

**ENTREPRENEURSHIP
AND TRADE**



ENTREPRENEURSHIP AND TRADE

SELECTED ESSAYS FROM
THE ANGELO KING INSTITUTE FOR
ECONOMIC AND BUSINESS STUDIES

Edited by
Paulyne J. Castillo



De La Salle University Publishing House
2016

ENTREPRENEURSHIP AND TRADE

Selected Essays from The Angelo King Institute for Economic and Business Studies

Copyright © 2016 by The De La Salle University

All rights reserved. Except for the quotation of short passages for the purposes of criticism and review, no part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher.

Published and distributed by
De La Salle University Publishing House
2401 Taft Avenue, Manila 0922, Philippines
Telefax No. (632) 523-4281
Email: dlsupublishinghouse@dlsu.edu.ph
Website: <http://www.dlsu.edu.ph/offices/publishing-house/default.asp>

*The De La Salle University Publishing House is the publications office
of De La Salle University, Manila, Philippines.*

Cataloguing-in-Publication Data

HD Entrepreneurship and trade : selected essays from the Angelo King
2346 Institute for Economic and Business Studies/edited by Paulyne J.
.P6 Castillo—Manila : De La Salle University Publishing House, 2016
E27 225 p. ; 23 cm.
2016

ISBN: 978-971-555-642-2

1. Small business—Philippines—Case studies. 2. Business Philippines—
Case studies. I. Castillo, Paulyne

Cover Design: Shedina de Guia

Contents

Editor's Preface	vii
It's a Small World After All <i>Paulyne J. Castillo</i>	
1 Determining the Directional Flows of Foreign Direct Investments in the ASEAN Region: Key Macroeconomic and "Doing Business" Indicators Affecting the Direction of ASEAN FDI Inflows and Its Impact on Intra- and Extra-ASEAN Trade <i>Roberto B. Raymundo</i>	1
2 Trade and Investment in the Philippines <i>Hazel C. Parcon-Santos</i>	36
3 Issues on International Trade and Investment and Its Implications for Further Research <i>Angelo B. Taningco</i>	62
4 International Migration and Remittances: A Review of Economic Impacts, Issues, and Challenges from the Sending Country's Perspective <i>Tereso S. Tullao, Jr. and Christopher James R. Cabuay</i>	76
5 Signal Extraction from the Components of the Philippine National Accounts Statistics Using ARIMA Model-Based Methodology <i>Cesar C. Rufino</i>	104
6 Entitlement Mentality: Undertones in Unproductive Conflict in Family Businesses <i>Andrea L. Santiago</i>	146

7	Community-Based Entrepreneurship: An Alternative Social Enterprise Model for Small Communities in Poor Municipalities <i>Emilina R. Sarreal</i>	173
---	--	-----

	Contributors	211
--	--------------	-----

Editor's Preface

It's a Small World After All

Developed and developing countries have been working together for more than three decades to remove the barriers to trade and investment. Tirelessly, delegations representing citizens from all corners of the globe gathered in host cities to formulate policies that would reduce and, ultimately, eliminate the impediments to the exchange of goods and services. Economies, subsistence and industrialized alike, that pioneered trade liberalization in the 1980s (i.e., China and India) enjoyed rapid national income growth. Dollar (2001) confirmed that the 1990s per capita income of developing-country globalizers rose faster—at an average of 5%—than that of non-globalizers and rich countries—averages of 1.4% and 2%, respectively. More importantly, Dollar (2001) ascertained that trade-induced economic growth raises the income of the poor as much as it raises average income.

Spurred by the prospect of providing opportunities for a greater segment of the world's population, leaders of governments have expanded the scope of cooperation to include initiatives that would allow the freer flow of "capital, people, information, and ideas" (Agenor, 2004, p. 3). Complemented by innovations in the information and transportation sectors, the implementation of these measures has resulted in "the growing integration of societies and economies" (Dollar, 2001, p. 2) or a world without borders.

This paper attempts to integrate the findings of the seven articles contained in this edition of *Angelo King Institute Selected Essays on Entrepreneurship and Trade*. In particular, the discussion attempts to 1) highlight the insights on trade and investment offered by Dr. Roberto Raymundo, Dr. Hazel Parcon-Santos, and Prof. Angelo Taningco; 2) underscore the importance

of international migration and remittances on the Philippine economy as disclosed by Prof. Christopher Cabuay and Dr. Tereso Tullao, Jr.; 3) draw attention to the new methods and techniques in managing and analyzing macroeconomic data as revealed by Dr. Rufino; and 4) stress the necessity of ensuring that the needs of impoverished communities and family businesses are addressed—as discussed in the papers of Dr. Andrea Santiago and Dr. Emilina Sarreal—to guarantee that economic growth specifically benefits “the least, the lost, and the last” (The Bible Talks, 2010).

Trade and Investment

The literature chronicles an increasing number of bilateral, regional, and multilateral agreements—particularly in the Asian region—that seeks to loosen the restrictions imposed by physical borders on trade and investment (i.e., tariff and nontariff barriers, trade facilitation issues, trade in services, etc.) (Taningco, 2015). In consonance with the rest of the world’s aspiration of improving living standards, the Philippines began the task of liberalizing its trade policies in the 1980s with the introduction of a series of tariff reform programs (TRPs). Gradually, and through its participation in bilateral, regional, and multilateral accords, the Philippines increased access to its domestic market by reducing and/or removing duties and tariffs on foreign goods, capital, and raw materials (Parcon-Santos, 2013). Similarly, foreign investment treaties in the world arena translated to Philippine policy reforms that, according to Parcon-Santos (2013), included the 1) simplification and consolidation of laws on foreign direct investment incentives, particularly the provision of tax holidays and tax income deductions (Omnibus Investment Code of 1987); 2) expansion of foreign equity participation in sectors that are not prohibited (i.e., Philippine Constitution) nor listed in the Foreign Investment Negative List (Foreign Investment Act of 1991); 3) “greater private sector participation in the development and management of the country’s special economic zones and expanded the activities permitted within the zones” (Special Economic Zone Act of 1991) (Parcon-Santos, 2013, p. 15); and 4) sector-specific liberalization efforts such as those that involved the banking (General Banking Law of 2000) and retail (Retail Trade Liberalization Act of 2000) industries.

Cataloging the impacts of a more liberalized trade regime on the Philippine economy, various researches revealed the following outcomes: 1) improvements in productivity, output (including agricultural-sector output), income distribution (particularly, increases in the price of unskilled labor), and export and import propensities—but possibly at the expense

of labor and environmental standards (Parcon-Santos, 2013)—and 2) expansion of the industrial sector but a reduction in agricultural production, a rise in gross household income, and promotion of human development—specifically through service trade liberalization (Taningco, 2015).

Philippine investment policy reforms, on the other hand, have resulted in 1) economic growth; 2) crowding in and, sometimes, out of domestic investments (Parcon-Santos, 2013); 3) human capital and infrastructure development (Parcon-Santos, 2013); and 4) improvements in investor confidence and the country's business environment (Taningco, 2015).

Beyond the identified impacts of foreign direct investments (FDIs) on the Philippine economy, Raymundo's (2013) study disclosed additional positive and negative spillovers experienced by developed-and developing-host countries that includes, 1) the growth and development of local enterprises through the introduction of efficient methods of production and increased access to foreign markets, 2) the creation of a greater demand for skilled workers, and 3) the slant in market forces and domestic policies in favor of multinational corporations.

Despite its continuous attempts, relative to its neighboring countries, the Philippines has not had much success in attracting foreign direct investments. Parcon-Santos (2013) and Raymundo (2013) attributed the difficulties to the economy's inability to address the key FDI determinants—which, according to findings of a myriad of studies, include “macroeconomic and political stability, labor productivity, and infrastructure, among others” (Parcon-Santos, 2013, p. 26). Raymundo's (2013) panel regression results which included the fundamental macroeconomic and “doing business” indicators of nine ASEAN countries—except Myanmar—for the period 2007 to 2011 reinforced the findings that “market size, sustained economic growth, per capita GDP, infrastructure support, and foreign exchange rate are the key macroeconomic variables that influence the entry of FDI into the ASEAN region” (p. 33). Moreover, Raymundo's (2013) findings determined that foreign direct investments gravitate to economies with lower startup and trading across border costs (i.e., direct and opportunity costs) as well as those that protect investors.

Thus, reaping the benefits of greater economic integration that is made possible by trade and investment liberalization, according to Raymundo (2013), requires the simplification of the processes for starting a business (i.e., securing permits and clearances, business registration, payment of taxes, etc.) and trading across borders.

Parcon-Santos (2013) and Raymundo (2013), however, cautioned that safeguards must be put in place to mitigate the adverse effects liberalization and, therefore, protect the interests of the host countries. These safety nets

should prioritize antitrust measures, stringent tax monitoring and collection regulations, and adequate environmental laws.

In the area of research, further studies, especially empirical and quantitative verifications of the impact of trade and investment liberalization (i.e., using CGE microsimulation models), can assist in better understanding and managing the ever-evolving policy environment. Specifically, Taningco (2015) urged the conduct of 1) “case studies on local firms...to better understand the economic impact of bilateral and regional FTAs in the Philippine setting” (p. 15), 2) a “comprehensive investigation of the current barriers to services trade facing the Philippines and to empirically identify the determinants of the country’s trade in services” (p. 15), and 3) “Philippine-specific studies [on]...the macroeconomic determinants of FDIs, the role of political institutions in influencing FDIs, the importance of PPPs in attracting FDIs, and the potential spillover effects of FDIs on domestic firms” (p. 16).

Parcon-Santos (2013) echoed the need to verify the findings of the literature by using micro-based data and enhance econometric techniques and models. Focus, according to her, must be directed to, among others, investigating the impact of investment liberalization on prices, the labor market, and welfare.

International Migration and Remittances

The more open economic environment, combined with advances in the transportation industry—particularly in the air transport subsector—resulted in increased business and leisure travels across the globe. Accordingly, remittances from overseas workers currently rival trade and investment earnings in fueling the growth of all economies, especially those of developing countries.

International migration is an avenue for developing-country nationals “to exploit economic opportunities, sidestep undesirable national circumstances, improve human capital, and maximize income across time” (Tullao & Cabuay, 2012, p. 1). Migration, according to Tullao and Cabuay (2012), is a household decision that is driven by economic, demographic, political, and social factors inherently found in the sending and host countries. Research focusing on the issue verified that international migration, through remittances, results in 1) on the micro level, a more efficient distribution of labor services across the world and reduces credit constraints for remittance-receiving households and 2) on the macro level, improvement in the country’s credit worthiness and enhances economic performance (Tullao & Cabuay, 2012).

In the Philippines, Secretary Arsenio Balisacan (2015) of the National Economic and Development Authority attributed the economy's recent growth to private consumption, which is partly stimulated by overseas Filipino worker (OFW) remittances. It is worth noting that OFW remittances grew by 5.9% in 2014—from 2013's US\$23 billion to US\$24.3 billion in 2014—and has already reached US\$7.8 billion in April 2015 (Bureau of Labor and Employment Statistics, n.d.).

After a careful study of migration and remittances, Tullao and Cabuay (2012) concluded that migrants remit because of altruism, self-interest, or a combination of both. Hence, in order to effectively assist households and economies to maximize the gains from migration—and, thus, remittances—as well as to mitigate the negative outcomes from the same, they urged that further studies be conducted on the motivations for remittances, using theoretical and mathematical analyses, and on the link between education, migration, and remittances and the investment motive.

Managing and Treating Macro Data

The foregoing recommendations for further studies require reliable data. Rufino (2011) contended that “the most important economic data produced by the Philippine statistical system are the quarterly time series of the components of the country's national accounts” (p. 20), which can be used as one of the bases for economic policy making, business cycle analyses, and forecasting.

Thus, a more accurate treatment of these information (i.e., accounting for short-term movements) can be achieved through the adoption of the signal extraction method—utilized by two ARIMA model-based systems, namely, “ARIMA X12 of the US Bureau of Census and the twin programs TRAMO-SEATS developed at the Bank of Spain” (Rufino, 2011, p. 20), which factor in previously unobserved influences such as the seasonality of time series data (Rufino, 2011).

In his study, Rufino (2011) confirmed that the ARIMA model-based (AMB) approach of extracting unobserved signals “using the TRAMO-SEATS system in a fully automatic modeling mode” (p. 21) can be used on Philippine data and, thus, replace the current ARIMA X11 system, which merely performs routine seasonal adjustment and time series decomposition tasks.

Certainly, follow-up studies must be conducted to refine the application of this method on Philippine data, but the efforts are critical in conducting the academic and practical inquiries necessary to assess the impact of local and global policy changes on Philippine society.

Entrepreneurship

Among the ways by which individuals can take advantage of the more liberalized world economy is by establishing businesses. Entrepreneurship, on the micro level, can serve as a means of “breaking through the barriers of class, age, gender, social orientation, and race” (Cooney, 2012).

In the Philippines, more than 95% of all enterprises are considered to be micro, small, or medium sized. In terms of numbers, the top three regions in 2012 were the National Capital Region (33.8%), CALABARZON (13.4%), and Central Luzon (9.2%), whereas broad-based grouping revealed that agriculture had the least number of establishments, 1.1% relative to industry’s 12.9% and services’ 86% (Philippine Statistics Authority, n.d.). Moreover, as Filipinos normally partner with family members when setting up businesses, a considerable number of these establishments, some 80%–90%, are family owned (Santiago, 2014). Thus, promoting and sustaining the entrepreneurial spirit in the Philippines require groundbreaking approaches to address the unique situations faced by individuals who are living in the countryside and engaged in agriculture and agriculture-related activities as well as firms managed by families.

Sarreal (2012) proposed the implementation of community-based entrepreneurship (CBE) in specific villages/towns that lack resources and struggle with socioeconomic stressors (i.e., labor underutilization) “to generate jobs, income, and economic value-added” (p. 1). The study emphasized that under these conditions, primarily present in rural areas, social capital is the only asset that communities can rely on to cope with the lack of economic opportunities. Sarreal (2012) also illustrated how communities that are predisposed to CBEs can be identified and recommended measures—including capacity building and the creation of well-functioning infrastructure—to ensure the success of CBEs.

Santiago (2014), on the other hand, presented a compelling argument for looking into and addressing the distinctive needs of family businesses. She asserted in her study that very little has been done, by way of academic research, in the area of conflict management in family businesses. She contended that unresolved conflict can “divert attention away from the business” (Santiago, 2014, p. 16), “hinder business growth” (Santiago, 2014, p. 18), and, ultimately, affect business longevity.

Our Message

Aided by technology—communication, information, and transportation—the growing cooperation among countries has resulted not only in the elimination of barriers to trade, investment, and movements of people but also in the creation of a number of means to fight poverty. Economic opportunities, be it in terms of finding jobs, generating higher incomes, and/or investing in human capital, are no longer limited by country borders. Today, agreements between nations make it possible for people and corporations to locate where the prospect for a better life exists.

While researches provided evidence that the more liberalized regime has, to some extent, reduced poverty, studies also confirmed that more can be done to ensure that every household can afford its basic needs. The work is, therefore, far from finished, but the decades of negotiations have upheld the hope that the world is small enough for its inhabitants to reach out and help one another.

References

- Agenor, P. (2004). *Does globalization hurt the poor?* Washington, DC: World Bank.
- Balisacan, A. (2015). *The state of the Philippine economy*. A paper presented to the Ayala-UPSE Economic Forum held on 29 January 2015 at the Intercontinental Manila, Makati City.
- Bureau of Labor and Statistics. (n.d.). *Remittances of overseas Filipinos by country of origin: 2013–April 2015*. Retrieved from <http://www.bles.dole.gov.ph/PUBLICATIONS/Current%20Labor%20Statistics/STATISTICAL%20TABLES/PDF/Tab44.pdf>
- Cooney, T. (2012). *Entrepreneurship skills for growth oriented businesses*. A report for the Workshop on “Skills Development for SMEs and Entrepreneurship” held in Copenhagen on 28 November 2012.
- Dollar, D. (2001). *Globalization, inequality, and poverty since 1980*. Development Research Group, World Bank. Retrieved from <http://www.gdsnet.org/DollarGlobalizationInequality.pdf>
- Parcon-Santos, H. (2013). *Trade and investment in the Philippines*. Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).
- Philippine Statistics Authority. (n.d.). *2012 Philippine census of Philippine business and industry—Economy-wide for all establishments: Final results*. Retrieved from <https://psa.gov.ph/content/2012-census-philippine-business-and-industry-economy-wide-all-establishments-final-results>
- Raymundo, R. (2013). *Determining the directional flows of foreign direct investments in the ASEAN region: Key macroeconomic and “doing business” indicators affecting*

- the direction of ASEAN FDI inflows and its impact on intra- and extra-ASEAN trade.* Angelo King Institute Research Grant Program on Globalization. Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).
- Rufino, C. (2011). *Signal extraction from the components of the Philippine National Accounts statistics using ARIMA model-based methodology.* Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).
- Santiago, A. (2014). *Entitlement mentality: Undertones in unproductive conflict in family businesses.* Angelo King Institute Entrepreneurship and Family Business Program, Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).
- Sarreal, E. (2012). *Community-based entrepreneurship: An alternative social enterprise model for small communities in poor municipalities.* Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).
- Taningco, A. (2015). *Issues on international trade and investment and its implications for further research.* Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).
- The Bible Talks. (2010). *Luke 7: Loving the least, the lost, and the last.* Retrieved from <https://westernblacktown.wordpress.com/2010/06/28/luke-7-loving-the-least-the-lost-and-the-last/>
- Tullao, T., & Cabuay, C. (2012). *International migration and remittances: A review of economic impacts, issues, and challenges from the sending country's perspective.* Manila, Philippines: DLSU-Angelo King Institute for Economic and Business Studies (DLSU-AKI).

Determining the Directional Flows of Foreign Direct Investments in the ASEAN Region: Key Macroeconomic and “Doing Business” Indicators Affecting the Direction of ASEAN FDI Inflows and Its Impact on Intra- and Extra-ASEAN Trade

Roberto B. Raymundo

Investments raise the productive capacity of the economy and provide new employment opportunities. Workers are able to secure gainful employment quickly as long as their skills match the jobs offered by existing and newly established companies in the industry. However, when domestic investments are low, most developing countries rely on foreign direct investments (FDIs) to develop domestic industries. FDIs are capital expenditures on plant property and equipment undertaken by foreign firms in various host countries that offer distinct advantages in terms of skilled labor, cheap land, access to natural resources, and larger markets.

