,128,130	12,990,579
	07	Finance	-	1,402,220	15,432,780	153,739,314	7,363,188	39,070,497	216,193,539	455,049	18,288,478
	08	Real estate	-	447,481	29,854,808	180,233,282	539,201	60,181,099	32,360,024	600,504	25,893,696
	09	Private services	331,108	63,322,022	992,452	484,044,570	468,200	31,283,475	28,761,912	1,767,717	14,546,780
	10	LGU service	-	400,000	129,075	13,315,803	386,521	3,030,500	472,500	6,000	11,857,239
		Total Intermediate Demand (TID)	144,774,885	818,987,930	161,115,717	3,765,516,562	57,258,085	1,269,022,825	568,055,134	209,479,770	260,310,923
Final Demand		Household	595,995	5,114,988	14,199,569	938,542,598	45,713,999	78,720,497	49,619,210	102,543,529	598,540,659
		Exports	104,875,077	4,242,081,998	42,472,739	5,856,000	49,168,420	627,579,865	41,234,717	20,109,326	167,051,844
		Total Final Demand	105,471,072	4,247,196,986	56,672,308	944,398,598	94,882,419	706,300,362	90,853,927	122,652,855	765,592,503
	Total Output		250,245,957	5,066,184,916	217,788,025	4,709,915,160	152,140,504	1,975,323,187	658,909,061	332,132,625	1,025,903,426

10	TII	CE	NLL	BT	OP	M	TPI	TI
-	105,672,139	8,846,790	4,274,409	325,911	1,830,898	129,295,811	144,573,819	250,245,958
-	3,262,726,452	158,326,879	82,076,121	3,829,515	48,315,905	1,510,910,046	1,803,458,466	5,066,184,918
-	208,999,614	4,033,150	1,667,925	147,154	1,888,775	1,051,407	8,788,411	217,788,025
-	284,553,022	122,813,233	28,247,661	-	39,544,412	4,234,756,832	4,425,362,138	4,709,915,160
-	107,955,549	4,364,000	1,091,000	263,755	838,200	37,628,000	44,184,955	152,140,504
-	1,842,444,021	8,346,274	3,451,354	10,453,854	6,336,438	104,291,244	132,879,164	1,975,323,185
-	456,945,065	61,313,982	36,603,445	9,694,018	92,004,557	2,347,993	201,963,995	658,909,060
-	330,110,095	410,000	190,000	925,531	322,000	175,000	2,022,531	332,132,626
-	625,518,236	197,297,576	102,425,421	3,016,362	58,752,429	38,893,403	400,385,191	1,025,903,427
-	29,597,638	256,285,005	-	-	46,037,070	142,251,306	444,573,381	474,171,019
-	7,254,521,831	822,036,889	260,027,336	28,656,100	295,870,684	6,201,601,042	7,608,192,051	14,862,713,882
474,171,019	2,307,762,063							2,307,762,063
-	5,300,429,986							5,300,429,986
474,171,019	7,608,192,049							7,608,192,049
474,171,019	14,862,713,880	822,036,889	260,027,336	28,656,100	295,870,684	6,201,601,042	7,608,192,051	22,470,905,931

Table 2 (the Leontief inverse matrix) confirmed the strong reliance of the manufacturing industries with the electricity & water sector in the production of their goods and services since it needs about 59 cents of the goods and services of electricity & water to produce PhP 1 worth of output.

Table 2.Total Requirement (Leontief Inverse) Table of Lipa City, Philippines, 2005

Sector	01	02	03	04	05	06	07	08	09	10
Agriculture	1.01537	0.00816	0.01081	0.00148	0.05758	0.12931	0.01358	0.02715	0.00602	0.00109
Manufacturing	0.10870	1.12804	0.02656	0.00333	0.11587	0.24564	0.03270	0.06002	0.08097	0.00477
Construction	0.00903	0.01326	1.02446	0.00513	0.08365	0.09025	0.04743	0.11689	0.00868	0.00134
Electricity & Water	0.33865	0.58748	0.88412	1.04628	0.48126	0.67850	0.50038	0.86694	0.57547	0.04975
Transportation, Communication & Storage	0.00590	0.01042	0.00620	0.00127	1.00821	0.00741	0.01824	0.00622	0.00249	0.00100
Trade	0.07745	0.09179	0.15748	0.02160	0.83957	1.88613	0.19771	0.39544	0.08131	0.01570
Finance	0.14249	0.05407	0.30178	0.03919	0.31789	0.16862	1.53644	0.23524	0.07173	0.00589
Real estate	0.00749	0.01880	0.01286	0.00178	0.12484	0.14386	0.01734	1.03266	0.00885	0.00134
Private services	0.01410	0.04207	0.01866	0.00216	0.05751	0.03872	0.04820	0.09447	1.02083	0.02597
LGU service	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
Total Intermediate Demand (TID)	1.71918	1.95049	2.44293	1.12221	3.08639	3.38844	2.41202	2.83503	1.85636	1.10686

Output multipliers (Table 3) represent the total value of new sales that will be stimulated in the economy for each peso increase in final demand. The results showed that the industry with the highest output multiplier is trade (3.39) which is followed by transportation (3.09) and then by real estate (2.84). This is indicative of a strong inter-linkage of these sectors with the other sectors of the local economy and their ability to enhance the economy. Thus, if the target of the local government is to increase their total output, then they should focus on these sectors. The inclusion of the household in the endogenous sector increases the multipliers by an average of 28 percent. The largest increase was that of the LGU with a 155 percent increase followed by private services which increased by 37 percent. The huge increase of LGU and private services represent their high interaction with the household sector. On earnings multiplier, the LGU, private services and finance sectors have the highest multipliers. These sectors are important in the provision of employment in Lipa.

Table 3. Type I and Type II Output and Earnings Multipliers of Lipa City, Philippines, 2005

Sector	Final Demand Multipliers			
	Output		Earnings	
	Type Ⅰ	Type Ⅱ	Type Ⅰ	Type Ⅱ
Agriculture	1.72	1.9233	0.08556	0.11418
Manufacturing	1.95	2.1541	0.09102	0.11255
Construction	2.44	2.6817	0.09311	0.13037
Electricity & Water	1.12	1.2222	0.03762	0.04972
Transportation, Communication & Storage	3.09	3.3796	0.11717	0.15844
Trade	3.39	3.5874	0.08238	0.10895
Finance	2.41	2.9448	0.19707	0.31265
Real estate	2.84	3.0581	0.09086	0.12259
Private services	1.86	2.554	0.32922	0.39626
LGU service	1.11	2.8329	0.5507	0.70916

The impact analysis provided the magnitude of the response of the entire economy and each sector if a certain sector experiences a 1 billion change in final demand. Results showed that Lipa should focus on trade, transportation & communications, and real estate if the concern of the LGU is increasing output. If the

city will focus on trade, the impact of a 1 billion change in final demand to the economy of Lipa will be a 23% increase in total output (PhP 3.38 billion). In addition, the combined labor earnings of all the sectors would increase by over PhP 82 million. Tax collection, on the other hand, would increase by as much as PhP 13 million.

In the Transportation, Communication and Storage sector, the impact of a PhP 1 billion change in its demand is a 21% increase in the total output of the economy of Lipa (PhP 3 billion). The increase in the tax collection amounts to PhP 11 million while the increase in labor earnings is over Php 117 million. On the other hand, the impact on Real Estate and Ownership of Dwelling can lead to 19% increase in total output (PhP 2.8 billion). The increase in the labor earnings and tax will be PhP 90 million and PhP 8.8 million, respectively.