The establishment of manufacturing plants by foreign firms can 1) create industrial linkages within the domestic economy, 2) encourage the growth of local enterprises, 3) encourage technology transfer, and 4) contribute to

increasing access to international markets, among others (Dobson & Chia, 1997).

The potential benefits to the economy justify encouraging the entry of FDIs; however, it is also important to remember that possible negative outcomes may occur, particularly if the appropriate economic policies designed to protect the interests of the host country are not in place. For example, multinational corporations (MNCs) can limit the extent of competition in the domestic economy by controlling prices and output, discouraging local firms from entering the market, and lobbying the government to protect their positions within the imperfect market. In addition, MNCs can hide behind tax incentives or use transfer pricing to avoid paying the right amount of taxes and crowd out local borrowers in the financial markets. These negative outcomes, among others, have been experienced by various developing countries in the past and should be considered when courting FDIs.

ASEAN member countries have attempted to augment the relatively low level of domestic investments in the region by encouraging FDIs in higher value-added manufacturing. Indeed, the formation of the ASEAN Free Trade Area (AFTA) agreement in 1992 was not only designed to encourage free trade among the member countries but also expected to indirectly encourage more regional investments by offering lower production costs and a wider customer base (Uttama, 2005).

Problem

How do foreign direct investment inflows move within ASEAN?

Objectives

1. To determine the destination of FDIs within the ASEAN over the last five years and explain why certain countries attract more inflows relative to the others;
2. To determine the impact of key indicators of each member country on its ability to attract FDIs from within and outside the ASEAN; and
3. To determine the impact of ASEAN FDI inflows on intra-ASEAN and extra-ASEAN trade.

Significance of the Study

Identifying the top destinations of FDIs in the ASEAN provides major insights into policy adjustments, which other member countries can implement to more effectively exploit the opportunities offered by greater market access attributed to liberal trade policies and participation in various trade agreements.

In addition, strengthening the ASEAN community is better achieved with the expansion of intra- and extra-ASEAN trade. Increasing extra-ASEAN trade, for instance, is important because of the need to continue to improve market access in rapidly growing economies (i.e., China, Brazil, etc.) and the traditional markets of the United States (US), European Union (EU), Japan, and the Middle East.

Foreign Direct Investments Gains

The entrance of FDIs may 1) allow a country to develop technology and knowledge or introduce efficient production processes and new technologies that facilitate the development of industries in the host economy and offset the effects of diminishing returns to capital (Barrios, Görg, & Strobl, 2004; De Gregorio, 2003; De Mello, 1999; De Mello, 1997; Zarsky & Gallagher, 2004), 2) favorably affect the levels of domestic supply and demand (Markusen & Venables, 1999), and 3) expand the existing stock of knowledge through labor training and the transfer of skills and managerial and organizational practices that promote the use of advanced technology in host countries (Brems, 1970).

Similarly, the presence of MNCs can contribute to improving the efficiency of industries—especially in the manufacturing sector where they introduce the production of higher value-added intermediate goods (Chandran & Krishnan, 2008). In labor surplus economies, FDIs create jobs and increase demand for skilled workers. Employees receive the added benefits of learning new skills and increasing technical knowledge of the production process, thus enhancing their ability to produce higher value-added goods.

Despite the many benefits and advantages that FDIs bring, Dunning (1993) warned that the effects of foreign investments vary across host countries depending on, among others, 1) the type of technology, 2) industries in which FDIs enter, and 3) MNCs' response to policies and regulations imposed by the government.

Theoretical Framework

Traditional Determinants and Ideal Conditions Required to Encourage Foreign Direct Investments

Identifying the determinants of FDI inflows requires the understanding of the multinational company's motivation to undertake capital expenditures in a chosen country.

In general, FDI's locate where there are large and profitable markets, liberal host government policies, physical and technological infrastructure, highly skilled and competitively priced labor, and cultural similarities between the host and the owners of the foreign firm (Sethi, Guisinger, Phelan, & Berg, 2003; Bernal, Kaukab, & Yu, 2004). The subsequent section tackles the major FDI determinants:

Macroeconomic stability is characterized by sustained economic growth, low inflation, low interest rates, and stable exchange rates (Bevan & Estrin, 2004). It eliminates uncertainties and facilitates the projections of macroeconomic variables that denote 1) consumer spending and business opportunities, 2) cost of doing business, 3) cost of borrowing, and 4) access to international markets (Dunning, 1993; Globerman & Shapiro, 2004; Bevan & Estrin, 2000; Campos & Kinoshita, 2008).

Market size. Large markets provide enormous business opportunities, specifically the chance to make higher sales and profits, mass produce, and maximize the advantages of economies of scale (Sethi, Guisinger, Phelan, & Berg, 2003).

Infrastructure support can reduce the cost of doing business. Transport infrastructure, for instance, cuts travel time and delivery costs. Cheaper electricity trims down operational costs, while improved telecommunications systems link suppliers with buyers and promote market efficiency (Rehman, Ilyas, Alam, & Akram, 2011).

Skilled labor. Foreign firms consider not only the cost but also the level and complementarity of labor skills with the production process in the decision to locate plants overseas. MNCs that produce high value-added goods and services require highly skilled workers for they easily absorb and adapt to new production technologies (Borensztein, De Gregorio, & Lee, 1998).

Access to natural resources and raw materials. FDI's in mining, energy, and manufacturing seek economies where natural resources and raw materials are easily accessed or host countries that have liberal laws concerning investments in extractive industries and agriculture. Locating in a developing country with rich natural resources overcomes the disadvantages

of competing with other firms in the MNC-home territories (Dunning, 1993) and make business activities in foreign locations more profitable compared to domestic operations.

Trade openness allows exporters access to more international markets, thus attracting FDIs (Borensztein et al., 1998).

Liberal investment policies, particularly on equity ownership, leasing agreements, and industries in the negative list, provide greater opportunities for foreign-firm entry and reduce MNC transaction costs.

Fiscal incentives allow foreign and domestic firms to cut their tax obligations, keep more of their profits, and recover their initial investments sooner. Moreover, these incentives help encourage and direct investments into the desired priority industries.

Effective institutions promote investments, particularly if the public sector is capable of good governance, which, among others, include a judicial system that is effective in settling disputes and enforcing contracts and political institutions that follow constitutional provisions in the removal or replacement of political leaders (Vittorio & Ugo, 2008).

Good governance. Graft and corruption weaken government efficiency and effectiveness in providing public services. Malfeasance divert public funds away from legitimate infrastructure and social service projects and increase the cost of doing business as investors are induced to pay bribes or offer substantial commissions to expedite the processing of business applications and project approval.

Political stability, manifested in the completion of all elected officials' term of office, ensures the full implementation of development programs and the consistent enactment of rules and regulations.

Transition to Efficiency-Seeking Multinational Corporations

As the global economy transitions towards newer standards, FDI determinants are becoming more varied and sophisticated. MNCs are moving from simply being market-seeking and resource-seeking firms to being efficiency-seeking firms (Sethi, Guisinger, Phelan, & Berg, 2003). Rehman, Ilyas, Alam, and Akram (2011) described the latter as a vertical strategy employed to reduce production costs and increase profits by distributing parts of the production process to different countries (i.e., participation in a global production network) (Uttama, 2005), whereas market-seeking MNCs duplicate their production processes in host economies to capture larger markets.

Global Production Networks

Foreign direct investments may come in the form of global production networks (GPNs), which involve segregating the labor-intensive from the capital-intensive production stages of a foreign firm's operations. The firm breaks up the production process and distributes the various stages to "developing economies" that have labor-intensive or capital-intensive comparative advantages. The intermediate goods produced in the host economies are sent back to the source countries, thus allowing MNCs to exploit the comparative cost advantages in host economies (Austria, 2008). Since small countries can participate by concentrating on a specific stage of production for consequent use in other markets, GPNs also reduce the importance of country size in the location of factories (Lipsey & Sjöholm, 2010). Using the electronics industry as an example, Castillo (2005) stated that "product development is highly skills-intensive and could be located in a country rich in skilled and professional workers" (pp. 1–2) making GPNs influential in the integration of different factor markets.

Motivation for Participating in Global Production Networks

The primary motivation for an MNC to be part of a global production network is access to lower cost resources that are compatible with a flagship's competencies (Ernst & Kim, 2001). From the host country's perspective, there is an incentive to engage in a flagship's value chain as it helps producers transition from servicing local firms to transacting with multinational ones (Kaminski & Smarzynska, 2001). GPNs also create an atmosphere of competition, pushing producers to become more efficient and to continuously innovate.

Location Strategy

It is important to note that a global production network is strategically located based on the intensity of specialization required for a certain stage of production. Outsourcing requires segregating highly specialized stages from those which are close to the production of the final good. Typically, complex and specialized processes require a more concentrated location strategy, while final goods or stages close to its production are outsourced from a more dispersed set of countries (Ernst & Kim, 2001).

Review of Related Literature

The participation of countries in liberal trade agreements is designed to provide more market access to all trading partners involved. As enhanced trade fuels economic growth, this consequently encourages more investment by the trading partners into each other's economy because of new advantages found in competitive labor, cheap land, low cost capital, and easy access to raw materials and production technologies. These advantages contribute to the competitiveness of each trading partner's export sector and to the entire economy as a whole.

Improving the competitiveness of nations depends on enhancing their industrial capabilities, particularly in the area of manufactured exports. FDI in the manufacturing sector facilitate the transfer of technology, expansion of productive capacity, and exploitation of economies of scale.

Vertical FDI occurs when companies locate the different stages of production in other countries to take advantage of cross-border factor cost differences. It enables firms to have assembly lines across countries, which would entail the export and import of goods within a particular industry and, thus, facilitate intra-industry trade (Ruffin, 1999). Embedded within the aggregate trade and investment flows, vertical FDI leads to more trade as intermediate goods are exchanged several times during a production process (Feesntra, 1998; Yeung, Dicken, Henderson, & Coe, 2002). Conversely, horizontal FDI occurs when companies duplicate the same activities in other countries to be closer to target markets (Alfaro & Charlton, 2007). Whether a firm is attempting to minimize cost or trying to increase market access, investments have become a competitive strategy that responds to changing economic conditions (Monczka & Trent, 1992).

As FDIs positively contribute to a country's economic growth and development, numerous studies assert the need to understand the determinants of investment inflows and consider them in intraregional investment and trade policies. Masron and Abdullah (2010) noted that owing to the competition for FDIs between ASEAN member and nonmember countries, the former is motivated to continuously create an attractive climate for investments.

In general, investors study the economic conditions in host countries, especially those which are subject to public policy (Sahoo, 2006). Macroeconomic variables, for instance, influence FDIs and investments improve macroeconomic performance. Mottaleb and Kalirajan (2010) affirmed the link in their study of FDI inflows determinants in 68 developing countries wherein gross domestic product (GDP) levels and growth rates yielded significant impacts on inflows in 2005–2007. Likewise, Nunnenkamp

and Spatz (2002) found the same significant relationship and referred to the indicators as “traditional determinants.”

With regard to other macroeconomic indicators, the estimation of Arbatli (2011) of panel data consisting of 46 countries from 1990 to 2009 showed that 1) inflation has a negative but insignificant relationship with FDIs and 2) exports and real exchange rates have positive but insignificant relationships with FDIs. Overall, these findings suggest that prudent macroeconomic policies and conditions are critical in assessing FDIs flow direction.

Another host country characteristic that draws interest is the quality and cost of labor. Typically, firms recruit efficient employees in order to reduce average costs and increase output levels, revenues, and profits. Although developing countries can easily supply low-cost labor, MNCs also look for the stock of human capital, competitiveness relative to other countries, and productivity (Sarna, 2005). Carstensen and Toubal (2003) confirmed that labor costs and FDI inflows to Central and Eastern European Countries (CEECs) were inversely related. Bevan and Estrin (2004) presented similar outcomes in their study of FDIs from the EU into the CEECs and claimed that the negative relationship holds regardless of distance or host country size. Contrastingly, Esiyok (2011) found that labor costs are positively related to FDI inflows in cases wherein multinational firms prioritize labor quality and effectiveness. Based on the highly varied findings, it can be inferred that the effect of labor costs on FDIs depends on the industry and the quality of skills.

Other than labor considerations, MNCs may prefer to divide and distribute stages of their value chain to countries that offer lower trade costs. Feinberg, Keane, and Bognanno (1998)—in their study of the impact of Canada’s tariff level on its labor supply and US firms’ capital stock—endorsed the negative relationship between the two variables. However, according to Neary (2005), if firms are more sensitive to the proximity concentration of their production networks, then the reduction in trade costs would adversely affect the flow of horizontal investments. Mukherjee and Suetrong (2006) asserted that both positive and negative relationships between trade costs and FDIs exist due to differences in demand and competition in the host and home countries. Thus, various studies would suggest an ambiguous relationship between the two variables.

Besides production efficiency, MNCs also consider market size in deciding factory locations. MNCs are pulled towards countries that have adequate domestic markets and/or linkages with the markets of their trading partners. Hence, the largest markets in the world (i.e., US and China) attract the most FDI (UNCTAD, 2011). Mughal and Akram (2011) confirmed that

market size influences investment inflows in the long run. Jaumotte (2004), in studying 71 developing countries integrated into regional trade agreements (RTAs), verified that both RTA market size and domestic population size yielded positive relationships with FDIs.

In other studies, market size is connected to regionalism and effective institutions. Du, Lu, and Tao (2008) determined that enforcement of intellectual property rights laws, lesser government intervention in the private sector, the eradication of corruption, and better contract enforcement significantly motivate American MNCs to bring their investments to China. Anghel (2005) suggested bureaucracy, rule of law, and political stability as additions to the factors proposed by Du, Lu, and Tao (2008) to attract investors. Roberts (2006) provided that a strong democracy, the protection of property rights, and consistent policy implementation in the presence of multiple veto players create a conducive environment for investment.

The latter recognizes the fact that there are numerous decision-making bodies involved in assessing and maintaining laws on FDIs, which may result in conflicting policies. Although the study was shown to produce empirical inconsistencies, it inferred that such factors positively induce the entrance of FDIs and should be considered by host country governments.

Government support for physical infrastructure is another host country characteristic considered essential by MNCs. Using data available for the number of roads, railways, phone lines, media, and energy from a cross-country data set, Kumar (2001) showed that 1) investment in infrastructure positively influences FDI inflows and 2) developing countries with deficits that render them incapable of offering tax incentives can opt to upgrade local infrastructure and improve the landscape for investments.

Overall, these studies show various factors that governments should consider in enhancing the policy climate for investments. Evidently, macroeconomic indicators contribute significantly to courting FDIs. However, there are other indicators such as good governance, institutional strength, and infrastructure support that are relevant to increasing FDI inflows to a country or a region.

Methodology

Panel Regression Analysis

Determining the direction pursued by foreign direct investment inflows in the ASEAN region is conducted by providing a comparative description of the actual intra-ASEAN and extra-ASEAN FDI flows to each member country from 2007 to 2011.

The study uses panel-data regression analysis to determine the impact and significance of the key economic indicators affecting intra-ASEAN and extra-ASEAN FDI inflows. Panel-data controls for variables that change over time but are stable across countries (Torres-Reyna, 2009). Longitudinal data on the nine ASEAN economies (excluding Myanmar) over a period of five years is used in two types of regression equations: 1) fixed effects with robust heteroscedasticity and autocorrelation consistent (HAC) standard errors and 2) random effects using generalized least squares GLS.

Prior to the use of these two regression models, an application of the ordinary least squares (OLS) technique was undertaken, and results indicated the presence of heteroscedastic variances alongside several parameter estimates with coefficient signs that contradicted fundamentally accepted theoretical relationships. Thus, the use of the two other regression procedures discussed earlier.

A fixed-effects model is used to determine the effect of independent variables that change over time in a panel data set. It eliminates the impact of characteristics that do not change over time from the explanatory variable so that its final effect can be better measured (Torres-Reyna, 2009).

The fixed-effects model, with robust HAC standard errors, addresses the problem of differences in the error term variances across the nine ASEAN countries over the five-year period. On the other hand, the random-effects model using GLS helps in analyzing panel data with the assumption that there are no fixed/individual effects. “The random effects model assumes that the variation across entities is random and uncorrelated with the explanatory variables included in the model” (Torres-Reyna, 2009, p. 25)—which implies that the error term is not correlated with the independent variables.

Best Fitting Model Identification

All panel regressions initially used the specified explanatory variables under the theoretical framework. Independent variables with doubtful coefficient signs and insignificant test statistics are systematically removed, and new equations are estimated. The best fitting panel regression results are consequently identified based on the 1) fundamentally acceptable signs of the parameter estimates and their relationship with the dependent variable, 2) individual significance of the independent variables, 3) overall significance of the model, 4) goodness of fit, and 5) correction for problems pertaining to heteroscedasticity, autocorrelation, serial correlation, and multicollinearity.

Data

Data for the study is taken from the ASEAN International Merchandise Trade Statistics Yearbook 2014, ASEAN Investment Report for 2011 and 2012, Asian Development Bank “Key Indicators for Asia and the Pacific” Report for 2011 and 2012, and World Bank “Doing Business Report” from 2007 to 2013.

Macroeconomic key indicators, expressed as either monetary values or percentages, provide a measure of each ASEAN member country’s economic performance. The rankings of each ASEAN country under the “Doing Business Report” provide indications of the change in the regulatory environment. Economies are ranked on the ease of doing business from 1 to 189. A high ranking on these indexes means that the regulatory environment is more conducive to starting and operating a local firm.

Ten topics are included in the 2013 World Bank “Doing Business Report.” However, the study is confined to five “doing business” indicators: 1) ease of doing business, 2) starting a business, 3) trading across borders, 4) protecting investors, and 5) enforcing contracts insolvency (World Bank “Doing Business Report” 2013).

Operational Framework

Impact of Key Economic Indicators on Foreign Direct Investments

Five panel regression equations are used—with each equation using a different type of foreign investment measure as dependent variable. The dependent variables are as follows:

Dependent Variables

Label	Description
EXTRA_FDI_	Extra-ASEAN FDI (billions of US\$)
INTRA_FDI_	Intra-ASEAN FDI (billions of US\$)
FINANCE_FDI	FDI in the financial sector (billions of US\$)
MANUF_FDI	FDI in the manufacturing sector (billions of US\$)
MINING_FDI	FDI in the mining sector (billions of US\$)

The explanatory variables used for the panel regressions include the 1) fundamental key macroeconomic indicators for each ASEAN country and 2) World Bank “doing business indicators” (refer to the table on the next page).

Explanatory Variables

Label	Description
CAPX_GOVT	Capital outlays as a percentage of government spending for each ASEAN country
EASE	Country rank between 1 to 189 for the ease of doing business
ECO_GROWTH	Economic growth measured as the percentage change in real GDP
ENFORCE	Country rank between 1 to 189 for enforcing contracts
FOREX	Foreign exchange rate (domestic currency per \$1)
GDPDOLLAR	GDP of each ASEAN country in billions of US\$ at constant prices
GDP_CAPITA	Real per capita GDP of each ASEAN country at constant prices
INFLA	Inflation rate (percentage change in the consumer price index)
OPEN	Trade openness measured by the ratio of the combined value of exports and imports divided by GDP: $(X + M) / GDP$
PROTECT	Country rank between 1 to 189 for protecting investments
START	Country rank between 1 to 189 for starting a business
TRADING	Country rank between 1 to 189 for trading across borders

Impact of Foreign Direct Investments on Intra- and Extra-ASEAN Trade

The second set of panel regression equations determines how ASEAN FDI inflows affect intra-ASEAN and extra-ASEAN trade. Two equations are estimated using the sum of the intra- and extra-ASEAN FDI as dependent variables (refer to the table below).

Dependent Variables

Label	Description
EXTRA_A_TRADE1	Extra-ASEAN trade (billions of US\$)
INTRA_A-TRADE1	Intra-ASEAN trade (billions of US\$)

Macroeconomic and the “doing business indicators” serve as independent variables in the second set of panel regressions (refer to the table on the next page).

Explanatory Variables

Label	Description
ASEAN_FDI	ASEAN FDI inflows (intra-ASEAN FDI + extra-ASEAN FDI) (billions of US\$)
ECO_GROWTH	Economic growth, measured as the percentage change in real GDP
ENFORCE	Country rank between 1 to 189 for enforcing contracts
FOREX	Foreign exchange rate (domestic currency per \$1)
GDPDOLLAR	GDP of each ASEAN country in billions of US\$ at constant prices
PROTECT	Country rank between 1 to 189 for protecting investments
START	Country rank between 1 to 189 for starting a business
TRADING	Country rank between 1 to 189 for trading across borders

All of the identified independent variables are initially used in both sets of the panel regressions. In the succeeding equation estimates, several explanatory variables are systematically removed from the model because of incorrect coefficient signs, insignificant statistical results, and multicollinear effects.

Results and Analysis

ASEAN Foreign Direct Investment Inflows

ASEAN FDI inflows increased from \$46.90 in 2009 billion to \$114.11 billion in 2011, growing 2.43 times since the occurrence of the US financial crisis and the global economic slowdown (refer to Table 1). From 2006 to 2011, Singapore consistently attracted the largest amount of FDI peaking in 2011 at \$64 billion. In 2010 and 2011, Singapore cornered more than half of the total ASEAN FDI inflows. Indonesia was the second FDI largest destination for 2010 and 2011 at \$13.77 billion and \$19.24 billion, respectively. Malaysia was the third largest recipient of FDI—almost doubling from 2006's \$6.07 billion to 2011's \$12 billion (refer to Table 1).

Table 1. ASEAN FDI Inflows, 2006–2011 (Millions of US\$)

Country	2006	2007	2008	2009	2010	2011
ASEAN	63,689.2	84,152.4	49,289.7	46,896.7	92,278.6	114,110.6
Brunei Darussalam	434.0	260.2	330.1	371.14	625.4	1,208.3
Cambodia	483.2	867.3	815.2	539.0	782.6	891.7
Indonesia	4,913.8	6,928.3	9,318.1	4,876.8	13,770.9	19,241.6
Lao PDR	187.4	323.5	227.8	318.6	332.6	300.7
Malaysia	6,072.4	8,538.4	7,248.4	1,405.1	9,155.9	12,000.9
Myanmar	427.8	714.8	975.6	963.3	450.2	0.0
Philippines	2,921.0	2,916.0	1,544.0	1,963.0	1,298.0	1,262.0
Singapore	36,389.9	45,534.6	10,712.2	24,006.1	48,751.6	63,997.2
Thailand	9,459.6	11,330.2	8,539.5	4,853.5	9,111.6	7,778.1
Vietnam	2,400.0	6,739.0	9,579.0	7,600.0	8,000.0	7,430.0

Source: ASEAN Investment Report 2012.

Sources of Foreign Direct Investment Inflows

In 2011, the largest portion of ASEAN FDI inflows originated from its regional members—23.02% of all inflows to the region. The second largest contributor was the EU with 15.98%, and Japan, third at 13.16%. For the years 2009 and 2010, ASEAN was only the second largest contributor to FDI inflows at 13.43% and 15.52%, respectively. The EU topped the list for these years at 17.19% and 18.44%, respectively. Japan's contribution to ASEAN FDI decreased from 8.8% in 2008 to 8.08% in 2009 but rose to 11.66% in 2010 and 13.16% in 2011 (refer to Table 2 for FDI levels).

Table 2. Sources of ASEAN FDI Flows (Millions of US\$)

	2005	2006	2007	2008	2009	2010	2011
Intra-ASEAN	4,210.6	8,641.9	9,113.0	9,728.9	6,300.2	14,322.7	26,270.7
Dialogue Partners	24,717.2	33,461.5	50,870.6	22,280.7	23,772.2	54,482.1	47,720.8
Australia	257.0	569.3	2,170.3	1,042.4	993.0	2,584.9	1,338.0
Canada	682.7	364.5	408.7	636.7	720.3	1,393.0	985.4
China	615.6	1,938.5	2,069.2	1,208.4	1,852.6	2,784.6	6,034.4
European Union 27	11,722.3	15,808.2	21,902.1	8,871.7	8,063.1	17,012.1	18,240.5
India	471.5	-96.1	2,615.4	1,400.8	616.4	3,351.5	-1,848.5

Table 2 (cont.). Sources of ASEAN FDI Flows (Millions of US\$)

	2005	2006	2007	2008	2009	2010	2011
Japan	6,581.7	10,758.7	8,723.5	4,335.5	3,789.9	10,756.4	15,051.1
New Zealand	595.0	-144.4	114.0	-106.1	98.9	3.4	13.4
Republic of Korea	528.7	1,290.3	2,444.9	1,550.8	1,794.0	3,764.2	2,138.3
Russian Federation	0.0	1.2	31.0	81.3	139.8	60.3	21.6
United States	3,262.6	2,971.4	10,391.6	3,259.1	5,704.3	12,771.6	5,782.7
Others	13,628.6	21,585.8	15,055.8	17,280.1	16,824.3	23,473.8	40,119.1
Total FDI Flows	42,556.4	63,689.2	84,152.4	49,289.7	46,896.7	92,278.6	114,110.6

Source: ASEAN Investment Report 2012.

The presence of bilateral or multilateral agreements governing trade with large market non-ASEAN members provides opportunities for the growing number of competitive exporters among ASEAN member countries to sell more goods and services within the free-trade area.

Panel Regression Results for Key Macroeconomic and “Doing Business” Indicators Affecting Intra-ASEAN Foreign Direct Investment Inflows

Panel regression equations using data from nine ASEAN countries over a five-year period (45 observations) are estimated. Table 3 shows the two panel regression results, which attempt to capture the impact of key macroeconomic and “doing business” indicators on intra-ASEAN FDI inflows.

The first column lists the independent variables. The second column presents the panel regression results using fixed effects with robust (HAC) standard errors. The third column shows the random-effects regression results. Diagnostics for the goodness of fit and test of assumptions are shown on the last four rows of the table.

Based on the results, the explanatory variables that significantly affect intra-ASEAN FDI inflows are GDPDOLLAR, GDP_CAPITA, CAPX_GOV, FOREX, START, PROTECT, and TRADING. Table 3 shows the complete panel regression results of the best fitting models.

Table 3. Dependent Variable, Intra-ASEAN FDI

	Fixed-Effects Robust (HAC) Standard Errors	Random effects (GLS)
Independent Variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	0.00291163 (0.0008384) 0.9993	-6.63817 (-3.631) 0.0008***
GDP DOLLAR	0.0478682 (2.998) 0.0055***	0.0257654 (5.472) 3.02e-06***
GDP_CAPITA	0.00050024 (4.517) 9.70e-05***	0.000148706 (4.842) 2.17e-05***
CAPX_GOVT	n.a.	6.63726 (2.106) 0.0418**
INFLA	-0.00782610 (-0.1695) 0.8666	n.a.
FOREX	7.33811e-05 (0.4795) 0.6352	0.000178857 (3.492) 0.0012***
START	-0.0433247 (-4.250) 0.0002***	0.00439526 (0.5269) 0.6013
EASE	n.a.	0.0133956 (1.532) 0.1338
PROTECT	-0.0761578 (-2.212) 0.0350**	n.a.
TRADING	0.0312579 (4.101) 0.0003***	n.a.
Adjusted R^2	0.747892	n.a.
p-Value (F)	1.36e-07	n.a.
Test for differing group intercepts p-value	0.000454714	n.a.
Breusch-Pagan test p-value	n.a.	0.0561181
Hausman test p-value	n.a.	2.08273e-009
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

The value of real GDP in US dollars represents the market size of each ASEAN member country. Its positive coefficient confirms that ASEAN countries with larger markets attract more intra-ASEAN FDIs.

Income earned by residents in each ASEAN member country, GDP per capita, also becomes a factor that positively influences the entry of intra-ASEAN FDI inflows. High GDP per capita indicates that the ASEAN member country's residents can spend more—signaling greater opportunities for business and attracting more intra-ASEAN FDI.

The proportion of capital outlays from total government spending—with a positive coefficient—denotes infrastructure support. Higher proportions indicate greater efforts to provide more infrastructure support and, thus, attract larger intra-ASEAN FDI.

The foreign exchange rate is positive, signifying that larger values for ASEAN member countries require more local currency to purchase one US\$. Hence, ASEAN goods and services are relatively cheaper for foreign investors, reducing the cost of doing business, and encouraging more intra-ASEAN FDI.

The explanatory variables START, PROTECT, and TRADING are “doing business” indicators each expressed as a number between 1 and 189. A lower number indicates a higher rank, while a larger number implies a more inauspicious business environment due to unfavorable regulations and weak institutions. These indicators should have negative coefficients signifying that as ranks rise, conditions to start businesses improve—bringing in more intra-ASEAN FDI.

The ease of starting business and protecting investors variables are negative and significant. However, trading across borders is positive and significant, implying that more intra-ASEAN FDI inflows go to ASEAN countries with lower ranks. Singapore is the only ASEAN country that has consistently topped the “doing business” rankings (number 1 from 2008 to 2011). In 2011, Indonesia (ranked 47), Thailand (ranked 12), Malaysia (ranked 37), and Vietnam (ranked 63) performed poorly in terms of trading across borders but drew considerable intra-ASEAN FDI inflows. Accordingly, other features of these countries are more likely responsible for attracting significant intra-ASEAN FDI inflows.

Panel Regression Results for Key Macroeconomic and “Doing Business” Indicators Affecting Extra-ASEAN Foreign Direct Investment Inflows

The next set of panel regression results use extra-ASEAN FDI inflows as the dependent variable. The significant explanatory variables affecting extra-ASEAN FDI inflows are GDPDOLLAR and ECO_GROWTH. Table 4 shows the complete panel regression results of the best fitting models.

The US dollar value of real GDP for each ASEAN member country reflects market size. It has a positive impact on extra-ASEAN FDI inflows; thus, as the real value of ASEAN country GDP increases, extra-ASEAN FDI inflows also increase.

Economic growth, which has positive coefficients, is the percentage change in GDP that 1) indicates good economic performance, 2) implies macroeconomic stability, and 3) encourages and builds investor confidence in the host country. Fast-growing economies suggest more household and firm spending, which increase business opportunities for investors.

Capital outlays as a proportion of total government expenditure, the inflation rate, the foreign exchange rate, and the “doing business” indicators START and EASE yield insignificant results with coefficient signs consistent with the theoretical expectations.

Table 4. Dependent Variable, Extra-ASEAN FDI

	Fixed-Effects Robust (HAC) Standard Errors	Random Effects (GLS)
Independent variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	-14.2804 (-1.380) 0.1781	-4.85547 (-0.5088) 0.6139
GDP DOLLAR	0.158177 (2.703) 0.0114**	0.0841901 (2.513) 0.0164**
ECO_GROWTH	0.735811 (2.147) 0.0403**	0.840771 (3.143) 0.0033***
CAPX_GOVT	10.6711 (13.4783) 0.4349	19.5720 (0.9059) 0.3708
INFLA	-0.126634 (-1.174) 0.2498	-0.0924483 (-0.4436) 0.6599
FOREX	0.000671922 (1.075) 0.2913	0.000185764 (0.3477) 0.7300
START	-0.0401488 (-1.409) 0.1696	-0.0258680 (-0.4960) 0.6228
EASE	-0.0132346 (-0.2506) 0.8039	-0.0466029 (-0.6286) 0.5335
Adjusted R2	0.793287	n.a.

Table 4 continued...

p-Value (F)	9.43e-09	n.a.
Test for differing group intercepts p-value	1.43127e-005	n.a.
Breusch-Pagan test p-value	n.a.	0.000213198
Hausman test p-value	n.a.	0.155645
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

Panel Regression Results for Key Macroeconomic and “Doing Business” Indicators Affecting ASEAN Mining Foreign Direct Investment Inflows

Mining-sector foreign direct investments provide multinational firms access to the mineral resources of the host country. The complete panel regression results of the best fitting models are presented in Table 5.

Table 5. Dependent Variable, Mining FDI

	Fixed-Effects Robust (HAC) Standard Errors	Random Effects (GLS)
Independent Variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	1.30488 (0.6626) 0.5125	-1.20332 (-2.583) 0.0135**
GDP DOLLAR	0.009444492 (2.032) 0.0508*	0.00697330 (4.040) 0.0002***
ECO_GROWTH	n.a.	0.0114556 (0.4189) 0.6775
INFLA	-0.00828140 (-0.5669) 0.5748	n.a.
EASE	-0.0123508 (-0.6999) 0.4892	n.a.
PROTECT	-0.0211669 (-1.870) 0.070*	n.a.

Table 5 continued...

TRADING	0.0157453 (2.718) 0.0107**	n.a.
ENFORCE	n.a.	0.00938017 (2.897) 0.0060***
Adjusted R2	0.616620	n.a.
p-Value (F)	0.000011	n.a.
Test for differing group intercepts p-value	0.00075048	n.a.
Breusch-Pagan test p-value	n.a.	0.0575158
Hausman test p-value	n.a.	0.762483
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

The significant explanatory variables affecting mining FDI inflows in each ASEAN member country are GDPDOLLAR, PROTECT, TRADING, and ENFORCE.

The finding regarding trading across borders' relationship with mining FDI (positive) is not consistent with a priori expectations (negative), implying that as country rankings deteriorate, mining FDI in ASEAN countries increase. Perhaps ASEAN countries receiving large amounts of mining FDI are able to partially offset the difficulties in trading across borders by the abundance of mineral reserves that foreign firms can utilize.

Likewise, the enforcement of contracts is significant and positive but contradicts theoretical expectations. ASEAN countries with improved rankings should attract more mining FDI resulting to a negative relationship. A positive coefficient implies that as rankings for contract enforcement deteriorate, more mining FDI flows into the country. Countries like China and the US have been known to invest in developing countries where mineral reserves are abundant even if government enforcement of contracts are weak. Investors willingly assume these risks for as long as they can mitigate them by 1) building strong personal and business relationships with government officials who will have a stake or claim in the investments and 2) using foreign aid and loans as leverage to protect their investments (O'Neil, 2013).

Panel Regression Results for Key Macroeconomic and “Doing Business” Indicators Affecting ASEAN Manufacturing Foreign Direct Investments Inflows

After several panel regression runs, the results of the best fitting models explaining movements in manufacturing foreign direct investment inflows into ASEAN are presented in Table 6. It shows that ASEAN manufacturing FDI inflows are significantly affected by GDPDOLLAR, ECO_GROWTH, FOREX, and EASE with coefficient signs consistent with a priori expectations. The explanatory variables INFLA and TRADING have coefficient signs consistent with the theoretical expectations but show insignificant results.

Table 6. Dependent Variable, Manufacturing FDI

	Fixed-Effects Robust (HAC) Standard Errors	Random Effects (GLS)
Independent Variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	2.73182 (0.7362) 0.4670	2.09966 (2.148) 0.0381**
GDP DOLLAR	0.0279981 (0.9758) 0.3365	0.00839510 (2.122) 0.0404**
ECO_GROWTH	0.238433 (2.188) 0.0360**	0.248349 (2.781) 0.0084***
INFLA	-0.0171149 (-0.1927) 0.8484	-0.00845098 (-0.1177) 0.9070
FOREX	n.a.	0.000123002 (1.971) 0.0561*
EASE	-0.0540423 (-1.981) 0.0563*	-0.0248790 (-3.275) 0.0023***
TRADING	n.a.	-0.00508624 (-0.5117) 0.6119
Adjusted R2	0.540692	n.a.
p-Value (F)	0.000075	n.a.
Test for differing group intercepts p-value	0.484204	n.a.

Table 6 continued...

Breusch–Pagan test p-value	n.a.	0.0646318
Hausman test p-value	n.a.	0.56914
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

These results reinforce the view that 1) faster economic growth creates more business opportunities for MNCs, thus encouraging the establishment of production plants to meet rising demand, and 2) exchange rate depreciations reduce the cost of doing business. Refer to Table 6 for the regression results.

Panel Regression Results for Key Macroeconomic and “Doing Business” Indicators Affecting ASEAN Financial Sector Foreign Direct Investment Inflows

Presented in Table 7 are the results of the best fitting models for the determinants of foreign direct investments in the financial sector of the ASEAN member countries.

Table 7. Dependent Variable, Finance FDI

	Fixed effects Robust (HAC) standard errors	Random effects (GLS)
Independent Variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	1.5939 (0.4192) 0.6779	-0.0900267 (-0.1304) 0.8969
ECO_GROWTH	0.396062 (1.965) 0.0584*	0.463605 (6.483) 1.11e-07***
GDP_CAPITA	0.000354905 (6.614) 2.16E-07***	0.000135818 (5.772) 1.08e-06***
INFLA	-0.0611537 (-0.8866) 0.3821	-0.0354221 (-0.6511) 0.5188
EASE	-0.0429806 (-1.649) 0.1093	-0.0113617 (-1.676) 0.1018

Table 7 continued...