If the LGU would like to enhance employment and tax collection, then the sectors to focus on are private services and finance. The impact on private services would lead to a 12% increase in total output (PhP 1.8 billion). Labor earnings would change by over PhP 329 million while tax collection changes by nearly PhP 4.5 million. The net change in the finance sector of the impact is a 16% increase in total output (PhP 2.4 billion). Labor earnings increased by PhP 197 million while tax collection increased by PhP 23 million. The electricity and water sector as well as the trade sector are strongly linked to the finance sector and increased its output due to the revitalization by Php 500 million and Php 197 million, respectively.

The implementation of the Philippine Local Government Code in 1991 provided LGU officials with more complicated tasks due to the substantial power and responsibility devolved from the national government to the local government units (LGUs). Feedback on the performance of the local government officials show the absence of analytical tools in their planning and decision-making processes as well the lack of a better understanding of their local economy are among the culprits for their performance. An IO is deemed to be one of the suitable tools that can provide a better picture of an economy. However, it is mostly constructed at a national level. This construction of an IO for the local government of Lipa (second largest city in Batangas, Philippines and one of the LGUs with a rapidly booming economy) aims to assist its officials in their economic decisions through the identification of potential business sector(s) that can enhance not only the economic growth of Lipa City but the country as well. The identification of potential sectors and determination of the magnitude of its effect in the economy of the LGU can provide an understanding of how the economy of Lipa can contribute in the local and global economic decisions of the Philippine government as well as increase local and global trade competitiveness.

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ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

The Dynasty Model and Business Groups in the Philippines

Richard B. Daite

Department of Economics, University of the Philippines Los Baños, Philippines

Received 23 August 2014 Revised 30 September 2014 Accepted 27 October 2014

ABSTRACT

One of the economic models used to explain household behavior is the so-called Dynasty Model, which states that individuals derive satisfaction on seeing the perpetuation of the family line or business. Their behavior is shaped by the motivation to exert effort such that the family business (and the family line) is spared from destruction or extinction. In terms of transfer behavior, this implies that individuals will tend to leave behind a bequest only if their child/children carry on the family line or the family business.

The interest of this paper is to gather indications of dynastic behavior of family-based business groups in the Philippines. Using information from corporate reports of the prominent business groups sampled, the dynastic motives in family-based business groups in the Philippines are evident. These highly diversified groups tend to perpetuate the business by concentrating control within family boundaries.

Keywords: business groups, conglomerates, dynasty model

Ⅰ. Introduction

The proliferation of business groups in developing countries has caught the attention of researchers in the fields of finance, sociology, and economics. Business groups are defined as "legally independent firms operating in multiple (often unrelated) industries, which are bound together by persistent formal (e.g., equity) and informal (e.g., family) ties" (Khanna &Yafeh, 2007; Granovetter, 2005). This "business group" definition is more inclusive than that of a "conglomerate" in that it covers those firms whose connections go beyond the usual formal cross shareholdings under one corporate group to include those related through informal family connections. However, these terms are usually interchanged in the literature, and while there is no widely-accepted and precise definition of a business group, the recent literature points to the general acknowledgement of the one proposed above. Nonetheless, the existence of business groups is well documented across countries and time periods. In fact, they are known by special names in different countries: the Korean *chaebol*, the Japanese *keiretsu* or *zaibatsu*, the Financial-industrial group (FIG) in Russia, *Grupos Economicos* in Latin America, and the *Jitanquiye* in Taiwan.

The interest in business groups stems from the relative performance of these entities across countries. Evidence points to a diversification discount among group-affiliated firms in more developed economies, and a diversification premium in countries characterized by less-developed institutions[12] (Lee et al., 2008;

12 A "diversification discount" is when the shares of firms in a conglomerate are valued at a discount as

Khanna & Yafeh, 2007). In the USA, for example, after the rapid proliferation of mergers of diversified firms in the 1960s, these conglomerates were subsequently broken up in the 1980s, with implications related to destruction of value due to diversification (Hodrick, n.d.). However, the empirical debate continues as some strand in the literature suggests that the diversification-discount argument cannot be easily generalized (Villalonga, 2004).

An even greater interest of study is the nature of these business groups, the bases for their formation, and their development through time. The usual explanations for diversification and group affiliation include inter-firm risk-sharing, rent seeking, better resolution of corporate conflict, political economy considerations, and lower transaction costs (Khanna & Rivkin, 2006; Claessens, et al., 2002; Khanna & Yafeh, 2007). There is likewise an observation that many business groups outside of the developed world are family-based. In fact, in terms of ownership and control, widely-held firms are rare outside the US and UK, and concentrated family ownership is quite common elsewhere (La Porta et al., 1999). There is also a higher presence of family firms in environments where contracting is difficult (Khanna & Yafeh, 2007). From a sociological viewpoint, the formation of family-based business groups can be seen as a device for families to secure inheritance patterns, promote nepotism, and propagate the family line (Granovetter, 2005; Chung, 2004). This last point is the interest of this paper, which seeks to connect this observation with the development of business groups in the Philippines. Specifically, this paper attempts to shed light on the link between the dynasty model of household behavior and the nature of business groups in the Philippines

Ⅱ. The Dynasty Model of Household Behavior

One of the economic models used to explain household behavior is the so-called Dynasty Model[13]. Following Horioka (2001) and Chu (1991), individuals derive satisfaction on seeing the perpetuation of the family line or business. Their behavior is thus shaped by the motivation to exert effort such that the family business (and the family line) is spared from destruction or extinction. In terms of transfer behavior, this implies that individuals will tend to leave behind a bequest only if their child/children carry on the family line or the family business. Families could even resort to uneven distribution of bequests among children who have different abilities in order to ensure the preservation of the family line (Chu, 1991). In the primogeniture framework, parents usually leave behind a disproportionate amount of bequests to the eldest child (or to the eldest son, or male primogeniture) who is expected to carry on the family business. Designating the son as the heir of the business enterprise is likewise consistent with the dynasty model (Horioka, 2001).

The motivation of this paper is to gather indications of the Dynasty Model from the behavior of business groups in the Philippines. Specifically, the paper will analyze how the transfer of ownership and control of the highly diversified business groups in the country could provide some form of evidence of the dynastic behavior of family-based firms in the country.

Ⅲ. Method

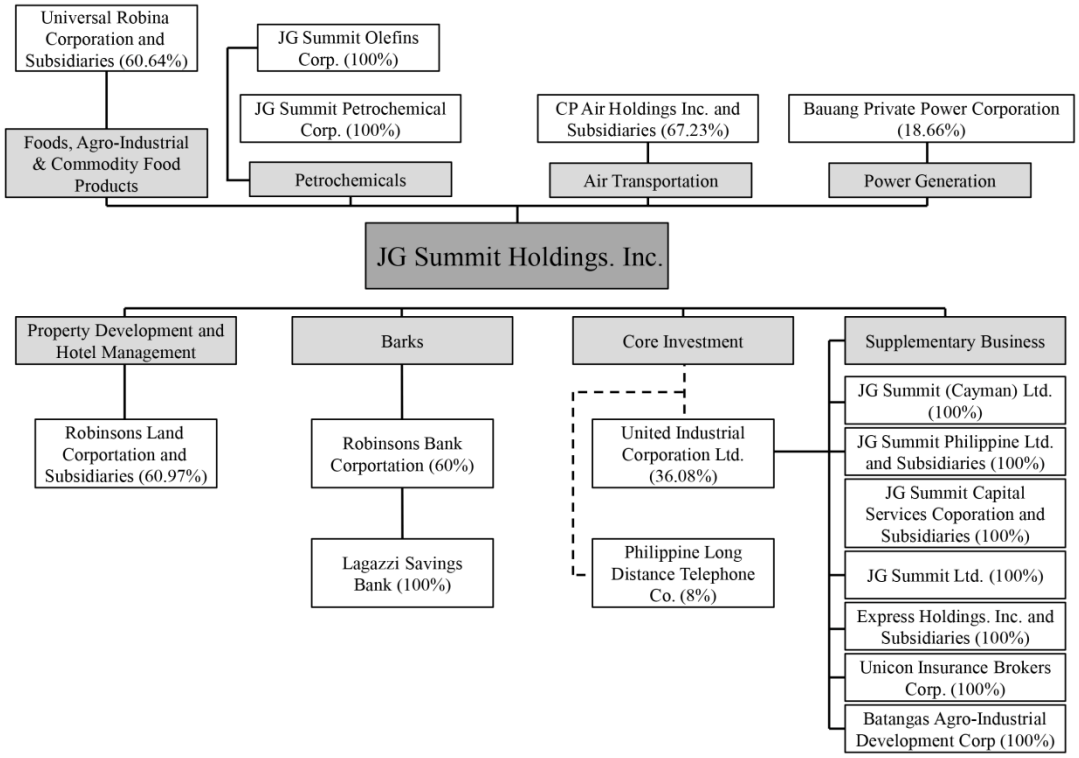
The first step in this research is to look at the publicly-listed firms in the Philippine Stock Exchange (PSE at http://www.pse.co.ph). As of 2013, there were 262 firms listed on the PSE. From this list, those that fall under the category "Holding Firms" were filtered. A holding firm or a holding company is one that owns enough voting stock in another company to gain control over its management and policies. A holding company is not engaged in production of a good or

compared to a portfolio of single segment firms. If shares of affiliated firms are valued higher than non-group firms, then there is "diversification premium".

[13] The others are the selfish life-cycle model and the altruism model.

service but exists only to control other companies which may be another corporation or partnership. Thus, the creation of a holding firm provides an opportunity for a company to conveniently own or control other firms, forming a highly diversified business group. In the Philippines, business groups usually have a holding firm as a parent company, providing the central node in the network of ownership structure among the affiliated firms. From the holding company list in the PSE, a small sample of holding firms was taken, each representing a prominent business group in the country. Then, various financial and company reports (submitted to the PSE and the Securities and Exchange Commission or SEC at http://www.sec.gov.ph) were reviewed in order to understand the range of diversification and the ownership and control structure in these firms. News items in the financial press were also looked into as well as information provided by company web sites, in order to gather information on the potentially dynastic behavior of these firms. The paper then put forward some insights based on the review.

Fig. 1. JG Summit Holdings and its subsidiaries, as of 2012



Source: Annual Report submitted to SEC.

Ⅳ. Results

From the 42 holding firms in the PSE, the following were taken as a sample, each representing a prominent family-based business group:

a. JG Summit Holdings, Inc. (Gokongwei Family)
b. Aboitiz Equity Ventures, Inc. (Aboitiz Family)
c. Ayala Corporation (Zobel de Ayala Family)
d. DMCI Holdings, Inc (Consunji Family)

4.1. The Gokongwei Family (JG Summit Holdings, Inc)

JG Summit Holdings is the holding firm of the vast Gokongwei empire which has substantial business interests in branded consumer foods, agro-industrial and commodity food products, property develop-ment and hotel management, air transportation, petrochemicals, international capital and financial services, power generation and insurance. Among its well-known subsidiaries are the Universal Robina Corp. (consumer foods), Robinsons Land Corp., Cebu Pacific (airline company), and JG Summit Petrochemical Corp. Fig. 1 below shows the control and ownership structure in the Gokongwei Group. It can be seen that the holding firm is central in this structure, allowing the group to own and/or control, either wholly or partially, the highly diversified firms in different segments.

The business group as it is known today was built by the family patriarch, John Gokongwei Jr. (born in 1926) who is of Chinese descent. He is currently Chairman Emeritus of JG Summit and still plays an active role in the empire. He is considered one of the richest businessmen in the country, consistently landing in Forbes' The Philippines' 40 Richest. He made his fortunes initially from corn milling, later diversifying into manufacturing and eventually into the multi-segment group that it is today. The list of top stockholders of the holding firm is seen in Table 1 below. The majority stockholder is the Gokongwei Brothers Foundation, which is led by John Jr. himself, giving him and his family the effective control of the holding firm and all its subsidiaries. This structure is common to family-based business groups in the Philippines wherein a holding firm (with many diversified subsidiary firms), traces its ownership and control to an unlisted family corporation.

The board of directors of the company is shown in Table 2. John Jr. is Chairman Emeritus while his brother, James Go, is Chairman and Chief Executive Officer. Other family members are in the Board and hold executive positions, such as his son Lance, his daughter Robina, his sister Lily, and nephews Patrick and Johnson.

Table 1. Top 20 Stockholders of JG Summit, as of December 31, 2012.

	Name	No. of Shares Held	% to Total Outstanding
1.	Gokongwek Brothers Foundations, Inc.	1,997,076,451	29.38
2.	PCD Nominee Corporation (Filipino)	1,359,862,046	20.01
3.	RSB-TIG No. 030-46-000001-9	1,033,319,225	15.20
4.	John Gokongwei, Jr.	866,509,465	12.75
5.	PCD Nominee Corporation (Non-Filipino)	466,479,534	6.86
6.	Lance Y. Gokongwei & Elizabeth Gokongwei	234,845,280	3.46
7.	James L. Go	148,679,656	2.19
8.	John Gokongwei & Lance Gokongwei	141,030,450	2.07
9.	Gosotto & Co., Inc.	105,644,494	1.55
10.	Robina Gokongwei Pe & Elizabeth Gokongwei	72,345,278	1.06
11.	Liza Yu Gokongwei & Elizabeth Gokongwei	54,200,000	0.80
12.	Faith Gokongwei Ong & Elizabeth Gokongwei	36,100,000	0.53
12.	Marcia Gokongwei Sy & Elizabeth Gokongwei	36,100,000	0.53
12.	Hope Gokongwei Tang & Elizabeth Gokongwei	36,100,000	0.53
13.	Nicris Development Corporation	36,073,252	0.53
14.	Emma G. See	21,552,125	0.32
15.	Pacred Service & Investment Corporation	18,733,226	0.28
16.	Michael Seetekbeng	13,400,327	0.20
17.	Olympia T. Gotao	8,767,730	0.13
18.	Richard Yap	8,570,362	0.13
19.	Elizabeth Gokongwei	6,270,000	0.09
20.	Raymond T. Gotao	6,045,154	0.09
		6,707,704,055	98.69

Source: Annual Report submitted to SEC/PSE.

The patriarch John Gokongwei Jr. has six children (1 son and 5 daughters) - Robina, Lance, Lisa, Faith, Hope and Marcia. All his children play an active role, albeit in various capacities, in the companies owned by JG Summit Holdings. Robina, the eldest child, sits on the Board and is President and CEO of the Robinsons Retail Group which oversees a vast chain of department stores, supermarkets and specialty stores. Lance, the second child and only son, is now in charge of the Gokongwei Empire, serving as president and COO, and was appointed president of Cebu Pacific (the group's airline company) at age 30. Lisa, the third child, is President of a magazine publishing firm, the Summit Publishing Co., Inc, which is not actually among the core businesses of the Group. Hope is the general manager for Robinsons Appliances, and her twin, Faith, is vice president for marketing and merchandising of Ministop. Marcia is business unit general manager for Nissin URC and Hunts URC.