PROTECT	-0.0111781 (-0.3133) 0.7561	-0.00832298 (-1.554) 0.1283
Adjusted R2	0.737703	n.a.
p-Value (F)	5.17E-08	n.a.
Test for differing group intercepts p-value	0.680477	n.a.
Breusch-Pagan test p-value	n.a.	0.16753
Hausman test p-value	n.a.	0.451538
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

Foreign direct investments in the financial sector, which involve setting up new bank and nonbank financial institutions, are significantly affected by ECO_GROWTH and GDP_CAPITA with coefficient signs consistent with a priori expectations.

The explanatory variables INFLA, EASE, and PROTECT have coefficient signs consistent with the theoretical expectations but are insignificant.

The results of the models indicate that 1) sustained growth shows good macroeconomic performance, higher income generated by firms and households, lower investment risks, and more opportunities for bank and nonbank financial intermediation and 2) although per capita income does not consider the actual distribution of income, higher GDP per capita results to more household and firm savings or invests in high yielding financial instruments.

ASEAN Foreign Direct Investment Inflows Impact on Intra- and Extra-ASEAN Trade

ASEAN foreign direct investment inflows are expected to enhance and strengthen international trade within and outside the region. Investments from multinational companies increased the competitiveness of manufactured exports. Foreign investors setting up manufacturing plants in special economic zones or export processing zones took advantage of the infrastructure support and fiscal incentives offered by host countries to exporting companies as well as the 0% to 5% tariff rates within the region (through AFTA). These exports may be final goods destined for consumers

within or outside ASEAN or components or intermediate products to be exported to other ASEAN member countries and used in the assembly of the final goods.

Total ASEAN trade, placed at \$2,388.59 billion in 2011, was comprised of 25% intra-ASEAN trade (\$598.24 billion) and 75% extra-ASEAN trade (\$1,790.35 billion). Singapore received the largest share of intra- and extra-ASEAN trade at \$205.67 billion and \$569.48 billion, respectively. Thailand ranked second with \$111.45 billion intra-ASEAN trade and \$347.45 billion extra-ASEAN trade. Malaysia had the third largest value for intra- and extra-ASEAN trade at \$108.14 billion and \$307.58 billion, respectively (refer to Table 8).

Table 8. Intra- and Extra-ASEAN Trade, 2011 (Value in Million US\$; Share in Percent)

Country	Intra-ASEAN Trade	Share to Total Trade	Extra-ASEAN Trade	Share to Total Trade	Total trade
Brunei Darussalam	2,912.1	19.6	11,910.2	80.4	14,822.3
Cambodia	3,003.8	23.4	9,840.3	76.6	12,844.1
Indonesia	99,353.2	26.1	281,579.1	73.9	380,932.3
Lao PDR	2,530.3	64.0	1,425.5	36.0	3,955.9
Malaysia	108,139.7	26.0	307,582.2	74.0	415,721.9
Myanmar	7,207.7	48.3	7,717.4	51.7	14,925.1
Philippines	23,675.6	21.2	88,076.0	78.8	111,751.6
Singapore	205,670.9	26.5	569,481.7	73.5	775,152.6
Thailand	111,450.8	24.3	347,453.5	75.7	458,904.4
Vietnam	34,298.1	17.2	165,284.0	82.8	199,582.1
ASEAN	598,242.2	25.0	1,790,350	75.0	2,388,592.3

Source: ASEAN International Merchandise Trade Statistics Yearbook 2014.

In 2011, total ASEAN exports, which totaled \$1,242.29 billion, were comprised of 26.36% intra-ASEAN exports and 73.63% of extra-ASEAN exports. The top three member country exporters were 1) Singapore, the largest intra-ASEAN and extra-ASEAN exporter, at \$127.54 billion and \$281.90 billion, respectively; 2) Thailand, with \$72.23 billion intra-ASEAN exports and \$156.60 billion extra-ASEAN exports; and 3) Malaysia at \$56.05 billion and \$172.13 billion intra- and extra-ASEAN exports, respectively (refer to Table 9).

Table 9. Intra- and Extra-ASEAN Exports, 2011 (Value in Million US\$; Share in Percent)

Country	Intra-ASEAN Exports	Share to Total Exports	Extra-ASEAN Exports	Share to Total Exports	Total ASEAN Exports
Brunei Darussalam	1,721.1	13.9	10,641.2	86.1	12,362.3
Cambodia	833.7	12.4	5,876.8	87.6	6,710.6
Indonesia	42,098.9	20.7	161,397.8	79.3	203,496.7
Lao PDR	959.8	55.0	786.7	45.0	1,746.5
Malaysia	56,049.7	24.6	172,129.5	75.4	228,179.1
Myanmar	3,957.4	48.7	4,161.8	51.3	8,119.2
Philippines	8,635.3	18.0	39,406.9	82.0	48,042.2
Singapore	127,544.5	31.2	281,899.0	68.8	409,443.5
Thailand	72,226.6	31.6	156,594.1	68.4	228,820.7
Vietnam	13,504.8	14.2	81,860.7	85.8	95,365.6
ASEAN	327,531.8	26.4	914,754.6	73.6	1,242,286.4

Source: ASEAN International Merchandise Trade Statistics Yearbook 2014.

ASEAN imports in 2011, placed at \$1,146.31 billion, consisted of \$270.71 billion intra-ASEAN imports (23.62%) and \$875.60 billion extra-ASEAN imports (76.38%). Singapore was the largest intra- and extra-ASEAN importer at \$78.13 billion and \$287.58 billion, respectively—followed by Indonesia at \$57.25 billion and Malaysia at \$52.09 billion. Extra-ASEAN imports showed a slightly different result, with Thailand being the second largest importer at \$190.86 billion, followed by Malaysia at \$135.45 billion (refer to Table 10)

Table 10. Intra- and Extra-ASEAN Imports, 2011 (Value in Million US\$; Share in Percent)

Country	Intra-ASEAN Imports	Share to Total Imports	Extra-ASEAN Imports	Share to Total Imports	Total ASEAN Imports
Brunei Darussalam	1,191.1	48.4	1,268.9	51.6	2,460.0
Cambodia	2,170.1	35.4	3,963.5	64.6	6,133.6
Indonesia	57,254.3	32.3	120,181.3	67.7	177,435.6
Lao PDR	1,570.5	71.1	638.8	28.9	2,209.4
Malaysia	52,090.0	27.8	135,452.8	72.2	187,542.8

Table 10 continued...

Myanmar	3,250.3	47.8	3,555.6	52.2	6,805.9
Philippines	15,040.3	23.6	48,669.1	76.4	63,709.4
Singapore	78,126.4	21.4	287,582.7	78.6	365,709.1
Thailand	39,224.2	17.0	190,859.5	83.0	230,083.6
Vietnam	20,793.2	20.0	83,423.3	80.0	104,216.5
ASEAN	270,710.4	23.6	875,595.5	76.4	1,146,305.9

Source: ASEAN International Merchandise Trade Statistics Yearbook 2014.

Panel Regression Results for ASEAN Foreign Direct Investments and “Doing Business” Indicators Affecting Intra-ASEAN Trade

Using intra-ASEAN trade data for the nine ASEAN countries from 2007 to 2011, panel regression runs were conducted with the macroeconomic and doing business indicators as explanatory variables. Table 11, which contains the results of the best fitting models, shows that intra-ASEAN FDIs are significantly affected by ASEAN_FDI, TRADING, and PROTECT with coefficient signs consistent with a priori expectations.

The results bear out that 1) ASEAN FDI, the sum of intra- and extra-ASEAN FDI for each member country, increases intra-ASEAN trade owing to more competitive exports generated by MNCs in various ASEAN countries and the increased intra-industry ASEAN trade attributed to the operations of global production networks; 2) easier conditions in the facilitation of trade across borders encourage more intra-ASEAN trade; and 3) improvements in investment protection encourage more FDI that induce more intra-ASEAN trade, particularly in the export sector.

Table 11. Dependent Variable, Intra-ASEAN Trade

	Fixed-Effects Robust (HAC) Standard Errors	Random Effects (GLS)
Independent Variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	92.7920 (4.285) 0.0001***	89.8982 (8.640) 8.91e-011***
ASEAN_FDI	0.944854 (3.284) 0.0024***	1.36071 (4.989) 1.16e-05***

Table 10 continued...

TRADING	-0.199988 (-2.869) 0.0071***	-0.280839 (-2.442) 0.0190**
PROTECT	-0.430688 (-1.375) 0.1783	-0.374547 (-3.566) 0.0009***
Adjusted R2	0.955146	n.a.
p-Value (F)	4.86e-21	n.a.
Test for differing group intercepts p-value	5.66032e-008	n.a.
Breusch-Pagan test p-value	n.a.	0.000420743
Hausman test p-value	n.a.	0.000480653
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

Panel Regression Results for ASEAN Foreign Direct Investments and “Doing Business” Indicators Affecting Extra-ASEAN Trade

Using extra-ASEAN trade data for the nine ASEAN countries from 2007 to 2011, panel regression runs were conducted. The best fitting model results contained in Table 12 indicate that ASEAN FDI is significant and has a positive impact on extra-ASEAN trade. The coefficients showing the impact of ASEAN FDIs on extra-ASEAN trade are generally larger than those of intra-ASEAN trade, which is expected since extra-ASEAN trade is three times more than intra-ASEAN trade for a majority of the member countries.

The results also verify that 1) as country rankings improve under trading across borders, extra-ASEAN trade increases, and 2) better protection for investors encourages more FDI inflows.

Table 12. Dependent Variable, Extra-ASEAN Trade

	Fixed-Effects Robust (HAC) Standard Errors	Random Effects (GLS)
Independent Variables	Coefficient (t-Ratio) p-Value	Coefficient (t-Ratio) p-Value
Constant	188.601 (3.653) 0.0009***	253.001 (7.565) 2.66e-09***

ASEAN_FDI	3.03839 (4.137) 0.0002***	3.59116 (5.089) 8.41e-06***
TRADING	-0.602453 (-3.477) 0.0014***	-0.700071 (-2.111) 0.0409**
PROTECT	-0.210228 (-0.2762) 0.7842	-0.964831 (-2.797) 0.0078***
Adjusted R2	0.956070	n.a.
p-Value (F)	3.46e-21	n.a.
Test for differing group intercepts p-value	9.44561e-009	n.a.
Breusch-Pagan test p-value	n.a.	3.49574e-007
Hausman test p-value	n.a.	0.0485021
Wald test p-value	n.a.	n.a.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

n.a., not applicable.

Improving Ease of Doing Business Country Rankings

Except for Singapore, the rest of the ASEAN member countries need to continue improving on investment rules, regulations, and policies. These factors contribute to the ease of doing business in the region and attract not only intra-ASEAN FDIs but also larger shares of global FDI inflows. Singapore is ranked number 1 in the ease of doing business and trading across borders, number 4 in starting a business, number 2 in protecting investors, and number 13 in enforcing contracts (refer to Table 13).

Table 13. Ease of Doing Business for 2011 ASEAN Country Rankings (1 to 189)

Country	Ease of Doing Business (Overall Index)	Starting a Business	Trading Across Borders	Protecting Investors	Enforcing Contracts
Brunei Darussalam	112	133	52	120	159
Cambodia	147	170	118	74	142
Indonesia	121	155	47	44	154
Lao PDR	171	93	170	182	110

Malaysia	21	113	37	4	59
Myanmar	n.a.	n.a.	n.a.	n.a.	n.a.
Philippines	148	156	61	132	118
Singapore	1	4	1	2	13
Thailand	19	95	12	12	25
Vietnam	78	100	63	173	31

Source: Ease of Doing Business Report 2012, World Bank.

However, the rest of the ASEAN member states were generally listed in the bottom half of the 189 countries ranked. Improving the business climate in the former requires modeling their investment policies after those of Singapore but with variations that account for differences in the level of development in the various aspects of the member country economy (i.e., extent of participation in bilateral trade agreements, the need to implement institutional reforms, etc.).

Country and Regional Investment Initiatives

In connection with this, ASEAN member countries have implemented various policies and programs designed to improve their ability to attract more FDIs over the past decade. These include 1) allowing the entry of FDIs into a wider variety of industries with more relaxed equity and leasing arrangements; 2) tax reform, which includes lowering corporate income tax rates; 3) rationalizing the grant of fiscal incentives; 4) reducing bureaucratic procedures in securing investment applications, licenses, and environmental clearances; 5) the creation of more export processing zones and industrial estates with the appropriate infrastructure support; 6) improving customs procedures; and 7) enhancing the capability of institutions to protect property rights and enforce contracts (ASEAN Investment Report, 2012). Initiatives at the regional level are also necessary to strengthen the ASEAN's ability to attract FDIs.

The ASEAN Economic Community (AEC) was initiated with the goal of encouraging more FDI among member states. Achieving the AEC's chief objective by 2015 necessitates the full economic integration of all member countries that includes facilitating the 1) free flow of economic resources and final goods and services and 2) establishment of ASEAN as a competitive economic region, a production base for exports and a single market.

Supporting the AEC are the ASEAN Comprehensive Investment Agreement, the ASEAN Trade in Goods Agreement (ATIGA), and the 1995

ASEAN Framework Agreement on Services (AFAS) (ASEAN Investment Report, 2011, 2012). These agreements are expected to enhance merchandise trade among the ASEAN member countries and motivate investors to establish production plants in each of the member economies.

Conclusions

Panel regression results confirm that market size, sustained economic growth, per capita GDP, infrastructure support, and foreign exchange rate are the key macroeconomic variables that influence the entry of FDIs into the ASEAN region. Intra-ASEAN FDIs are more responsive to the above-mentioned macroeconomic variables, whereas empirical results reveal that extra-ASEAN FDIs are only responsive to market size and economic growth.

However, macroeconomic stability is not solely defined by sustained economic growth. It includes price stability, stable interest rates, and stable exchange rates. Likewise, manageable fiscal deficits reduce the necessity to monetize the public debt—which is mainly responsible for inflation—and keep the economy stable. With low inflation, monetary authorities can continue accommodating economic growth with adequate increases in money supply to maintain low interest rates. In addition, if fiscal deficits are minimized, foreign borrowings are also reduced, which relieves the pressure on exchange rates when foreign debts have to be repaid.

The significant “doing business” indicators are the ease of doing business, starting a business, protecting investors, and trading across borders. Consistent with the a priori expectations, as the ranking of each ASEAN member country improves under these indicators, more FDIs are received.

The doing business indicators are even more significant when used as explanatory variables for intra-ASEAN and extra-ASEAN trade. Trading across borders and protecting investors provided consistent significant results in explaining movements in both intra-ASEAN and extra-ASEAN trade.

Accordingly, reforms concerning investment policies have to be initiated to improve the rankings of ASEAN member countries in the ease of doing business yearly evaluation conducted by the World Bank. Government procedures should be streamlined in connection with securing permits and clearances to start a business, business registration, and the payment of taxes. Trading across borders should be made easier without compromising the security risk involving contraband and technical smuggling, investors’ property rights should be protected, contracts should be enforced, and access to credit should be increased.

Given that these reforms will enhance the ASEAN members' ability to attract FDI inflows, it will also be important to consider instituting policy safeguards that will protect the interests of the host country to ensure that the gains from FDIs are maximized and the negative outcomes reduced. Policies that safeguard the host country from MNCs acting as monopolies or collusive oligopolies and controlling output and prices should be addressed by 1) the appropriate antitrust regulations, 2) the protection of sovereignty with regard to land ownership and leasing agreements, 3) minimizing tax evasion practiced through transfer pricing and the inappropriate granting of fiscal incentives, and 4) the protection of the environment from pollution caused by unregulated operations.

References

- Alfaro, L., & Charlton, L. (2007). *Intra-industry foreign direct investment*. Cambridge, MA: National Bureau of Economic Research.
- Anghel, B. (2005). *Do institutions affect foreign direct investment?* Universidad de Barcelona, International Doctorate in Economic Analysis.
- Arbatli, E. (2011). *Economic policies and FDI inflows to emerging market economies* (IMF Working Paper No. 192).
- ASEAN Investment Report 2011: *Sustaining FDI flows in a post crisis world*. (2011). Jakarta: ASEAN Secretariat.
- ASEAN Investment Report 2012: *The changing foreign direct investment landscape*. (2013). Jakarta: ASEAN Secretariat.
- ASEAN. (2015). *ASEAN International Merchandise Trade Statistics Yearbook 2014*. Retrieved from http://www.asean.org/images/2015/March1/asean_publication/Preview%20IMTS%2012-03-2015%202.pdf
- Asian Development Bank. (2011). *Key indicators for Asia and the Pacific 2011*. Retrieved from <http://www.adb.org/sites/default/files/publication/29009/key-indicators-2011.pdf>
- Asian Development Bank. (2012). *Key indicators for Asia and the Pacific 2012*. Retrieved from <http://www.adb.org/sites/default/files/publication/29940/ki2012.pdf>
- Austria, M. S. (2001). Liberalization and regional integration: The Philippines' strategy for global competitiveness. *Philippine Journal of Development*, 51(28).
- Austria, M. S. (2008). *Global production networks and local support structures in the Philippine electronics industry*. Manila, Philippines: DLSU–Angelo King Institute. for Economic and Business Studies (DLSU-AKI).
- Barrios, S., Görg, H., & Strobl, E. (2004). Explaining firms' export behavior: R&D, spillovers and the destination market. *Oxford Bulletin of Economics and Statistics*, 65, 475–496.
- Bernal, L. E., Kaukab, R. S., & Yu, V. P. B. III. (2004). *The world development*

- report, 2005: *An unbalanced message on investment liberalization* (Research paper). International Group of Twenty Four.
- Bevan, A. A., & Estrin, S. (2000). *Determinants of foreign direct investment in transition economies* (Working paper no. 342). Center for New and Emerging Market, London Business School.
- Bevan, A. A., & Estrin, S. (2004). The determinants of foreign direct investment into European transition economies. *Journal of Comparative Economics*, 32(4), 775–787.
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, 45(1), 115–135.
- Brems, H. (1970). A growth model of international direct investment. *American Economic Review*, 60(3), 320–331.
- Campos, N., & Kinoshita, Y. (2008). *Foreign direct investment and structural reforms: Evidence from Eastern Europe and Latin America* (IMF Working Paper 08/26). International Monetary Fund.
- Carstensen, K., & Toubal, F. (2003). *Foreign direct investment in Central and Eastern European countries: A dynamic panel analysis* (Kiel Working Paper No. 1143).
- Castillo, P. (2005). *Regional production networks and implications on trade and investment policies, and regional cooperation: The case of the Philippines* Manila, Philippines: DLSU–Angelo King Institute. for Economic and Business Studies (DLSU-AKI).
- Chandran, V. G. R., & Krishnan, G. (2008). Foreign direct investment and manufacturing growth: The Malaysian experience. *International Business Research*, 1(3), 83–90.
- De Mello, L. R. Jr. (1997). Foreign direct investment: Sensitivity analyses of cross section country regressions. *Kyklos*, 54, 89–113.
- De Mello, L. R. Jr. (1999). Foreign direct investment-led growth: Evidence from time series and panel data. *Oxford Economic Papers*, 51, 133–151.
- De Gregorio, J. (2003). *The role of foreign direct investment and natural resources in economic development* (Working paper no. 196). Santiago: Central Bank of Chile.
- Dobson, W., & Chia, S. Y. (1997). *Multinationals and East Asian integration*. Ottawa: International Development Research Centre; Singapore: Institute of Southeast Asian Studies.
- Du, J., Lu, Y., & Tao, Z. (2008). Economic institutions and FDI location choice: Evidence from US multinationals in China. *Journal of Comparative Economics*, 36(3), 412–429.
- Dunning, J. (1993). *Multinational enterprises and the global economy*. New York: Addison-Wesley.
- Esiyok, B. (2011). *Determinants of foreign direct investment in Turkey: A panel study approach* (Unpublished manuscript).

- Ernst, D., & Kim, L. (2001). *Global productions networks, knowledge diffusion, and local capability formation. A conceptual framework* (Economics Study Area Working Papers 19). East-West Center, Economics Study Area.
- Feesntra, R. C. (1998). Integration of trade and disintegration of production in the global economy. *Journal of Economic Perspectives*, 12, 31–50.
- Feinberg, S., Keane, M., & Bognanno, M. (1998). Trade liberalization and delocalization: New evidence from firm-level panel data. *Canadian Journal of Economics*, 31(4), 749–777.
- Globerman, S., & Shapiro, D. (2004). Assessing international mergers and acquisitions as a mode of foreign direct investment. *International Finance* 0404009, EconWPA.
- Jaumotte, F. (2004). *Foreign direct investment and regional trade agreements: The market size effect revisited* (IMF Working Paper no. 206).
- Kaminski, B., & Smarzynska, B. K. (2001). *Foreign direct investment and integration into global production and distribution networks: The case of Poland* (Working Paper no. 2646). World Bank.
- Kumar, N. (2001). *Infrastructure availability, foreign direct investment inflows and their export-orientation: A cross-country exploration*. New Delhi: Research and Information System for Developing Countries.
- Lipsey, R. E., & Sjöholm, F. (2010). *FDI and growth in East Asia: Lessons for Indonesia* (IFN Working Paper no. 852). Stockholm, Sweden: Research Institute for Industrial Economics.
- Markusen, J. R., & Venables, A. J. (1999). Foreign direct investment as a catalyst for industrial development. *European Economic Review*, 43(2), 335–356.
- Masron, T. A., & Abdullah, H. (2010). Institutional quality as a determinant for FDI inflows: Evidence from ASEAN. *World Journal of Management*, 2(3), 115–128.
- Monczka, R. M., & Trent, R. J. (1992). Worldwide sourcing: Assessment and execution. *International Journal of Purchasing and Materials Management*, 9–19.
- Mottaleb, K. A., & Kalirajan, K. (2010). Determinants of foreign direct investment in developing countries: A comparative analysis (ASARC Working Paper No. 13).
- Mughal, M. M., & Akram, M. (2011). Does market size affect FDI? The case of Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 2(9), 237–247.
- Mukherjee, A., & Suetrong, K. (2006). *Trade cost, technology licensing and foreign direct investment*. University of Nottingham.
- Neary, P. J. (2005). *Trade costs and foreign direct investment* (Centre for Economic Research Working Paper Series No. 12).
- Nunnenkamp, P., & Spatz, J. (2002). Determinants of FDI in developing countries: Has globalization changed the rules of the game? *Transnational Corporations*, 11(2), 1–34.

- O'Neil, D. C. (2013). *Playing risk: Chinese foreign direct investment in developing states*. Stockton, CA: School of International Studies, University of the Pacific.
- Rehman, A., Ilyas, M., Alam, H. M., & Akram, M. (2011). The impact of infrastructure on foreign direct investment: The case of Pakistan. *International Journal of Business Management*, 6, 268–276.
- Roberts, T. (2006). *Political institutions and foreign direct investment in developing countries: Does policy stability mean more to investors than democracy or property rights?* Los Angeles, CA: University of California.
- Ruffin, R. J. (1999). The nature and significance of intra-industry trade. *Economic and Financial Review*.
- Sahoo, P. (2006). Foreign direct investment in South Asia: Policy, trends, impact and determinants (ADB Institute Discussion Paper No. 56).
- Sarna, R. (2005). *The impact of core labour standards on foreign direct investment in East Asia* (Draft). Tokyo: The Japan Institute for Labour Policy and Training.
- Sethi, D., Guisinger, S. E., Phelan, S. E., & Berg, D. M. (2003). Trends in foreign direct investment flows: A theoretical and empirical analysis. *Journal of International Business Studies*, 34, 315–326.
- Torres-Reyna, O. (2009). *Panel data analysis, fixed and random effects (using Stata 10.X)*. Data and Statistical Services, Princeton University.
- UNCTAD. (2011). *Global investment trends monitor No. 5., 17 January 2011*. New York and Geneva: UNCTAD.
- Uttama, N. (2005). *Foreign direct investment in ASEAN countries: An empirical investigation*. Retrieved from <http://www.etsg.org/ETSG2005/papers/uttama.pdf>
- Vittorio, D., & Ugo, M. (2008). *Organized crime and foreign direct investment: The Italian case* (MPRA Paper 7279). University Library of Munich Germany.
- World Bank. (2006). *Doing business report 2007: How to reform*. Retrieved from <http://www.doingbusiness.org/~media/FDPDKM/Doing%20Business/Documents/Annual-Reports/English/DB07-FullReport.pdf>
- World Bank. (2007). *Doing business report 2008: Comparing regulations in 179 economies*. Retrieved from <http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB08-FullReport.pdf>
- World Bank. (2008). *Doing business report 2009: Comparing regulations in 181 economies*. Retrieved from <http://www.doingbusiness.org/~media/FDPDKM/Doing%20Business/Documents/Annual-Reports/English/DB09-FullReport.pdf>
- World Bank. (2009). *Doing business report 2010: Reforming through difficult times*. Retrieved from <http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB10-FullReport.pdf>
- World Bank. (2010). *Doing business report 2011: Making a difference for entrepreneurs*. Retrieved from <http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB11-FullReport.pdf>

- World Bank. (2012). *Doing business report 2012: Doing business in a more transparent world*. Retrieved from <http://www.doingbusiness.org/~media/FPDKM/Doing%20Business/Documents/Annual-Reports/English/DB12-FullReport.pdf>
- World Bank. (2013). *Doing business report 2013: Smarter regulations for small and medium-size enterprises*. Retrieved from <http://www.doingbusiness.org/~media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB13-full-report.pdf>
- Yeung, H. W., Dicken, P., Henderson, M. H., & Coe, N. (2002). *Foreign direct investment, trade and global production networks in Asia and Europe*. UK Economic and Social Research Council Project.
- Zarsky, L., & Gallagher, K. P. (2004). *NAFTA, foreign direct investment, and sustainable industrial development in Mexico*. Retrieved from <http://www.ase.tufts.edu/gdae/Pubs/rp/AmerProgFDIJan04.pdf>

Trade and Investment in the Philippines

Hazel C. Parcon-Santos

This work provides a sample of studies on trade and investment in the Philippines. The first section reviews the literature on Philippine trade, particularly the evolution of the country's trade policy and its ensuing impact on different sectors and aspects of the economy. The second section looks at the literature on foreign direct investments (FDIs) in the Philippines. In particular, the section reviews research done on FDI policies, determinants of FDI, and the impact of FDIs on the economy. The third section looks at studies that tackle economic integration—a consequence of both trade and investment liberalization. The last section concludes and recommends possible areas of future research.¹

Evolution of Philippine Trade Policy

The literature covering the developments in the Philippines' trade policies is rich. Wignaraja, Lazaro, and De Guzman (2010); Balboa and Medalla (2006); Balisacan and Hill (2003); Austria (2001); Cororaton (1998); and Austria and Medalla (1996) are among the many studies that provide a comprehensive account of the Philippines' trade regime in different decades.

Philippine trade policy has experienced major shifts over the past 60 years. From the 1950s–1970s, the government embarked on an import-

substituting trade regime. These decades can be characterized by highly protective tariffs, foreign exchange control measures, and capital market interventions. Realizing the limitations of such strategies, the government modified the country's trade policy using various liberalization packages. Thus, the first half of the 1980s saw the introduction of a tariff reform program (TRP), which involved the "tariffication" of quantitative restrictions, simplification of the tariff rate structure to a narrower rate range, and reduction in tariff protection. This was followed by two more waves of tariff reform programs in the 1990s—TRP II and TRP III. TRP II was introduced in 1991 and is an extension of the program introduced in the 1980s. Under TRP II, a phase-in period and transition rates were included in the tariff structure (Cororaton, 1998). TRP III, meanwhile, was introduced in 1994, in response to the request of the private sector to lower tariffs on capital goods and raw materials to improve their competitiveness (Menardo, 2004). The Philippines' accession to the World Trade Organization (WTO) in 1995 also called for another set of liberalization packages to comply with WTO commitments. Among these include the lifting of import restrictions on certain agricultural products, the elimination of duties on certain industrial and information technology products, and the creation of a four-tier tariff schedule. Further trade policy liberalization was introduced in the 2000s to support the government's commitment to market-friendly regulations (Menardo, 2004). For instance, by 2010, duties were eliminated on 99% of products in the Inclusion List of the Common Effective Preferential Tariff (CEPT) scheme of the ASEAN Free Trade Area (AFTA) (Palabyab, 2010). In 2008, the Japan—Philippines Economic Partnership Agreement (JPEPA) was enforced, which is the Philippines' first bilateral free trade agreement.

Impact of Trade Liberalization

The push for trade liberalization in the Philippines was primarily due to the failed protectionism and import substitution strategy implemented in the decade of the 50s and 70s. Trade liberalization is expected to improve the allocation of resources and bring domestic prices closer to world price, which are, in turn, expected to deliver sustained economic growth and development. However, with the mixed experience of different countries that have undergone trade liberalization, a recurring question is whether trade liberalization enhances productivity and economic growth, helps reduce income inequality, and alleviates poverty in a developing country.

Productivity

The focus of many studies on the impact of trade liberalization on productivity stems from the prediction that liberalization of trade influences producer behavior (Urata, 1994). Foreign competition brought by trade liberalization forces domestic firms to improve their productivity in order to survive. In addition, trade liberalization allows domestic firms to use high-quality imported components and machinery at lower prices, thus improving their productivity.

In a cross-country study covering the Philippines, Korea, Taiwan, Thailand, Malaysia, Indonesia, and India for the period 1970 to 1991, Urata (1994) investigated the impact of trade liberalization on each country's total factor productivity (TFP). Using tariff rates and the volume of exports and imports to capture trade liberalization, results revealed that for most countries in the sample, including the Philippines, trade liberalization had a positive impact on TFP growth; however, the relationship is not always statistically significant or stable. Austria (2000) and Cororaton and Abdula (1999) used the same measures to capture the impact of trade on the TFP of the Philippines. The former covered the years 1960 to 1996, while the latter covered 1958 to 1991. Austria (2000), using cointegration techniques, found that exports had a positive and significant impact on TFP, while Cororaton and Abdula (1999), using multivariate regressions, found that exports only had marginal impact on TFP. Both studies showed a negative coefficient for imports. Austria (2000) explained that the country's lack of skilled manpower to operate imported machines and transport equipment has led to a fall in productivity. Meanwhile, Cororaton and Abdula (1999) asserted that this is accounted for by the type of technology adopted by industries and its integration with the economy's forward and backward linkages. While Cororaton and Abdula (1999) found that low period differences in tariff rates have negative and significant impact on TFP,² Austria (2000) found that tariff rates have an insignificant impact on the country's TFP.

Aforementioned studies generally found that trade liberalization in the Philippines has limited impact on productivity. Moreover, foregoing researches have used macro-economic data since the Philippines does not have a readily available micro-level database to study the effect of trade liberalization on productivity. Surveys have to be carried out in order to conduct studies that are based on micro data. Hallward-Driemeier, Iarossi, and Sokoloff (2002) used plant-level data for four East Asian economies—the Philippines, Indonesia, South Korea, and Thailand—to analyze how the extent of trade openness in markets influence manufacturing productivity. In particular, they investigated whether exporters or firms that are more

integrated to broader markets have higher productivity than nonexporters. The analysis for the Philippines was based on a survey conducted in the late 1990s covering 424 registered firms with at least 20 employees in the food, textile, garment, chemical, and electronic sectors. Using multivariate regressions, the study revealed that exporters are more productive than nonexporters. In addition, the productivity gaps were found to be larger in the Philippines and Indonesia, which were identified as having less developed domestic markets compared to South Korea and Thailand. The study also showed that greater access to world markets drives firms to carry out investments that improve their productivity.

Aldaba (2010) assembled a firm-level panel data set of Philippine manufacturing establishments covering an eight-year period from 1996 to 2006 (1999, 2001, and 2004 are missing).³ The study focused on the impact of major trade reforms on the productivity of different types of firms in different sectors, where the classification was based on the sectors' trade orientation—traded sector (purely exportable, purely importable, and mixed) and nontraded sector. Greater exposure to international trade due to trade liberalization can drive efficient domestic firms to expand and the less efficient ones to shrink or exit the market. Hence, trade liberalization restructures and reshuffles the resources and activities within and across sectors. Employing a nonparametric approach, results of the study provided evidence that trade liberalization leads to increases in productivity, while protection reduces productivity. Moreover, aggregate productivity growth in the purely importable sector and mixed sector declined, while aggregate productivity in the purely exportable and nontraded sectors both improved within the period of the study.

In contrast to other developing countries that have a readily available national database of firms (for instance, Indonesia, Mexico, and Venezuela), the Philippines does not have such data available. Thus, the work of Aldaba (2010) offered a novel way of analyzing the impact of trade liberalization on the productivity of Philippine firms. Although insights provided by studies using macro data are valuable, important relationships may be concealed. Efforts in organizing a micro-level database in the Philippines such as the one assembled by Aldaba (2010) should be further encouraged, as using micro-level data may provide a more fruitful analysis.

Economic Growth

Several studies analyzed the impact of trade on economic growth. The promotion of production efficiency, better allocation of resources, and increase in the competitiveness of domestic products brought by trade

liberalization are among the reasons why the latter is predicted to have a positive impact on economic growth.

Using the APEX Model,⁴ Cororaton (1996) conducted simulations to investigate how sectoral nominal and implicit tariff rate changes during the 1988–1992 period affect economic growth. Results show that changes in nominal tariff rate lead to annual real GDP increases by 0.47% on average. With the aid of a financial computable general equilibrium (FCGE) model of the Philippine economy, Cororaton (1997) determined that a tariff reduction program—utilized during a flexible exchange rate regime—has a direct and wield the largest impact on output.

Meanwhile, using the PIDS macroeconomic model, Yap (1997a) simulated the changes in tariff from 1993 to 1996 to investigate the impact on aggregate and sectoral economic output. Results showed that aggregate economic output increased due to the decline in the average tariff rate. In addition, all major sectors showed output improvement. Nevertheless, effects differ across major sectors—the industry sector benefited the most, whereas the agricultural sector gained the least during the period. Using a smaller macroeconometric model, Yap (1997b) conducted simulations to investigate the impact on the economy of an across-the-board uniform tariff of 5%. Results revealed that that the policy leads to greater demand for imports, which leads to deteriorating trade deficits. In addition, the rise in import volume does not make up for the reduction in the tariff rate, resulting to the weakening fiscal balance. Results implied that reduction in tariff makes macroeconomic constraints more restrictive, which leads to a definite reduction in investment and, subsequently, in a slower rate of growth. In contrast, Tan (1997), employing a partial equilibrium trade model based on input-output framework, discovered that a 5% uniform tariff has positive effects. Output can increase as a result of improvement in resource allocation in the tradable sector. In addition, output and income growth can be higher at a lower uniform tariff. On a sectoral basis, the manufacturing sector had the highest growth rate, while agriculture had the least fall in output. Focusing on the trade reforms for the period 1995–2000, Cororaton and Cuenca (2000) used a 50-sector CGE model of the Philippine economy and found that over the period, real GDP improves. Nevertheless, variations in sectoral and annual effects exist, depending on the trade reform considered.

Income Distribution and Poverty

Traditional trade theory predicts that trade liberalization would have income distribution effects. In particular, the Heckscher–Ohlin (HO) model predicts that trade liberalization will cause a decline in income inequality

in developing countries—economies that, in general, have ample supply of unskilled and less skilled workers. Nevertheless, the empirical literature shows mixed evidence of this prediction.

Yap (1997a) showed the impact of tariff changes from 1993 to 1996 on income distribution by incorporating an income distribution model in a macroeconometric model. Results revealed that income distribution deteriorated, possibly due to the difference in the impact of the tariff change across sectors. While all sectors registered a positive increase in output, the industrial sector posted the biggest positive increase and the agricultural sector registered the least. Since the majority of lower income households in the Philippines still depend on the agricultural sector, the relatively lower output growth in agriculture creates adverse income distribution effects.

Meanwhile, using the APEX model mentioned earlier, Cororaton (1996) investigated the effects of the tariff changes from 1988 and 1992 on income distribution. The results revealed improvements in income distribution during the period, where households in the poorest income bracket experienced the greatest increase in income compared to the richest income bracket. Furthermore, among the prices of unskilled labor, skilled labor, and capital, the price of unskilled labor obtained the highest increase for both fixed and flexible exchange rate regimes. Since unskilled labor mostly belongs to the poorest segment of the population, this benefits the poor. Moreover, the price of capital increased faster relative to the general price of labor. This led to some kind of a substitution effect in favor of labor, thereby implying favorable income distribution effects.