Table 2. Board of Directors of JG Summit, as of December 31, 2012.

Directors			
Directors, Chairman Emeritus	John Gokongwei, Jr.	86	Filipino
Directors, Chairman and Chief Executive Officer	James L. Go	73	Filipino
Directors, President and Chief Operating Officer	Lance Y. Gokongwei	46	Filipino
Director	Lily G. Ngochua	81	Filipino
Director	Patrick Henry C. Go	42	Filipino
Director	Johnson Robert G. Go, Jr.	47	Filipino
Director	Robina Y. Gokongwei-Pe	51	Filipino
Director	Gabriel C. Singson	83	Filipino
Director	Ricardo J. Romulo	79	Filipino
Director (Independent)	Cornelio T. Peralta	79	Filipino
Director (Independent)	Jose T. Pardo	73	Filipino

Source: Annual Report submitted to SEC/PSE.

Given the ownership structure and the role of family members (especially the children), one can glean the presence of the dynasty model at work in this group. For one, the only son (but not the eldest), is given a more senior position in the business empire. His position as President and COO makes him the third highest compensated person in the company. For another, the other siblings, especially from the third child to the youngest, were given relative minor positions in the company, taking over firms or segments in the empire which are not as major as what the eldest son Lance handles. This indicates that designating the son as heir to the empire is consistent with the dynasty model. It is worthy to note, however, that patriarch's brother, James, is given high importance in the group. He serves as Chairman and CEO, effectively possessing the power in the empire. This horizontal transfer of control, when seen as a means to tap the effective managerial capacity of the patriarch's brother, and possibly his mentoring role for the patriarch's son, can also support the dynasty model if this arrangement ensures the sustainability of the enterprise. However, when this constrains the group's ability to tap outside talent, then the efficiency of group operations can be compromised, putting the group in a less competitive stance in the industries they operate in.

4.1. Aboitiz Equity Ventures, Inc.

The Aboitiz Equity Ventures (AEV) is the holding firm for the business group identified with the Aboitiz Family of Cebu (a province in Central Philippines). Their core interests are in power distribution, power generation and retail electricity supply but have diversified into financial services, food manufacturing, real estate, and portfolio investments. The Aboitiz family has been in business for more than a century, initially dealing with abaca (Manila hemp) trading. The AEV in its present form became public in 1994 to consolidate family holdings. The top stockholder in AEV is the family-owned Aboitiz and Company (Table 3), which, like the case of the JG Summit, permits the family to take effective control of all the business enterprises within the group.

Table 3. Top Stockholders of Aboitiz Equity Ventures

	Stockholders	Nationality	Number of Shares	Percentage
1	Aboitiz & Company, Inc.	Filipino	2,735,600,915	49.54%
2	PCD Nominee Corporation	Filipino	677,392,349	12.27%
3	PCD Nominee Corporation	Non-Filipino	516,586,505	9.36%
4	Ramon Aboitiz Foundation, Inc.	Filipino	420,915,863	7.62%
5	Sanfil Management Corp.	Filipino	116,790,211	2.12%
6	Chanton Management & Development Corp.	Filipino	62,118,484	1.12%
7	Windemere Management & Development Corp.	Filipino	47,666,352	0.86%
8	Donya 1 Management & Development Corp.	Filipino	43,136,359	0.78%
9	Morefund Management & Development Corp.	Filipino	40,000,000	0.72%
10	Anso Management Corp.	Filipino	34,369,707	0.62%
11	Bauhinia Management, Inc.	Filipino	32,643,799	0.59%
12	Mario Ugarte	Filipino	23,531,731	0.43%
13	MYA Management & Development Corp.	Filipino	22,494,414	0.41%
14	Parraz Development Corp.	Filipino	22,380,003	0.41%
15	Les Folatiers Holdings, Inc.	Filipino	20,779,308	0.38%
16	Luis Miguel O. Aboitiz	Filipino	20,092,133	0.36%
17	Guada Valley Holdings Corp.	Filipino	17,688,445	0.32%
18	Mellisa Marie O. Aboitiz	Filipino	15,654,815	0.28%
19	Ms. Cristina; Jaime Jose Aboitiz; Luis Alfonso	Filipino	13,605,767	0.25%
20	UnionBank TISG as Investment Manager for MA #4B1	Filipino	12,737,111	0.23%
	Sub Total		4,896,184,272	88.67%
	Other Stockholders		625,687,549	11.33%
	Total Shares		5,521,871,821	100.00%
	Net Issued and Outstanding Shares		5,521,871,821	

Source: Annual Report submitted to SEC/PSE.

The present Aboitiz and Co traces its roots from a partnership called "Muertegui y Aboitiz", which was co-founded by Paulino Aboitiz (a Spaniard) in the early 1900s which dealt with abaca trading. Paulino was the acknowledged head of the family firm and Ramon, Paulino's second son (among 10 siblings) first assumed a position at the firm in 1910 at the age of 22. With Paulino's death in 1912, Ramon and his brothers formed Aboitiz & Company, Inc. with Ramon leading the company as it expanded into other ventures. Ramon's son, Eduardo, later took over the company before handing the leadership over to Ramon's brother, Luis. Then, Eduardo's brother Enrique took over from his uncle (Luis), after which Eduardo's son, Jon Ramon, became the CEO in 1994 when the AEV first went public. In 2009, Jon Ramon handed the reins over to his cousin Erramon who is currently the Chief Executive Officer and President of the Aboitiz & Co. (Jon Ramon is currently Chairman, taking over from his brother Roberto).

The Aboitizes currently in the top positions in the group represent the sixth generation of the family taking the helm of the family business. It is clear from the succession of the group leadership that the passing on the reins of power does not follow a direct line. Cousins and uncles can take over the leadership of the family business, probably depending on the need to find the most suitable person within the family to run the empire. In fact, in an interview for a newspaper feature in 2008 (Success secrets, 2008), the family was asked about some rules that family members should follow when working for the group. The following is a list of those rules taken from the interview:

> "The principle of meritocracy applies to all family members or professionals, regardless of who the person is or his parentage."

"All family members who want to work for the group must apply."
"The fairness principle must be upheld within the clan."
"Relatives applying must be qualified and have competitive credentials vis-à-vis the professional managers."
"Relatives should have good academic preparation and are first encouraged to work at least two years for other companies outside the group."
"Relatives who work with the group are not allowed to have any sidelines or other business interests, but must focus on their duties."
"All relatives who work for the group must retire at age 60, with the goal of encouraging younger kin to rise and take over important duties or responsibilities."
"The fairness principle must be upheld within the clan."
"The collective family elects the leader of the business conglomerate until he retires at age 60 and another leader is chosen."