Similarly, Cororaton (1998) and Cororaton and Cuenca (2000) found that the effect of tariff reforms on income distribution was generally positive. Cororaton (1998) used a 34-sector economy-wide model and found that for the period 1990 to 2000, the impact of the tariff reforms on income distribution is generally favorable, especially in the second half of the 1990s. In particular, all income groups enjoyed an increase in their absolute income due to the tariff change. Nevertheless, the impact differs across income groups, with the lowest increase in the poorest household. In addition, resource allocation across sectors changed as a consequence of the tariff change; where a general resource shift from agriculture and construction to manufacturing and utilities was observed. Meanwhile, Cororaton and Cuenca (2000) found that for the period 1995 to 2000, the lowest income group registered the highest increase in income relative to the other income groups.

Hasan and Jandoc (2010) showed that trade reforms did not significantly affect income inequality. Using wage decomposition techniques and multiple regression methods, the study examined the impact of trade liberalization on wage inequality in the Philippines for the period 1994 to 2000, wherein trade

protection declined and inequality rose significantly. The study suggested that trade liberalization did not significantly contribute to inequality in the country. In particular, results of the study revealed that trade-induced impacts on industry wage and industry-specific skill premia do not worsen wage inequality. Changes in economy-wide returns to education and changes in industry membership appeared to be more important drivers of wage inequality. In addition, the impact of trade liberalization on wage inequality was mainly attributed to trade-induced employment reallocation effects, wherein the decline in trade protection caused a movement of employment to more protected sectors, in particular to services, where wage inequality tended to be high from the beginning.

Cororaton, Cockburn, and Corong (2005) focused on the possible impact of free trade and the Doha agreements, in particular, on Philippine poverty by employing a detailed CGE analysis. Various policy experiments reveal mixed effects. The implementation of Doha agreements was found to marginally increase poverty. In particular, rural households and the agricultural self-unemployed, where the poorest and most populous households in the country belong, are adversely affected due to reduced world prices and lower demand for the Philippines' agricultural exports. Meanwhile, full trade liberalization, that is, free world trade, marginally reduces the poverty incidence. Free world trade increases industrial exports, which favors urban households. The agricultural sector likewise benefits as the cost of competing agricultural imports increase.

Labor Market

One sector of the economy frequently examined in analyzing the impact of trade liberalization in a country is the labor market. Specific attention is often given to employment and wage effects as these have important welfare implications.

Cororaton and Cuenca (2000) found that tariff reductions from 1995 to 2000 led to generally favorable employment effects, albeit with apparent gainers and losers across sectors. In particular, a significant increase in industry employment is registered. However, declines were registered in agriculture and services. Meanwhile, Orbeta (2002) analyzed the impact of globalization, measured by trade flows, on employment level and structure for the years 1980 to 2000, at both the aggregate and manufacturing sub-industry levels. At the aggregate level, results of the study showed that labor demand increases with higher propensity to export and import. At the manufacturing sub-industry level, greater export propensity has a positive impact on labor demand, while import propensity has an insignificant

impact on labor demand. In terms of employment structure, at the aggregate level, trade openness does not show a significant impact on the proportion of women workers employed, but at the manufacturing sub-industry level, the increase in the propensity to export is beneficial for women workers. In addition, increases in export propensity raise the proportion of low-skilled production workers employed at the national and manufacturing sub-industry levels. Orbeta (2002) concluded that expansion in exports has increased the demand for workers in the Philippines with basic skills.

Hasan and Chen (2003) examined the impact of trade liberalization on wages and employment in the Philippines' manufacturing sector in the period 1988 to 1997. The results of the study revealed that trade liberalization had fairly modest effects on both relative industry wages as well as employment in the Philippines within the period of the study. However, not all groups of workers were left unaffected by liberalization. Workers in capital-intensive industries, especially skilled ones, experienced declines in industry wage premiums. Less skilled workers in capital-intensive industries, meanwhile, appeared to have to work longer hours as a result of trade liberalization.

While most studies on the impact of trade liberalization on the Philippine economy focused on trade in goods, very few researches have been done so far on the impact of liberalization in trade in services on the economy. An exception is the study of Amoranto, Brooks, and Chun (2010).

Amoranto et al. (2010) investigated the impact of services liberalization in banking, telecommunications, and distribution on employment and wages in the Philippines for the years 1991 and 2004. In particular, the study estimated the probability of full-time stable employment and the effect on wages given services liberalization in aforementioned services. The results of the study revealed that, in general, liberalization in the services considered in the study had no noteworthy influence on employment in stable jobs for males and females. However, it is associated with wage reductions for females and higher wages for males in full-time salaried work. Among the three industries, liberalization in telecommunications had the biggest effect in terms of cutting employment in stable jobs and in trimming down the wages of full-time salaried workers for both males and females. Meanwhile, compared to telecommunications and banking, liberalization in distribution services favored workers with bigger wages across different levels of education (except for workers in the lowest category of educational attainment who either have no education or only elementary education). Moreover, results suggest that services liberalization appear to have possibly harmed those with little education and may have shifted employment to higher skilled males compared to females.

Environmental and Labor Practices

An important strand in the international trade literature is the link between trade liberalization and the environmental and labor practices in a country. Traditional literature suggests that there is a race to the bottom among countries participating in international trade. Lower labor and environmental standards lead to lower production costs, which enable exporting firms to be more competitive internationally. Nevertheless, increased awareness of environmental and labor issues and the presence of foreign competitors that produce at higher standards may pressure domestic producers to adopt higher standards. Moreover, some developed countries require that certain standards be met and tests be passed by goods exported in their countries, for instance, ISO certification, sanitary and phytosanitary (SPS) standards, and eco-labels. However, studies on this topic for the Philippines are scant.

Aldaba and Cororaton (2001) assessed the effect of trade reforms on the environment and environmental standards using CGE model simulations and industry case studies. The results of the study revealed that trade liberalization does not lead to general environmental degradation but promotes competition and efficiency. Large export-oriented firms appear to be the advocates of sound environmental practices and are the first to implement environmental management system. The critical role played by technology in controlling pollution is likewise recognized. In particular, simultaneously introducing changes in technology and trade reforms lead to significant improvements in the environment.

Meanwhile, Edralin (2000) investigated the position of enterprises regarding social clauses. A social clause espouses the integration of international labor standards (set by the International Labor Organization) in international trade agreements to guarantee that trade liberalization will be accompanied by improvements in conditions at work and not by race to the bottom that exploits labor. On the one hand, better labor conditions are expected to increase the productivity of workers, enabling them to be more competitive. However, higher labor standards may come at a cost to firms, reducing or eliminating their edge against the lower labor cost in other developing countries. Based on a survey of 125 enterprises in the manufacturing sector, the study revealed that many of those belonging to management and union are in favor of a social clause. Enterprises that are in favor of a social clause 1) belong to the chemical products subsector, 2) are owned by Filipinos, 3) are registered as single proprietorships, 4) have a large employment size, 5) have medium capitalization, 6) had an average profit the previous year, and 7) have been operating its business for 2–10 years. Meanwhile, enterprises that are not in favor of a social clause are mainly those that are in the textile and wearing apparel and furniture and

wood product industries. Small businesses, in particular, are concerned of the lower labor costs in countries such as China and Vietnam. Nevertheless, Edralin (2000) highlighted the need for labor standard reforms to ensure long-term competitiveness and that the Philippines gives globalization a human face.

Foreign Direct Investments

Most developing countries are capital scarce and have limited access to international financial markets relative to developed nations. Since capital accumulation is recognized to foster economic growth, many developing nations offer incentives to attract FDIs as an alternative source of capital. Apart from the inflow of capital, FDIs are expected to introduce a myriad of favorable productivity spillovers in the host country—technological advancement, improved research and development, superior management skills, and expanded marketing network, among others. Hence, FDIs are expected to promote growth and enhance welfare. Due to these expected benefits, there is vigorous effort by developing countries, the Philippines included, to attract FDIs.

Evolution of Philippine Foreign Direct Investments Policy

Many studies have examined the FDI experience and investment policies of the Philippines. Aldaba (1994), for instance, provided a very comprehensive discussion of the Philippines' FDI policies and patterns from the 1960s to the 1990s. Aldaba (2006) and Balboa and Medalla (2006), on the other hand, provided a summary of FDI patterns and policies in the 1980s to early 2000s. Additionally, Matriano (2002) provided a brief summary of the Philippine FDI experience for the period 1997 to 2001.

Similar to trade policy, investment policy in the Philippines has undergone reforms. Beginning in the 1980s, the standpoint of the Philippines toward foreign direct investments has changed considerably (Aldaba, 2006). One of the most important steps undertaken to liberalize investment policy in the 1980s was the passage of the Omnibus Investments Code (OIC, 1987). The OIC of 1987 simplified and consolidated previous laws and provided two important incentives, namely, the provision of income tax holiday for enterprises engaged in preferred areas of investment and taxable income deductions for the use of skilled and unskilled workers that satisfy certain requirements of the Board of Investments (BOI). Other incentives in the OIC include tax and duty exceptions on certain capital equipment and parts,

tax credits on domestic capital equipment, employment of foreigners for technical and advisory positions for a certain period, and simplified customs procedures.

In the 1990s, an important step taken to liberalize investment policy was the Foreign Investment Act (1991), which liberalized existing investment regulations. In particular, foreign equity participation up to 100% was allowed in all areas unless the investment is prohibited or limited under the Foreign Investment Negative List. Over time, the negative list was considerably reduced.

In 1994, entry and operations of foreign banks were liberalized. Foreign banks were allowed to acquire up to 60% ownership of domestic banks. The capital market was likewise liberalized with the removal of some foreign exchange controls, including the surrender requirement for export proceeds and Bangko Sentral ng Pilipinas (BSP) approval of forex transactions and capital repatriation.

In 1995, the Special Economic Zone Act (1995) allowed increased private-sector participation in the development and management of the country's special economic zones and expanded the activities permitted within the zones. According to the World Bank (1997), the integrated package of policies, rationalized procedures, and physical infrastructure offered by economic zones resulted in a net positive economic impact.

By the 2000s, more liberalization efforts specific to FDI were undertaken. For instance, in 2000, the General Banking Law (2000), for a period of seven years, allowed foreign banks to own up to 100% of one locally incorporated commercial or thrift bank (with no obligation to divest later). The Retail Trade Liberalization Act (2000)—that was likewise passed in 2000 permitted foreign investors to enter the retail business and have 100% ownership (with minimum equity requirement).

Though considerable advancements have been made in liberalizing the country's FDI policy, obstacles to foreign investment entry still remain. For instance, due to constitutional constraints, foreign investment is restricted in certain industries—mass media, small-scale mining, private security agencies, and the manufacture of firecrackers and pyrotechnic devices, among others. Limit on foreign ownership remains on enterprises engaged in domestic air transport, public utilities, pawnshop operations, education, and employee recruitment, among others.

Determinants of Foreign Direct Investments

Despite the steps taken to liberalize investments in the country, studies show that FDI inflows in the country have displayed unstable patterns of

growth and the Philippines has lagged behind its neighboring countries in attracting FDI inflows. The FDI experience of the Philippines brings to attention whether or not the country has the necessary conditions and environment conducive for attracting and maintaining investments. This is a very important question and, thus, has been the subject of much research.

Austria (1998) identified the factors that explained FDI patterns in the Philippines in the 1990s. Factors that attracted FDI in the 1990s include the government's general policy of openness, strong macroeconomic fundamentals, economic recovery, and political stability. Meanwhile, factors that inhibited FDI include the militancy of labor unions; inadequate technical and vocational skills of the labor force; high cost of unskilled labor relative to Indonesia, Vietnam, or China; slow growth of labor productivity relative to wage increases (primarily due to minimum wage setting); poor infrastructure; and lack of competitive support industries.

Aldaba (1994) empirically explored the factors influencing FDI inflows for the period 1973 to 1992. The results of the regression analysis showed that FDI inflows is positively correlated with the stock of public investment, real GDP, and the real effective exchange rate and is negatively related with political instability. Changes in investment incentives were also shown to have no influence on FDI inflows in the period of the study. In addition, for the period considered, FDI inflows were shown to be positively related to the effective rate of protection and that most FDI inflows were import substituting. Aside from analyzing the behavior of aggregate FDI inflows, Aldaba (1994) disaggregated the FDI inflows coming from the US, Japan, and the EC6. The results show that FDI inflows from these sources respond distinctly to different factors considered in the study.

The results of Alburo (1998) showed some similarities to that of Aldaba (1994), albeit working on a different time period. Based on the analysis of FDI inflows for the period 1985–1997, the real exchange rate, effective protection rate, and rates of return were shown to have positive impacts on FDI inflows, while the amount of commercial credits has a negative impact on FDI inflows. Bilateral investment treaties of the Philippines, meanwhile, were shown not to have significant impacts on the country's FDI inflows.

Notable is the positive and highly significant impact of the effective protection rate in both studies, suggesting that the FDI attracted by the Philippines are in general not export oriented. Alburo (1998) mentioned that this is not to undermine the growing importance of FDI in export-oriented subsectors (i.e., electronics) but merely shows that FDI inflows in the period covered by the studies were in general, not attracted to the exporting sectors of the country.

Balboa and Medalla (2006) provided a descriptive analysis to explain the FDI experience of the Philippines. Based on the work of Banga (2003), they identified three categories of government policies, namely, overall economic policy, national FDI policies, and international FDI policies that affect FDI inflows in a country. The first category includes investments in infrastructure, in particular, environmental and urban management (waste and traffic management), where the Philippines is lagging, and industrial power supply, where the Philippines has a high cost compared to other Asian countries. Wage and labor productivity relation likewise fall under this category, where it was identified that the Philippines has one of the highest minimum wages in Asia and yet has one of the lowest labor productivity. The second category includes the tax structure and tax administration in a country. While Aldaba (2006) maintained that the Tax Reform Package in 1986, the Comprehensive Tax Reform Program in 1994, and the Tax Reform Act of 1997 have significant positive impacts on the Philippine tax system, Balboa and Medalla (2006) maintained that the Philippines still has one of the highest corporate and value-added taxes compared to its neighbors. Likewise, the Philippines' lack of tax administration transparency and reputation for tax evasion have had negative impacts on the investment climate of the country. Another important policy under this category is fiscal incentives, where the Philippines was identified to have a fairly competitive incentive package vis-à-vis other ASEAN countries. Restrictions and limitations in foreign investments and land ownership also fall in this category. While the Philippines has undergone extensive liberalization with regard to investment and land ownership (Matriano, 2002), Balboa and Medalla (2006) declared that the country still has one of the most restrictive rules compared to its ASEAN neighbors. Related to this, the authors claimed that countries with stricter rules on investment and land ownership often resulted in more corruption. The third category includes the membership of a country in bilateral investment treaties (BIT) and economic partnerships. As of June 2012, the Philippines has signed 35 BITs, 30 of which have already been entered into force (United Nations Conference on Trade and Development, 2012).

While the analysis of Balboa and Medalla (2006) is useful in identifying the policies that could be improved on to promote greater FDI inflows, the study did not identify which among the policies require the most attention and have the most impact in terms of influencing FDI inflows. With the government's lack of resources, it is imperative to ascertain which among these factors to prioritize. The Asian Development Bank (ADB, 2005) conducted a survey in 2003 in four manufacturing sectors, namely, food and food processing, garments, textiles, and electronics, that

somewhat addresses this concern. It analyzed the relative importance of macroeconomic fundamentals, infrastructure, governance, and institutions to investors. The result of the survey revealed that macroeconomic stability, corruption, electricity, tax rates, and economic policy uncertainty are the top five concerns of investors in the country. A periodic study similar to the foregoing should be encouraged and should be extended to other sectors (i.e., service, which is growing in economic importance). Such surveys and studies can serve as a monitoring mechanism for whether or not the concerns of investors are adequately addressed by the government.

Instead of simply enumerating and describing the policies and factors that require government attention, another approach that could be taken is to choose an existing FDI policy and analyze its economic importance vis-à-vis the cost of implementing it. An example of such a study is Reside (2006, 2007), which focused on fiscal incentives. The results of both studies showed that fiscal incentives are not significant and that fundamental factors are more important in attracting FDI and regional investments in the Philippines. Reside (2006, 2007) suggested that government resources should instead be spent on productivity-enhancing goods such as education and infrastructure.

Impact of Foreign Direct Investments

While it is important to review the country's history of FDI policies and determinants of FDI inflows, it is equally important, if not more important, to investigate the impact of FDI in the country.

In a cross-country study of nine Asian countries including the Philippines, Dhakal, Rahman, and Upadhyaya (2007) investigated whether or not there is a two-way causality between FDI and economic growth over the period 1980 to 2001. It showed varying results for different countries. In the case of the Philippines, it was revealed that while FDI causes economic growth, the latter also stimulates the former. Thus, there is a two-way causality between the two. The causality from FDI to growth is reinforced by the presence of greater trade openness, more limited rule of law, and lower receipts of aid. The causality from growth to FDI, meanwhile, is strengthened by greater political rights and more limited rule of law.

Instead of looking at the amount of FDI inflows, Choong and Liew (2009) investigated the impact of FDI volatility on economic growth for the ASEAN-5 for the period 1974 to 2005. The study showed cointegration between FDI volatility and economic growth, implying a long-run relationship between the two. In particular, FDI volatility has a significant and negative impact on the economic growth of the ASEAN-5, albeit not

significant for Singapore. In the case of the Philippines, a 1% increase in FDI volatility is associated with a 0.41% rise in economic growth. Among the countries considered in the study, the Philippines' economic growth is the least vulnerable to FDI volatility. At first look, this may be encouraging since this implies that the country's economic growth is not highly dependent on FDI inflows. However, one possibility for this result is that the FDI inflows in the Philippines may be small relative to that of other countries in the study, thus the small observed impact on the country's economic growth.

The study of Bende-Nabende and Slater (2003) investigated the impact of FDI on domestic private investment in both the short run and long run covering the period 1971 to 1999 for four ASEAN countries: Indonesia, Malaysia, Thailand, and the Philippines. The results showed that in the short run, FDI significantly crowds in domestic private investment in the Philippines and Thailand, while in Indonesia and Malaysia, there is insignificant crowding in and insignificant crowding out effects, respectively. The authors noted that in the short run, FDI tends to crowd in domestic investment in relatively less developed countries but crowd out in domestic investment more developed ones. In the long run—it was shown that there is significant crowding in of domestic investments for the four countries.⁵

The preceding discussion shows that the empirical literature on the impact of FDI on the Philippine economy is scant. In addition, aforementioned studies are cross-country wherein the Philippines is just one of the observations; thus, they fail to provide a detailed analysis for the Philippines. One recent study by Agbola (2007) is an exception. The study empirically investigated the impact of FDI on the Philippines' economic growth in the period 1970 to 2006. The results found that FDI can positively influence economic growth by stimulating human capital and infrastructure development. The study also suggested that FDI might be more important than domestic private investment in enhancing economic growth. The precise mechanism of how FDI affects economic growth and domestic investment depends on a myriad of factors, but aforementioned studies are unable to provide a detailed explanation as they use highly aggregated data. Hence, conclusions are at best suggestive. However, FDI is shown to crowd out domestic investment, which is in contrast to the findings of Bende-Nabende and Slater (2003). In such case, caution must be made when making policy recommendations. For instance, if evidence of crowding out of private investment is found at the aggregate level, it does not necessarily imply that there is no crowding in at the sectoral, industry, and firm level. Moreover, it cannot be concluded that all types of FDI crowd out domestic investment. Likewise, the specific conditions why crowding out is found may be hard to identify.