Clearly, while the family mandates the perpetuation of its business interests and the maintenance of control within the family circle, the informal family code mentioned above indicates that a principle of meritocracy must exist to better ensure efficiency and sustainability. The Aboitizes in the current executive positions have degrees in business and related fields, many from universities abroad (USA). The transfer of power does not follow a direct line, indicating a search for the best person for the job, as mentioned earlier. There is also no tendency to cling on to power by virtue of inheritance or entitlement. In fact, based on the annual reports reviewed, Jon Ramon relinquished the presidency of the company when he turned 60, in conformance with the code that encourages the younger kin to take a shot at leadership. With his stepping down from the Presidency, it is worth noting that Jon Ramon did not transfer the position to any of his immediate kin (such as his two brothers, Roberto and Mikel who are also working for the family) and instead his cousin Erramon took over. Again, this is in conformance with the rule that the family as a whole picks the most qualified among the kin, ensuring that the best management person takes over the family business to further ensure its success. These actions are consistent with the dynasty model, in that the family line is perpetuated by placing the business in good hands (among family members) while maintaining dynastic control over the enterprises.

4.2. Ayala Corporation

The Ayala Corporation is the country's oldest conglomerate, tracing its origins from 1834 when the Zobel de Ayala family first ventured into partnerships and eventually transformed into a corporation, morphing into the large conglomerate that it is today. The Ayala Corporation is the publicly listed holding firm of the group, with highly diversified business interests such as in real estate (Ayala Land Inc, etc), financial services (Bank of the Philippine Islands), Telecommunications (Globe Telecom), water utilities (Manila Water Co, Inc.), information technology and BPO services (Azalea International Venture Partners), automotive (Ayala Automotive Holdings Corporation), electronics (Integrated Micro Electronics, Inc), power (AC Energy Holdings, Inc.), infrastructure (AC Infrastructure Holdings Corporation), and others (International, air-charter services, agri-business and others)

The parent company (major shareholder) of the Ayala Corp is Mermac Inc., the Zobel de Ayala family corporation that maintains control of the holding firm and its subsidiaries. Founded by the Zobel de Ayalas (Spanish descent), the Ayala Corp was built by a long line of wealthy families (Zobel-Ayala-Roxas) whose intermarriages resulted in a direct line of succession that preserve the family line. In 1967, Enrique Zobel, a direct descendant of the earliest Zobel de Ayala intermarriage, became the first Chief Executive of the then newly reorganized Ayala Corporation. In 1984, his first cousin, Jaime Zobel de Ayala took over and in 1995, Jaime's firstborn Jaime Augusto, became President, maintaining this position to this day.

The elder Jaime, now retired, has two sons (Jaime Augusto and Fernando) and five daughters (Beatriz Susana ("Bea Jr."), Patricia, Cristina, Monica and Sofia). He has passed on the reins to Jaime Augusto, who is just a year older than Fernando. Both are highly educated, well-trained, and capable to oversee the vast empire. While Jaime Augusto is Chairman and CEO, Fernando is President and COO and takes on an equally important position in the group. In fact, it is as if the management of the Ayala Group is well divided among the two sons, with both given chairmanships of important subsidiaries and affiliates (Table 4 and Table 5). This again indicates support of the dynasty model, whereby children capable of perpetuating the family business are given important positions, ensuring better success. The long line of succession spanning 180 years is testament to the success of this dynastic family firm who has maintained excellent reputation in all its business endeavors.

Table 4. The Directorship of Jaime Augusto in the Ayala Group

Director's Name	Corporate Name of the Group Company	Type of Directorship (Executive, Non-Executive, Independent) indicate if director is also the Chairman.
Jaime Augusto Zobel de Ayala	Bank of the Philippines Islands	Chairman, Non-Executive Director
	Integrated Micro-Electronics, Inc.	Chairman, Non-Executive Director
	Globe Telecom, Inc.	Chairman, Non-Executive Director
	Ayala Land, Inc.	Vice Chairman, Non-Executive Director
	Manila Water Company, Inc.	Vice Chairman, Non-Executive Director
	Mermac, Inc.	Co-Vice Chairman, Non-Executive Director
	Alabang Commercial Corporation	Non-Executive Director
	Ayala International Pte Ltd.	Non-Executive Director
	AC Energy Holdings, Inc.	Non-Executive Director

Source: Annual Report submitted to SEC/PSE.

Table 5. The Directorship of Fernando in the Ayala Group

Director's Name	Corporate Name of the Group Company	Type of Directorship (Executive, Non-Executive, Independent) indicate if director is also the Chairman.
Jaime Augusto Zobel de Ayala	Ayala Land, Inc.	Chairman, Non-Executive Director
	Manila Water Company, Inc.	Chairman, Non-Executive Director
	Ayala DBS Holdings, Inc.	Chairman, Non-Executive Director
	Alabang Commercial Corporation	Chairman, Non-Executive Director
	AC Energy Holdings, Inc.	Chairman, Non-Executive Director
	AC Finance International Limited	Chairman, Non-Executive Director
	Bank of the Philippine Islands	Vice Chairman, Non-Executive Director
	LiveIt Investment, Ltd.	Vice Chairman, Non-Executive Director
	Mermac, Inc.	Co-Vice Chairman, Non-Executive Director
	Globe Telecom, Inc.	Non-Executive Director
	Integrated Micro-Electronic, Inc.	Non-Executive Director
	Asiacom Philippines, Inc.	Non-Executive Director
	AG Holdings Limited	Non-Executive Director
	Ayala International Holdings Limited	Non-Executive Director
	AI North America, Inc	Non-Executive Director

Source: Annual Report submitted to SEC/PSE.

4.3. DMCI Holdings

DMCI Holdings is the holding company for the business interests of the family of renowned engineer and former Public Works Secretary David M. Consunji (born in 1924). The company consolidates all the construction business, construction component companies and related interests of the Consunji Family, with subsidiaries and affiliates such as D.M. Consunji, Inc. (general construction services), DMCI Project Developers, Inc. (project and infrastructure development), Semirara Mining Corporation (mining, devel-opment and sales of coal resources), DMCI Power Corporation, DMCI Mining Corporation, and DMCI-MPIC Water Company, Inc. The parent company of the holding firm is DACON Corporation, led by David Consunji (Table 6). This setting is again consistent with the ownership structure among Philippine family-based business groups in which an unlisted family firm takes control over the holding firm, thereby ensuring the family hold control over all its subsidiaries and interests.

The five children of David (Isidro, Jorge, Victor, Cristina, and Ma. Edwina) are all directors of the company, with the eldest, Isidro, serving as President and COO, taking over the reins from his now retired father David. While Isidro takes on the leadership role, his other siblings are given important positions in the company and in its subsidiaries. A nephew of David's, Herbert, is also given an important position in the company. The dynastic motive is clear in that leadership is preserved in the family, and the eldest son takes over. However, unlike the case of the JG Summit, there are no clear disproportionate roles taken by the other children in the company. There is an indication of equal distribution of roles (and opportunities) among all the other children, including a cousin. This setting probably provides an opportunity for family members to shine, or even compete amongst each other, in order to prove their mettle in possibly taking on further leadership roles in the company ensure its future success.

Table 6. Top Shareholders of DMCI Holdings

Title of Class	Name	Citizenship	Number of Shares Held	Percent of Class
Common	DACON Corporation	Filipino	1,215,393,901	45.77%
Common	Philippine Central Depository, Inc. (PCD)	Filipino	479,057,183	18.04%
Common	DFC Holdings, Inc.	Filipino	461,245,838	17.37%
Common	Philippine Central Depository, Inc. (PCD)	Filipino	425,164,093	16.01%

Note: Common Shares: 2,655,494,000 - of the total outstanding common shares, 441,325,468 common shares representing 16.6139% of the outstanding common shares are owned by foreign shareholders.

4.4. Conclusions

Based on the prominent business groups sampled, the dynastic motives in family-based business groups in the Philippines are evident. These highly diversified groups tend to perpetuate the business by concentrating control within family boundaries. The transfer of family control is dynastic, although the transmission of power is not always direct from father to child (as in the case of the Aboitiz Group).

While the dynastic motive is there in order to ensure the continuity of the family business, this motivation is balanced with efficiency concerns. There is evidence raised in the literature that family-based enterprises tend to lose out to competition when they limit their choice of managers to those within the family circle. However, in the case of Aboitiz and Ayala Corp., there is a sense of meritocracy prevailing in that only the best qualified and best trained kin can take on important roles in the enterprise. They must compete with one another to bring out the best person to take on the job, and direct lines of inheritance may be bypassed to favor a more capable leader.

An indication of primogeniture was observed, specifically in the case of the Gokongwei family. The only son is given a very high position, bypassing his elder sister, and taking on roles much greater than the rest of his younger (all female) siblings. This unequal participation of the progeny in the family business also reflects an appreciation of the varying competencies of the children and recognition of their proper places in the empire to ensure its success.

Equal opportunities may also be given to the children in order for them to shine and prove their worth. While the eldest child takes on the most prominent role in DMCI Holdings, the other siblings are also given directorship and executive positions that could allow them to display their capabilities, and even compete with another, to make them stand the test of completion from the outside. This could also help facilitate the search for suitable heirs in the future.

It would be worth expanding the sample to cover other family-based groups in the country that may have different configurations that would support (or contradict) the propositions of the dynasty model. Comparisons with non-family-based business groups would also be worthwhile to benchmark performance and identify differential factors that may lead to future success (or extinction) of these dynastic family-based groups. However, these are all areas for future research.

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ISSN 1946-5130

Journal of Global Business and Trade

www.iagbt.com

Testing the Inflation Convergence among the Original ASEAN Members

Maria Luisa G. Valera[a] and Harold Glenn A. Valera[b]

[a] *Department of Economics , College of Economics and Management University of the Philippines Los Baños, Phillipine*
[b] *Department of Economics, Waikato Management School, The University of Waikato, New Zealand*

Received 26 August 2014 Revised 2 October 2014 Accepted 30 October 2014

ABSTRACT

This paper examines the inflation linkages in the original ASEAN member countries (ASEAN-5) using time-varying parameters, common trends and tests for weak exogeneity from January 1990 to June 2012. The results using the full sample period indicate no evidence of Singaporean leadership despite increased financial and goods market integration among the ASEAN-5 in recent years. The results reveal evidence of partial convergence in the sub-period when inflation rates are generally stable. The study has two implications. First, the results appear to be consistent with the other studies that despite the obvious financial and goods market integration, ASEAN-5 are not ready to adopt the single currency because they are prioritizing the stability of their domestic currency, as well as, setting inflation targeting to avoid fluctuating price level. These countries also fear losing the monetary flexibility that is associated with the issue of political sovereignty. Second, the costs of monetary integration within its members are high, resulting in the reluctance of economic leaders to have a common institution handling and controlling Asia.

Keywords: ASEAN-5, cointegration, inflation convergence, single currency

Ⅰ. Introduction

A single currency means having the ability to establish one single central bank which would replace all other existing banks in the area (Thong et. al, 2010). The adoption of a common exchange rate and monetary policies for the area is one of the major objectives.

Numerous literature concluded that many countries around the world were inspired by the formation of a single currency in Europe in 1999 to form an economic integration that includes the Association of Southeast Asian Nations (ASEAN) countries. However, many arguments have been studied by the different nation leaders on the readiness of the ASEAN members, especially the original members, which include Indonesia, Malaysia, Philippines, Singapore and Thailand.

The continuously increasing degree of international financial and goods markets integration in the founding members of the ASEAN served as a good signal that it might be the time for them to adopt a single currency. An important question of such a trend is whether there is inflation convergence in the ASEAN-5 member countries over time since inflation convergence is one of the considered criteria used as a

precondition to single currency adaptation together with trade intensity or integration (McKinnon, 1963) or regional production patterns (Kennen, 1969); high degree of factor mobility (Mundell, 1961); and others, such as extensive trade relationships, synchronous business cycles and a certain extent of policy congruence. Greater emphasis was actually given to having similar levels of inflation for creating a monetary union since only a single monetary policy can be implemented for all regions in the union (Nagayasu, 2011). Although countries such as Thailand, Indonesia and the Philippines shifted to inflation targeting to achieve low domestic inflation, the absence of a price stabilization mechanism in the region as a whole could potentially affect inflation discipline in the region.

The direct gain from a single currency is the elimination of the transaction costs involved in bilateral exchanges between the regional currencies and of any remaining uncertainty about the bilateral exchange rates, meaning greater transparency, that will broaden economic integration as a whole (Jadresic, 2002). Enhanced cross-border investments and factor allocation as well as enforced policy commitment are the other benefits that Alesina and Barro (2002) further explained. They argued that countries which lack internal discipline for monetary policy would gain from giving up their currencies and this central monetary bank will provide and commit to the sound monetary policy for them. This is especially obvious in the cases of smaller countries.

However, the disadvantages of a single currency include the loss of monetary policy flexibility, the issue of political sovereignty, and the disturbance of domestic policy or priorities (Thong et al., 2010). The increased economic integration would eventually lead to high asymmetric shocks causing each country to specialize in specific localized outputs that will lead to divergence resulting to increasing costs of monetary union (Krugman, 1993).

The purpose of this study is to examine inflation convergence in Indonesia, Malaysia, Philippines, Singapore and Thailand from 1990 to 2012, addressing the following: (1) to what extent inflation rates of ASEAN-5 members have been experiencing differing degrees of convergence over time; and (2) to what extent inflation rates of ASEAN-5 economies converge towards Singapore's level of inflation. Singapore was used as the benchmark or leader country because of its huge GDP size compared to the rest of the ASEAN-5 economies. In addition, it appears that it is the only country with the most correlated inflation level and growth level among the rest of the ASEAN original members.

Inflation convergence in the ASEAN has been investigated before. Kisswani and Nusair (2011) previously showed strong evidence of stationary inflation rate differentials in Indonesia, Malaysia, Philippines, Singapore and Thailand relative to the U.S. and Japan. These authors used the standard Augmented-Dickey Fuller (ADF) unit root test in examining the stationarity of inflation differentials, and found evidence of convergence as implied by stationary differentials. Despite its close relevance for inflation linkages in the ASEAN-5 countries, there is a dearth of research on Singaporean leadership in the context of inflation discipline in the region. In response, this study aims to move Kisswani and Nusair's (2011) findings one step further by providing empirical evidence on testing for inflation convergence relative to Singapore. Moreover, this paper extends the previous studies by using the time-varying approach to reinvestigate whether there has been an increasing tendency for the inflation rates across ASEAN-5 economies to converge with respect to Singapore.

The rest of the paper is structured as follows. Section 2 provides a discussion of the relevant empirical studies on inflation convergence. Section 3 explains the data and econometric methodology. Section 4 presents and discusses the results. Section 5 closes with a conclusion.

Ⅱ. Empirical Studies on Inflation Convergence

The commonly used econometric methodologies in providing evidence for inflation convergence include the time-varying parameter approach, cointegration analysis, and unit root testing for inflation rate differentials. In the first category, evidence of inflation convergence within the European economies has been examined by Hall et al. (1992) using the Kalman filter technique and these provided broad conclusions that a much slower and more protracted process of convergence has been taking place within this region. Following the same econometric approach, Holmes (1998) examined inflation convergence in the Exchange Rate Mechanism (ERM) for the manufacturing and service sectors and found no evidence of German leadership for both sectors. Lagoa and Hall (2011) offer a more recent investigation of the convergence of inflation rates in the euro area from 1980 to 2008 by using an unobserved component model estimated with the Kalman filter. They found out that convergence of inflation rates and business cycles are more aligned in the euro area. Furthermore, the output gap is better than unit labor costs as an indicator of a business cycle when studying convergence, but it was still found that inflation rates have converged faster than the output gap.