Economic Integration

Liberalization in trade and investment throughout the years have contributed to greater economic integration. Reforms done in the 1980s and 1990s have reduced the inefficiency of domestic industries that were products of past protectionist policies. As a result of the liberalization efforts, the country's competitiveness improved, which enabled it to participate in international trade agreements.

Austria (2004) mentioned market-led process, institution-led process, and private-sector-led process as the main drivers of economic integration. Market-led process results in greater trade and investment opportunities through international production sharing. Institution-led process is spurred by free trade agreements. And private-sector-led process is driven by economic zones across geographically contiguous countries in a region.

International Production Sharing

International production sharing exploits the comparative advantage of different countries in producing different parts and components of a good. The Philippines participates in this production scheme primarily through the labor-intensive production processes. The studies of Austria (2003a, 2003b, 2003c, 2004) revealed increasing economic integration of the Philippines as suggested by its growing intraindustry trade with trading partners. In particular, Austria (2003a) showed a growing intraindustry trade in manufactures between the Philippines and APEC members, especially in semiconductors and electrical machineries. Likewise, from 1990 to 1999, Austria (2003c) pointed to a rising intraindustry trade in manufactures between pairs of ASEAN economies. Similarly, intraindustry trade in ASEAN priority goods sectors between the Philippines and ASEAN countries from 1997 to 2001 increased, though large variations across sectors and partner countries are apparent, as revealed by Austria (2004). Nevertheless, integration is still considered weak, which can be primarily attributed to the variation in the speed of integration of member countries and stark differences in the level of development of member countries. Austria (2004) likewise mentioned the rapid emergence of China as an economic power as an important challenge for the Philippines and the ASEAN in general.

By focusing on the electronics industry, Austria (2006) asserted that the country has hardly progressed in its participation in the global production chain, as the country remains in the level of assembly and testing segments that generate the lowest value added. The primary reason for the failure of the

economy to move to higher value-added segments of the production chain is the lack of local support structures in the country, in particular, in the areas of infrastructures and logistics, power supply and costs, unskilled labor costs, development of supplier industries, and technological capabilities that constrain industrial upgrading.

Trade Agreements

The unilateral and multilateral lowering of impediments to trade and investment has led to greater economic integration across economies. The Philippine government's participation in various agreements is a signal of its commitment to liberalize trade and investment. Numerous studies have been conducted to estimate the impact of trade agreements on the Philippine economy.

The ASEAN Free Trade Area (AFTA) was established in 1992 and is the Philippines' first free-trade agreement. Its principal goal was to increase ASEAN competitiveness as a production base for the world by reducing intraregional tariffs to 0% to 5% within a 15-year period through the Common Effective Preferential Tariff (CEPT). Pineda (1997) identified the net exporting industries to ASEAN as the major gainers of CEPT in the Philippines. Meanwhile, using a CGE model and the Global Trade Analysis Project (GTAP) model, Todsadee and Kameyama (2010) demonstrated that tradable agricultural and food sectors in the Philippines would gain from CEPT. Nevertheless, the research revealed that the potential gain for the Philippines is ambiguous. Simulation results for the period 2004–2010 showed negative real GDP growth, reduced terms of trade, decline in allocative efficiency, and fall in the trade balance in some years.

In contrast, Karim and Othman (2005) showed that the Philippines benefits from AFTA. By creating a big, integrated, and efficient market, AFTA is expected to attract FDI inflows in ASEAN member countries. The study of Karim and Othman (2005) revealed that FDI inflows in the Philippines are positively and significantly affected by AFTA. In addition, the study showed that China's accession to WTO has a negative impact on the majority of ASEAN countries' FDI inflows, which emphasized the importance of further strengthening AFTA.

The Asia-Pacific Economic Cooperation (APEC) was founded in 1989 as an informal ministerial-level dialogue among 12 countries, of which the Philippines is included. The main thrust of APEC is to create an open trade and investment environment in the Asia-Pacific region. As it imposes no binding obligations on its members, APEC has often been the object of criticisms. Thus, it may be hard to isolate the effects of APEC on the

economy (Drysdale & Armstrong, 2009). Nevertheless, Austria (2001) and Medalla, Yap, and Balboa (2009) argued that the Philippines has gained from its participation in APEC. It has established economic ties and networks that not only increased the country's trade and with investment from APEC members but also have helped the Philippines in the aspects of trade facilitation (standards and conformance, customs procedures, intellectual property rights, good governance and transparency, and mobility of business people) and economic and technical cooperation (human resource development, energy, SMEs, agriculture, environment, services, finance, and others).

The Japan–Philippines Economic Partnership Agreement (JPEPA) was enforced in 2008 and is the first bilateral free-trade agreement entered into by the Philippines. Medalla, Vidar-Vale, and Balboa (2010) provided a comprehensive summary of the studies that estimate the impact of JPEPA on the Philippine economy. Depending on the model used and the assumptions on the success or failure of implementing the different aspects of the agreement, JPEPA can generate a gain in real GDP of as low as 0.09% to as high as 3.03%. On the sectoral level, gainers include information, communications and technology (ICT), medical services, tourism, and agriculture, and losers include cement and motor parts and components. Nevertheless, the predicted impact on adversely affected sectors may be prevented if the technical capabilities of these sectors are linked with existing Japanese manufacturing networks. Moreover, Medalla et al. (2010) emphasized the need for improved standards of Philippine exporters, most especially the agricultural sector, in order to benefit from JPEPA. The inclusion of liberalization of trade in services and investments and other trade related issues (i.e., trade facilitation, dispute avoidance, and settlement) are other venues by which Philippines is expected to benefit from JPEPA.

In spite of being a member of the World Trade Organization (WTO), Austria (2001) emphasized the value of regional trade agreements for the Philippines. First, they provide an avenue to overcome trade barriers beyond what can be achieved under the WTO at a faster pace. Second, they enhance the country's competitiveness. Third, they enable the country to address international concerns that can only be addressed at a regional level.

Conclusion and Recommendation

The literature on trade and investment in the Philippines has addressed a variety of issues. A considerable array of studies in the trade literature dealt with the shift in policy throughout the decades from a highly protectionist to a more liberalized regime and the ensuing impact of such a shift to different

aspects of the economy. Many studies found evidence that trade liberalization potentially increases productivity and output growth, improves income distribution, and reduces poverty. Nevertheless, variations in effects across sectors and income and skill groups exist, depending on the trade reform and period of study considered.

Similar to the literature on trade, the literature on foreign direct investment has substantially given attention to policy reforms throughout the decades. A common conclusion is that despite efforts to liberalize FDI policy in the country, the growth of FDI inflows has been unstable and that the Philippines has lagged behind its neighbors in attracting FDI. The unimpressive economic fundamentals of the country is often cited as the primary reason for the country's weak FDI performance. In addition, investment incentives were shown to be costly and ineffective in attracting FDI. Thus, government resources and efforts should be geared toward the improvement of fundamental factors—macroeconomic and political stability, labor productivity, and infrastructure, among others. Meanwhile, the limited studies on the impact of FDI on the Philippine economy verify that FDI has a positive impact on the country's economic growth and domestic private investment.

Trade and investment liberalization paved the way to greater economic integration as manifested by the country's participation in international trade and investment agreements and in international production sharing. However, several studies find some evidence that international agreements can have a negative impact on some sectors of the economy. Nevertheless, most researches conclude that economic gains are generally larger due to the integrated and efficient markets, established economic ties and networks, trade facilitation, and economic and technical cooperation that these agreements provide. With regard to the country's participation in global production networks, the major challenges for the Philippines include the need for the Philippines to move to higher value-added segments of the production chain and the emergence of China as an economic power.

The existing Philippine literature on trade and investment prove that gains from liberalization are not guaranteed. Having sound macroeconomic fundamentals, efficient institutions, appropriate manpower skills, technology, forward and backward linkages, and support industries, among others, are necessary to mitigate the adverse effects and reap the potential benefits of liberalization.

Moreover, the literature suggests that some concerns remain important. For instance, in addition to the use of macro-based data, micro-based data is called for to facilitate more detailed analyses and to formulate better policy recommendations. Likewise, enhanced econometric techniques and models

have become even more essential to better estimate and predict the impact of liberalization on different aspects and sectors of the economy.

The foregoing review of studies has also demonstrated that some important issues remain underexplored. For instance, the Philippine trade literature has often focused on liberalization of merchandise trade but much less on services trade. It is highly recognized that the benefits of services liberalization are felt on many economic activities. Moreover, the services sector has become the largest and fastest growing sector in the Philippine economy and in the world economy. Given these, it is vital that equal, if not greater, attention be given to research on services trade liberalization.

Meanwhile, in the FDI literature, there is a dearth of studies investigating the impact of FDI liberalization on different aspects of the Philippine economy, leaving a considerable area for future research. For example, possible effects of FDI on prices are almost absent from the literature (Lipsey & Sjöholm, 2005). Likewise, research on labor market effects of FDI liberalization is limited. These are very important issues due to their welfare implications and, therefore, must be studied.

The limited number of empirical studies done on the impact of liberalization in other countries on the Philippine economy is likewise notable. The challenge for the Philippines is to address competition for its international market share of traded goods and services and FDI.

As a final note, the liberalization of trade and investment seem inevitable. Therefore, what is vital is to ascertain the circumstances under which greater liberalization and economic integration can enhance the country's economic and social well-being.

Notes

- ¹ A literature map is provided in the Appendix.
- ² In the period of study, period differences in tariff rates barely changed, implying that protection reduced TFP.
- ³ With the aid of the National Statistics Office (NSO) staff.
- ⁴ APEX stands for Agriculture Policy Experiments. The model was developed by Ramon Clarete, Peter Warr, and their associates. It is a neoclassical, Walrasian computable general equilibrium (CGE) model of the Philippine economy with a well-defined production (or supply) sector, as well as a consumption (or demand) sector. See Yap (2002) for more details.
- ⁵ Due to sample size limitations, the authors were only able to do panel cointegration for the entire sample. No specific country analysis was done for the long-run case.

References

- Agbola, F. (2007). *Foreign direct investment and economic growth: Some empirical evidence from the Philippines*. Paper written for the 36th Australian Conference of Economists, 24–26 September 2007, Hotel Grand Chancellor, Hobart, Tasmania.
- Alburo, F. A. (1998). *Foreign direct investment in the Philippines amidst crisis and a new global environment* (Policy Paper 98-15). Makati City: Philippine Institute for Development Studies.
- Aldaba, R. M. (1994). *Foreign direct investment in the Philippines: A reassessment* (Research Paper Series No. 94-10). Makati City: Philippine Institute for Development Studies.
- Aldaba, R. M. (2006). *FDI investment incentive system and FDI inflows: The Philippines experience* (Discussion Paper Series No. 2006-20). Makati City: Philippine Institute for Development Studies.
- Aldaba, R. M. (2010). *Does trade protection improve firm productivity? Evidence from Philippines micro data* (Discussion Paper Series No. 2010-32). Makati City: Philippine Institute for Development Studies.
- Aldaba, R. M., & Cororaton, C. B. (2001). *Trade liberalization and pollution: Evidence from the Philippines* (Discussion Paper Series No. 2001-25). Makati City: Philippine Institute for Development Studies.
- Amoranto, G., Brooks, D. H., & Chun, N. (2010). *Services liberalization and wage inequality in the Philippines*. Paper presented at the Reforming Services for Inclusive and Sustainable Development of Asia and the Pacific on 11–12 October 2010 in Bali, Indonesia.
- Asian Development Bank. (2005). *Philippines: Moving towards a better investment climate*. Manila: Asian Development Bank.
- Austria, M. (1998). Emerging Philippine Investment Environment. *Journal of Philippine Development*, 25(1), 79–126.
- Austria, M. (2001). Liberalization and regional integration: The Philippines strategy to global competitiveness. *Philippine Journal of Development*, 28(1), 55–86.
- Austria, M. (2002). Productivity growth in the Philippines after the industrial reforms. In J. Yap (Ed.), *The Philippines beyond 2000: An economic assessment*. Makati City: Philippine Institute for Development Studies.
- Austria, M. (2003a). The Philippines in the new global trading environment: Looking back and the road ahead. Makati City: Philippine Institute for Development Studies.
- Austria, M. (2003b). *East Asian regional cooperation: Approaches and processes* (Discussion Paper Series No. 2003-02). Makati City: Philippine Institute for Development Studies.
- Austria, M. (2003c). ASEAN Free Trade Area: Lessons learned and the challenges ahead. In Sa-Myung Park and Supachai Yavaprabhas (Ed.), *Regional*

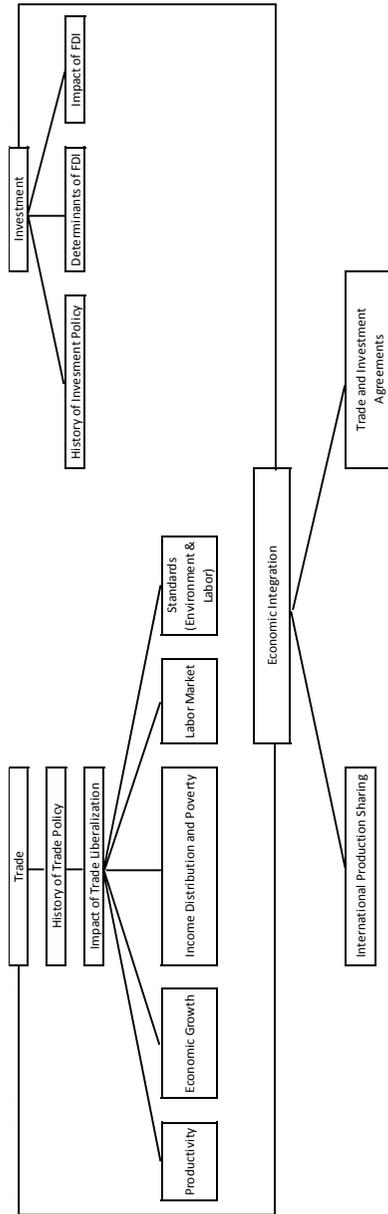
- cooperation and identity building in East Asia in the age of post-Cold War globalization*. Seoul: Korea Association of Southeast Asian Studies.
- Austria, M. (2004). *The pattern of intra-ASEAN trade in the priority goods sectors* (Project No. 03/006e). Australia: Regional Economic Policy Support Facility.
- Austria, M. (2006). *Enhancement and deepening of the competitiveness of the Philippine electronics industry under a bilateral setting* (Working Paper Series 2006-09). Makati City: Philippine Institute for Development Studies.
- Austria, M., & Medalla, E. M. (1996). *A study on the trade and investment policies of developing countries: The case of the Philippines* (Discussion Paper Series No. 96-03). Makati City: Philippine Institute for Development Studies.
- Balboa, J. D., & Medalla, E. M. (2006). *State of trade and investments in the Philippines* (Discussion Paper Series No. 2006-15). Makati City: Philippine Institute for Development Studies.
- Balisacan, A., & Hill, H. (2003). *The Philippine economy: Development, policies, and challenges*. Quezon City: Ateneo de Manila University Press.
- Banga, R. (2003). *Impact of government policies and investment agreements on FDI inflows* (Working Paper 116). New Delhi: Indian Council for Research and International Economic Relations.
- Bende-Nabende, A., & Slater, J. (2003). Private capital formation: Short-and long-run crowding-in (out) effects in ASEAN, 1971–1999. *Economics Bulletin*, 3(27), 1–16.
- Choong, C. K., & Liew, V. K.-S. (2009). Impact of foreign direct investment volatility on economic growth of ASEAN-5 countries. *Economics Bulletin*, 29(3), 1829–1841.
- Cororaton, C. B. (1996). *Simulating the income distribution effects of the 1988–1992 tariff reduction using the APEX model* (Discussion Paper Series No. 96-01). Makati City: Philippine Institute for Development Studies.
- Cororaton, C. B. (1997). *Tariff and direct household taxes: An economy wide model analysis* (Research paper submitted to MIMAP-Philippines). Philippines: Micro Impacts of Macroeconomic and Adjustment Policies.
- Cororaton, C. B. (1998). *The Philippine tariff structure: An analysis of changes, effects and impacts*. Paper presented at the Micro Impacts of Macroeconomic and Adjustment Policies (MIMAP), Third Annual Meeting on 2–6 November 1998 in Kathmandu, Nepal.
- Cororaton, C. B., & Abdula, R. (1999). *Productivity of Philippine manufacturing* (Discussion Paper Series No. 99-21). Makati City: Philippine Institute for Development Studies.
- Cororaton, C. B., & Cuenca, J. S. (2000). *An analysis of Philippine trade reforms in 1995–2000 using the 1994 APEX model* (Discussion Paper Series No. 2000-36). Makati City: Philippine Institute for Development Studies.
- Cororaton, C. B., Cockburn, J., & Corong, E. (2005). *Doha scenarios, trade reforms and poverty in the Philippines: A CGE analysis* (Discussion Paper No.