The second group of studies employed cointegration analysis to identify common stochastic trends in the data on inflation rates. Previous studies including Caporale and Pittis (1993), Thom (1995), Siklos and Wohar (1997), Holmes (1998), Westbrook (1998), Amián and Zumaquero (2002), and Mentz and Sebastian (2003) regarded the existence of the smaller number of common stochastic trends or greater number of cointegrating relations as evidence of convergence between inflation rates (Spiru, 2007).

In terms of examining inflation convergence using a unit root test, Kisswani and Nusair (2011) employ monthly CPI-based inflation rates for the period 1990 to 2011 to study the nonlinear convergence of inflation rates of ASEAN-5 member countries relative to the U.S. and Japan. They interpreted the existence of stationary inflation differentials in these countries as evidence of convergence relative to the United States of America. Outside of the Asian context, Kočenda and Papell (1997) apply panel unit root tests on inflation convergence within European Union countries. Using quarterly CPI-based inflation rates for the period 1952 to 1994, they found evidence of inflation convergence, largely among countries participating from the start in the ERM. On the other hand, Holmes (2002), using monthly CPI-based inflation data over the period interval from 1972 to 1999 finds that inflation convergence was strongest during the period 1983 to 1990, whereas the turbulence experienced within the ERM in the early 1990s conferred some degree of macroeconomic independence to certain member countries.

Ⅲ. Data and Econometric Methodology

The data set for this paper was sourced from the IMF's International Financial Statistics online database and is comprised of monthly consumer price index (CPI) data for Indonesia, Malaysia, Philippines, Singapore and Thailand for the period covering January 1990 to June 2012. We measure monthly inflation, π_t , as the annual difference of the natural log of the price index, *P*, that is π_t is defined as:

$$\pi_t = 100 * (\ln P_t - \ln P_{t-12}) \quad (1)$$

Calculating the mean squared deviation of non-Singaporean (Indonesia, Malaysia, Philippines and Thailand) inflation rates from Singapore's inflation rate, Fig. 1 reveals considerable fluctuations in the ASEAN-5 over the study period. The plots suggest that non-Singaporean inflation rates have diverged from Singapore's inflation rate. This is evident even before and after the 1997-1998 Asian financial crisis, except for Indonesia, where the inflation rate had converged towards Singapore's inflation rate before 1997. This initial examination suggests that any divergence of inflation from Singapore's inflation rate is due to the independence of each of the ASEAN-5

member countries in terms of its monetary and inflationary outlook within the region.

The model used in this paper follows that of Holmes (2005) and consists of two formal tests: one, to estimate time-varying parameters using the Kalman filter and second, to test inflation convergence using cointegration analysis. The following equation is estimated for each country,

$$\Delta P_t^i = \alpha_t + \beta_t \Delta P_t^{Sin} \quad (2)$$

where*i* = Indonesia, Malaysia, Philippines and Thailand.

The major interest in this paper rests in interpreting α_t and β_t , namely: when $\alpha_t = 0$ and $\beta_t = 1$ these mean that convergence with Singapore is confirmed; when $\alpha_t \to 0$ and $\beta_t \to 1$ these mean that domestic and Singapore inflation rates are converging over time; and when $\beta_t \to 0$ this means there is divergence from Singapore inflation rates. Holmes (1998) emphasized that this methodology enables us to compare the speeds of convergence in inflation rates and identify key dates in the convergence process which may have facilitated closer ties vis-à-vis Singapore, which is widely regarded for its central role in the ASEAN.

The common stochastic trends in the data series were examined using cointegration analysis based on Johansen (1988) and Johansen and Juselius (1990)'s estimation procedure because it tests the convergence among ASEAN-5 inflation rates. Holmes (1998) employs the inflation convergence measure and distinguishes between complete and partial convergence. If for a given number of *r* cointegrating vectors among *n* variables exist, where $r < n$, the existence of $n - r$ share trends is assumed. The existence of a single common shared trend, where $n - r = 1$, is regarded as evidence of convergence which is complete if the null hypothesis of homogenous cointegrating vectors is accepted. Evidence of partial convergence is interpreted if there is more than one common shared trend where $0 < r < n - 1$. The evidence of no long-run convergence of inflation rates is interpreted with the presence of *n* stochastic trends but not common *shared* trends where $r = 0$.

Finally, we use Johansen estimates to investi-gate the issue of long-run causality and Singapore leadership within the ASEAN-5 inflation rates. In particular, we test whether Singapore is weakly exogenous with respect to the system of ASEAN-5 inflation rates. Following Johansen and Juselius (1992), the test restricts the error-correction mechanism obtained from cointegration analysis to zero. Under this test, Singapore is weakly exogenous if the null of weak exogeneity is accepted.

Ⅳ. Results

4.1. Time-varying Parameters

The estimated equation (2) using the Kalman filter and plots estimates of β_t for inflation are seen in Fig. 2. While there is evidence that β_t has stabilized towards a constant from 1999 until before 2008 for Malaysia, Philippines and Thailand, there is no evidence that $\beta_t \to 1$. After a slight downward movement before 2008, $\beta_t \to 0$ until mid-2012 for these three countries, while $\beta_t < 0$ for Indonesia. The results suggest there is no evidence of convergence with respect to Singapore inflation rates. This conforms to the high degree of independence of each of the ASEAN-5 member countries in terms of its monetary and inflationary outlook within the region where Indonesia, Philippines and Thailand have implemented inflation targeting.

4.2. Cointegration Analysis

Before embarking on cointegration analysis, Phillips-Perron unit root tests were performed to determine the order of integration, with a lag length of 1 in all cases was chosen based on the Schwartz information criterion. Phillips-Perron unit root tests show that the inflation rate series are integrated of order one or first-difference stationary processes. Accordingly, the possibility of long-run relationships using the Johansen likelihood ratio tests for cointe-

gration were examined and the results are reported in Table 1, Part A. The Trace tests reveal the presence of five cointegrating vector relationships. This indicates that inflation is characterized by the absence of common share trends during the full sample period, and that there is no evidence of long-run convergence of inflation rates. It is worth mentioning that the full sample period includes several structural changes that have occurred in the ASEAN-5 countries, particularly the 1997-1998 Asian financial crisis, the global economic downturn in 2008, and the shift to inflation targeting in Indonesia and Thailand in 2000 and the Philippines in 2002. Under these circumstances, structural instability rejected convergence for the whole period and therefore examining convergence in sub-periods when there are no structural changes is valid. Then, proceed by examining Fig. 2 and determine the sub-period at which β_t becomes generally stable. Identifying the sub-period from January 1999 to December 2007 is necessary because it characterizes the period after and before the financial crisis-related episodes in 1998 and 2008, respectively. Part B of Table 1 reports tests for cointegration for inflation over the sub-period January 1999 to December 2012. The Trace tests indicate just a single cointegrating vector at the 5% level of significance, suggesting that there is partial convergence relative to Singapore inflation rates. This means that adoption of a single currency in ASEAN-5 is partially appealing but may not be feasible.

Fig. 1. Inflation in the ASEAN-5 Member Countries

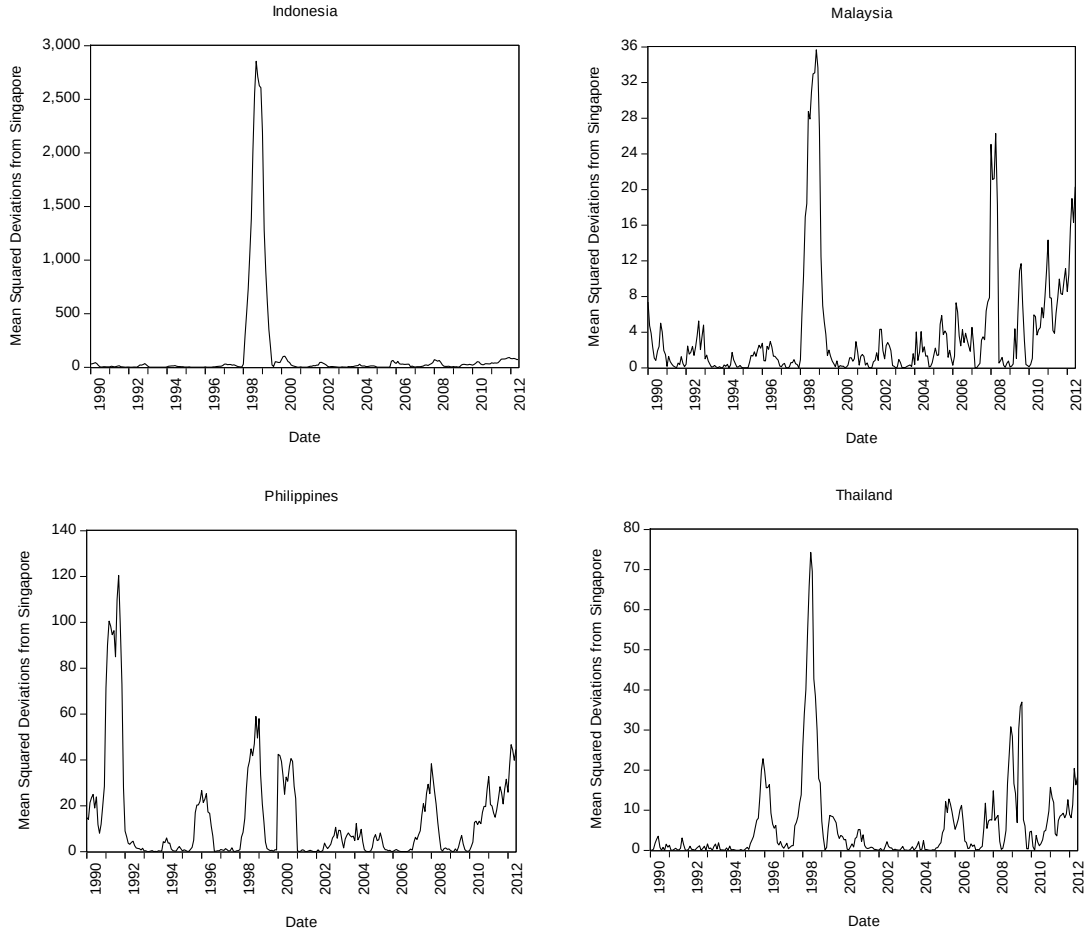

Fig. 2. Time-Varying Betas for Inflation

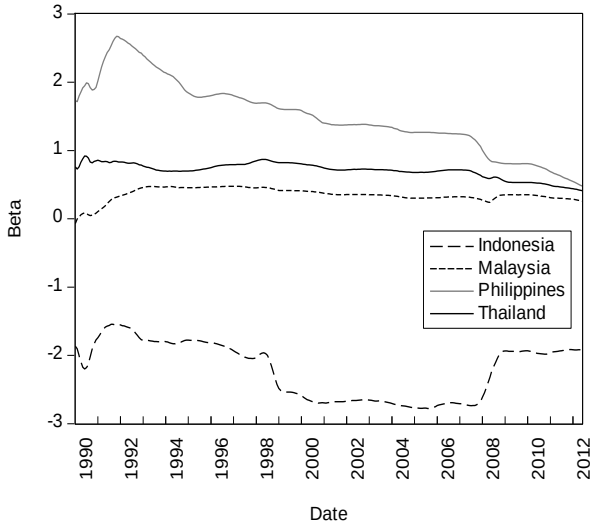

Table 1. Tests for Cointegration

Null	r = 0	r ≤ 0	r ≤ 2	r ≤ 3	r ≤ 4	n - r
A. 1990.1 - 2012.6	309.09**	208.34	125.10	61.67	25.67	0
B. 1999.1 - 2007.12	82.56***	47.52*	21.42	7.17	1.17	4

Note: * * * and * indicate rejection of the null at the 1, and 10% significant levels.

Table 2. Tests for Weak Exogeneity

	Indonesia	Malaysia	Philippines	Thailand	Singapore
A. 1990.1 - 2012.6	21.979***	55.073***	32.958***	34.739***	27.541***
B. 1999.1 - 2007.12	0.084	0.069	5.247**	6.203**	1.773

Notes: Tests are distributed as $\chi 2(r)$ on the null of weak exogeneity where r is the number of significant cointegrating vectors (see Table 1).
* * * and * * indicate rejection of the null at the 1 and 5% significant levels.

4.3. Testing for Weak Exogeneity

Table 2 reports tests for weak exogeneity to examine the Singaporean leadership in terms of inflation rates in the ASEAN-5. Using the full sample period, Part A of Table 2 shows that the null of weak exogeneity is rejected in all sample countries. Table 2, Part B reports test for weak exogeneity using the sub-period January 1999 to December 2007. The null is rejected in the case of the Philippines and Thailand, while Indonesia, Malaysia and Singapore are weakly exogenous. Given that Singapore inflation rates are not the only weakly exogenous ones, this finding indicates that inflation in Singapore is caused by inflation in other ASEAN-5 member countries. This further suggests that the role of Singapore may be interpreted as being interactive rather than dominant in nature.

Ⅴ. Conclusion

This paper examines inflation convergence in the ASEAN-5 member countries from January 1990 to June 2012 using time-varying parameters, cointegration analysis, and tests for weak exogeneity in aggregated price series. Using the full sample period, the results show no evidence of Singaporean leader-ship despite increased financial and goods market integration in ASEAN-5 in recent years. However, the results reveal evidence of partial convergence in the subperiod when inflation rates are generally stable which means that adoption of a single currency in ASEAN-5 is partially appealing but may not be feasible.

It was not feasible in many countries, especially in Asia, due to differing economic, political and cultural aspects, particularly a huge disparity in per capita income, very different stages of growth and the factor mobility remains low, especially in regard to labor mobility (Thong et.al, 2010).

The findings of this study have two implications. First, the results appear to be consistent with the other studies that despite the obvious financial and goods market integration, ASEAN-5 countries are not ready to adopt a single currency because they are prioritizing the stability of their domestic currency as well as setting inflation targeting to avoid fluctuating price levels. These countries also fear losing monetary flexibility that is associated with the issue of political sovereignty. Second, the costs of monetary integration within its members would be high resulting in the reluctance of economic leaders in having a common institution handling and controlling Asia.

A key limitation of this study is the use of aggregate price series. Future work might look for evidence of inflation convergence for the manufacturing and service sectors (Holmes, 1998) and by using a paired-cluster instead of regional blocks.

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