- 86). Washington, DC: Market, Trade and Institutions Division, International Food Policy Research Institute.
- Dhakal, D., Rahman, S., & Upadhyaya, K. P. (2007). Foreign direct investment and economic growth in Asia. *Indian Journal of Economics and Business*.
- Drysdale, P., & Armstrong, S. (2009). Does APEC matter? *East Asia Forum*. Retrieved from <http://www.eastasiaforum.org/2009/11/08/does-apec-matter/>
- Edralin, D. (2000). *Factors influencing the observance of the Core ILO labor standards by manufacturing companies* (Working Paper Series No.2000-02). Manila: Center for Business Economics Research and Development.
- Foreign Investment Act, Republic Act No. 7042. (1991). (Board of Investments).
- General Banking Law, Republic Act No. 8791. (2000). (Bangko Sentral ng Pilipinas).
- Hallward-Driemeier, M., Iarossi, G., & Sokoloff, K. L. (2002). *Exports and manufacturing productivity in East Asia: A comparative analysis with firm-level data* (Working Paper No. 8894). Cambridge, MA: National Bureau of Economic Research.
- Hasan, R., & Chen, L. (2003). *Trade and workers: Evidence from the Philippines* (Economic Series Working Paper No. 61). Honolulu, HI: East West Center.
- Hasan, R., & Jandoc, K. R. L. (2010). *Trade liberalization and wage inequality in the Philippines* (Economic Working Paper Series No. 195). Philippines: Asian Development Bank.
- Karim, M. Z. A., & Othman, Y. (2005). Does AFTA and China's entry into WTO affect FDI in ASEAN Countries? *Asian Academy of Management Journal*, 10(1), 37–59.
- Lipsey, R. E., & Sjöholm, F. (2005). The impact of FDI on host countries: Why such different answers? In T. H. Moran, E. M. Graham, & M. Blomstrom (Eds.), *Does foreign direct investment promote development?* (pp. 23–43). Washington, DC: Institute for International Economics, Center for Global Development.
- Matriano, C. J. (2002). *The Philippine foreign direct investment situation*. Paper presented at the OECD-OCDE Emerging Asia Investment Policy Dialogue, Exploratory Meeting on 6 December 2002 in Shanghai, China.
- Medalla, E. M., Yap, J. T., & Balboa, J. D. (2009). *Impact of APEC on the Philippines and future prospects*. Paper (revised version of the paper *Shaping APEC: Perspectives from the Philippines*) presented at the APEC Study Center Consortium Conference on 18–20 April 2007 in Melbourne, Australia.
- Medalla, E. M., Vidar-Vale, C., & Balboa, J. D. (2010). *Japan–Philippine Economic Partnership Agreement (JPEPA): Towards a framework for regional economic cooperation* (Discussion Paper Series No. 2010-19). Makati City: Philippine Institute for Development Studies.
- Menardo, A. (2004). *Tariff reforms in the Philippines*. Paper written for the APEC High-Level Conference on Structural Reform held on 8–9 September 2004 in Tokyo, Japan.

- Omnibus Investments Code, Executive Order No. 226. (1987). (Board of Investments).
- Orbeta, A. C., Jr. (2002). *Globalization and employment: The impact of trade on employment level and structure in the Philippines* (Discussion Paper Series No. 2002-04). Makati City: Philippine Institute for Development Studies.
- Palabyab, N. P. (2010). *Opening market opportunities in ASEAN: ASEAN Free Trade Area* (PowerPoint slides). Retrieved from www.dti.gov.ph/uploads/DownloadableForms/mac-afta_05Nov10.pdf
- Pineda, V. S. (1997). *Study on the effects of AFTA-CEPT scheme on manufacturing industries* (Discussion Paper Series No. 97-23). Makati City: Philippine Institute for Development Studies.
- Reside, R. E., Jr. (2006). *Towards rational fiscal incentives (Good investments or wasted gifts?)* (Discussion Paper No. 0601). Quezon City: University of the Philippines School of Economics.
- Reside, R. E., Jr. (2007). *Can fiscal incentives stimulate regional investments in the Philippines?* (Discussion Paper No. 0705). Quezon City: University of the Philippines School of Economics.
- Retail Trade Liberalization Act, Republic Act No. 8762. (2000). (Board of Investments).
- Special Economic Zone Act, Republic Act No. 7916. (1995). (Philippine Economic Zone Authority).
- Tan, E. S. (1997). *Effects of the five percent uniform tariff* (Discussion Paper Series No. 97-17). Makati City: Philippine Institute for Development Studies.
- Todsadee, A., & Kameyama, H. (2010). *The impact of free trade agreements in ASEAN using the CEPT scheme: Comparative study of Thailand and the Philippines*. Paper presented in the 4th Asian Rural Sociology Association (ARSA) International Conference, September 2010.
- United Nations Conference on Trade and Development. (2012). *Total number of bilateral investment agreements concluded, 1 June 2012*. Retrieved from http://unctad.org/Sections/dite_pccb/docs/bits_philippines.pdf
- Urata, S. (1994). Trade liberalization and productivity growth in Asia: Introduction and major findings. *The Developing Economies*, 32(4), 363–372.
- Wignaraja, G., Lazaro, D. C., & De Guzman, G. (2010). *FTAs and Philippine business: Evidence from transport, food, and electronics firms* (Working Paper No. 185). Tokyo: Asian Development Bank Institute.
- World Bank (1997). *Philippines: Managing Global Integration*. Washington, DC: World Bank.
- Yap, J. T. (1997a). *Structural adjustment, stabilization policies and income distribution in the Philippines: 1986–1996* (Research Paper No.34). Philippines: Micro Impacts of Macroeconomic and Adjustment Policies.
- Yap, J. T. (1997b). *Macroeconomic impact of a tariff reduction: A three-gap analysis with model simulations* (Discussion Paper Series No. 97-18). Makati City: Philippine Institute for Development Studies.

Yap, J. T. (2002). *A perspective on macroeconomic and economy-wide quantitative models of the Philippines: 1990–2002* (Discussion Paper Series No. 2002-09). Makati City: Philippine Institute for Development Studies.

Appendix: Literature Map



Issues on International Trade and Investment and Its Implications for Further Research

Angelo B. Taningco

The past decades saw the influx of new research issues encompassing international trade and investment. Among the related topics are in the areas of international trade in goods and services, trade policies, bilateral and regional free-trade agreements (FTAs), and multilateral trading arrangements, trade facilitation measures, and foreign direct investment (FDI) policies. These research themes may have emanated from the recent developments in the field of international trade and investment worldwide. Conducting inquiries on each of these is vital, especially for developing countries like the Philippines. This is because new knowledge generated from such studies could result in appropriate trade and investment policies for the country, allowing it to fully reap the benefits of globalization and attain inclusive growth and development.

In recent years, the world economy has witnessed the 1) proliferation of bilateral and regional FTAs; 2) increasing number of multilateral trade commitments; 3) increasing relevance of trade facilitation measures amid the persistence and, in certain cases, the rise of nontariff measures (NTMs); 4) increasing bilateral FDI flows between developed and developing regions as well as between economies within developing regions; 5) growing

importance of trade in services, as evidenced by the strong remittance growth of overseas workers; and 6) better understanding of the potential role of international trade and investment in economic growth and development, including poverty reduction.

For the Philippines, this paper highlights that among the important research issues in relation to international trade and investment lie in the following:

1. a better understanding of the economic and developmental implications of actual and planned FTAs, as well as multilateral trade issues, in the Philippines;
2. identifying the major NTMs facing the country's exporters and importers;
3. determining the key factors of and barriers to the country's services trade;
4. knowing the importance of improving trade facilitation and addressing "behind-the-border" issues that hamper Philippine trade in goods and services; and
5. establishing to what extent macroeconomic factors, public institutions, business environment, and infrastructure development can influence FDIs and recognizing the spillover effects of these FDIs on Philippine-based firms.

Bilateral or Regional Free-Trade Agreements and Multilateral Trade Arrangements

Bilateral or Regional Free-Trade Agreements

FTAs at both the regional and bilateral levels have expanded worldwide over the past two decades. According to the Asian Development Bank (ADB, 2015), as of March 2015, there were 215 actual FTAs worldwide, a significant increase from 51 FTAs in 2000. Out of these FTAs, 72% were bilateral, and the rest were plurilateral. It has been argued that the Association of Southeast Asian Nations (ASEAN) is the leader when it comes to regional economic integration, given that it is the first to have committed (in 1992) to form an FTA, to establish a charter with legal rules (in 2008) for its member countries, and to develop a blueprint for establishing an ASEAN Economic Community (AEC)¹ by 2015 (Asian Development Bank, 2010).

There has been extensive debate and literature on the pros and cons of FTAs to member and nonmember countries. Overall, FTAs can lead to static economic benefits, such as trade creation whereby member countries

would be able to enhance their respective merchandise trade and trade in services amongst themselves and with the rest of the world. Additionally, the possible dynamic positive impacts of FTAs include economies of scale—taking advantage of expanding market share and resource pooling in order to boost production at minimal average costs—and attracting long-term foreign investments.

The potential cost of FTAs is trade diversion in which non-member countries would be adversely affected by the redirection of its trade to nonefficient producers, who are member countries, and may strain trade relations between member and non-member countries. Another potential negative impact of FTAs is the so-called spaghetti bowl or noodle bowl effect, which presents the intricate and sometimes inconsistent nature of rules of origin (ROOs), and is likely to hamper the free flow of goods and services.

The Asian Development Bank (2008) argued that the main drivers of FTAs in Asia were the 1) defensive response to the proliferation of FTAs in other regions, 2) promotion of structural reforms that are “beyond the border,” 3) urgent need to enhance productivity in light of the intensifying competition coming from the People’s Republic of China (PRC) and India, and 4) uncertainty over multilateral trade negotiations in the World Trade Organization (WTO).

Kawai and Wignaraja (2010) recommended that there ought to be a region-wide FTA for the Asia-Pacific region, that is, to consolidate FTAs in the region with the likely scenario of an initial FTA consisting of the People’s Republic of China–Japan–Republic of Korea FTA, combine it with an Association of Southeast Asian Nations (ASEAN)+1 FTA, and then include Australia, India, and New Zealand.

The Philippines has been involved in a number of FTAs, including the ASEAN Free Trade Area (AFTA), ASEAN–China Free Trade Agreement (ACFTA), and the Japan–Philippines Economic Partnership Agreement (JPEPA). Certain quantitative and qualitative studies have looked at the role of these FTAs in the Philippine economy. For instance, Corong, Reyes, and Taningco (2010) showed in their static computable general equilibrium (CGE) model for the Philippine economy that the combined Common Effective Preferential Treatment (CEPT) of AFTA and the WTO’s Most-Favored-Nation (MFN) tariff reductions—coupled with a direct income tax to offset tariff revenue losses—would 1) marginally raise national output, 2) improve the industrial sector while worsening the agricultural sector, 3) increase gross household income, 4) lower disposable income and consumer prices, and 5) reduce national poverty and, thus, benefit the poorest of the poor. However, amidst the potentially massive economic benefits of FTAs for the Philippines, there are still many local firms that lack familiarity with

FTAs and, therefore, are not utilizing them. Indeed, Kawai and Wignaraja (2010) confirmed in an ADB book they edited that 70% of Philippine firms surveyed said that the biggest impediment to using FTAs was their lack of information on these FTAs.

Multilateral Trading Arrangements: The WTO and the Philippines

It has been argued that the WTO provides three key services in the multilateral trading system: 1) a venue for multilateral trade negotiations, 2) a tool for mediating trade disputes between its member countries, and 3) a source of information on member countries' policy changes that affect commercial interests (Bown, 2010).

The Philippines formally entered the WTO as a member country in 1995. Since then, the country has made commitments that are consistent with the MFN principles and national treatment—for example, the country bound tariff lines at certain levels and enacted laws that are consistent with the spirit of the WTO rules. Among the reforms undertaken during the late 1990s were the 1) *tariffication* of quantitative restrictions on agricultural imports in 1996, 2) enactment of a law in 1998 calling for compliance to the WTO's Trade-Related Aspects of Intellectual Property Rights agreement, and 3) promulgation of the *Anti-Dumping Act of 1999* (World Trade Organization, 1999). Indeed, between 1992 and 1999, the country's simple average applied MFN rate fell from 26% to 9.7%.

However, the pace of progress in multilateral trade reforms in the Philippines began to slow down in the early 2000s (World Trade Organization, 2005). The average applied MFN rate further fell to 5.8% in 2003 but climbed to 7.4% in 2004. It was learned that this MFN rate reversal was caused by tariff hikes enforced by the government to help ailing domestic industries. Nevertheless, new laws consistent with WTO rules were crafted during this period, such as the *Safeguard Measures Act* in 2000 and the 2003 law regulating government procurement. Meanwhile, the World Trade Organization (2012) stated that there were no major trade policy changes in the Philippines since 2005.

Since 1994, there have been a few instances wherein the Philippines became involved in a WTO dispute settlement with another country. The World Trade Organization (2011a) reported that in 2008, the Philippines filed a complaint against Thailand in the WTO alleging that Thailand violated the General Agreement on Tariffs and Trade (GATT) provisions with respect to its application of fiscal and customs measures on cigarettes coming from the Philippines. This case was handled by a panel, which was formed by the WTO's Dispute Settlement Body in 2009. In 2010, the panel

released its findings, which were upheld by the appellate body, showing that Thailand violated the related provisions in GATT.

Another dispute settlement case involved distilled spirits exports to the Philippines coming from the European Union (EU) and the United States (US) (World Trade Organization, 2011b). The EU and US governments consulted with the WTO in 2009 and 2010, respectively, claiming that the Philippines violated GATT provisions in applying import duties on their distilled spirits exports. In 2011, the WTO panel ruled in favor of the EU and the US.

Policy Research Implications

This study proposes that further research is needed to better understand the potential economic effects of certain bilateral and regional FTAs, as well as multilateral trade commitments, on the Philippines. Among the specific research topics this paper suggests are as follows:

1. a simulation study (i.e., CGE-microsimulation modeling) on the possible economic, sectoral, and/or poverty impacts of establishing an East Asian FTA (i.e., ASEAN+3² and ASEAN+6³) on the Philippines;
2. a simulation study (i.e., CGE-microsimulation approach) on the potential economic, sectoral, and/or poverty impacts of having an Asian Economic Community (AEC) on the Philippines;
3. case studies on the actual economic effects of FTAs on Philippine firms, including small and medium enterprises (SMEs); and
4. a study of WTO-consistent regulatory reforms conducted by the Philippine government and its impact on the Philippine economy.

Trade in Services

The literature on trade in services has expanded in the past years, amid the increasing level of cross-border services flows. Indeed, the World Trade Organization (2008) documented that the growth in international trade in services has been more rapid than merchandise trade in recent years. Moreover, since the early 1990s, around 95 regional trading arrangements covering trade in services have been included in the WTO under General Agreement on Trade in Services' (GATS) Article V by the end of June 2011 (Stephenson & Robert, 2011).

Studies on services trade that used gravity models, similar to the ones used in trade in goods, have found that the general determinants of services trade are economic size, distance, and cultural/historical factors (i.e., Kimura

& Lee, 2006). Researches that examined the economic impact of services trade provided empirical evidence that a less restrictive policy on services trade and appropriate services trade liberalization can help promote human development (i.e., Shepherd & Pasadilla, 2011).

Various reforms on trade in services were made in the past years at the multilateral level. In January 1995, the WTO introduced the General Agreement on Trade in Services, which contained a set of multilateral rules governing international trade in services and encompassed four modes of services trade: 1) cross-border supply (Mode 1), 2) consumption abroad (Mode 2), 3) commercial presence (Mode 3), and 4) presence of natural persons (Mode 4) (World Trade Organization, 2013).

In December 1995, the ASEAN Framework Agreement on Services was signed by seven ASEAN member countries, namely, Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam, with the objectives of liberalizing and enhancing cooperation in services as well as easing the restrictions on trade in services amongst member countries (Association of Southeast Asian Nations, 1995). This agreement was crafted by the ASEAN member countries to be consistent with GATS.

In July 2007, the ASEAN–China Agreement on Trade in Services (ACATS) took effect, enabling its member countries, including the Philippines, to commit to greater market access and improved national treatment for service providers in the region (Association of Southeast Asian Nations, 2007).

In the Philippines, there still exist barriers to services trade (Office of the President of the Republic of the Philippines, 2015). For example, foreign equity ownership is prohibited in mass media (except recording), up to 20% foreign equity is allowed in private radio networks, up to 30% foreign equity is permitted in advertising, and up to 40% is allowed in operations of public utilities, among others. Moreover, only Philippine citizens are licensed to practice certain professional services (i.e., criminology, forestry, law, pharmacy, radiologic and x-ray technology).

Against this backdrop, this study proposes the following research topics:

1. a comprehensive review of the existing barriers to services trade in the Philippines under each of the four modes in GATS; and
2. an empirical study to identify the determinants of Philippine services trade.

Tariff and Nontariff Measures, Trade Facilitation in the Philippine context

The recent years bore witness to a reduction in traditional trade barriers (i.e., import tariffs and quotas) but a proliferation of NTMs and other nontariff

barriers were introduced in many countries around the world, including the Philippines. It is important to mention that the Philippine unilateral tariff liberalization reforms were helpful in providing various economic benefits to the country.

However, technical and other trade barriers and NTMs still remained and have in fact multiplied. Pasadilla and Liao (2006) have shown that NTMs imposed by the Philippines' top agricultural export markets in East Asia—specifically the PRC, Japan, and South Korea—have made it difficult for Philippine agricultural exporters, especially the small- to medium-scale agricultural producers, to comply with the stringent NTM requirements in these countries, thereby hampering the Philippine's agricultural exports. It has also been indicated that the Philippines' nontariff policy-related trade costs have increased slightly between 1996 and 2007 (Duval & Utoktham 2011).

Trade facilitation has been defined by the ADB and UNESCAP (2009) as the “systematic rationalization of customs procedures and documents [...in its narrowest sense, and, in a broader sense,] covers all the measures that affect the movement of goods between buyers and sellers, along the entire international supply chain” (p. 4).

There have been several studies on the topic of trade facilitation in East Asia (Hernandez & Taningco 2010; Shepherd & Wilson 2008; Duval & Utoktham 2009). For example, Hernandez and Taningco (2010) used a gravity model, with panel regression specification, over the 2005–2009 period for 10 East Asian economies, namely, the PRC, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. The results revealed that bilateral merchandise trade flows within the East Asian region are associated with trade facilitation measures, particularly time delays in trade, quality of port infrastructure, telecommunications service, and depth of credit information. They also found that there is substantial variation of trade facilitation measures across product groups, with time delays being more influential in trade flows in food and beverages (due to their “perishability”) and in transport equipment (as in this sector, there is production sharing and enforcement of just-in-time business practices).

Meanwhile, Shepherd and Wilson (2008) utilized a standard gravity model framework and determined that bilateral merchandise trade flows within member countries of ASEAN, the PRC, Hong Kong, and Taiwan are 1) negatively associated with distance and tariffs and 2) positively associated with historic-cultural ties, transport infrastructure, and competition in the internet services sector. Also, Duval and Utoktham (2009) ascertained that a 5% reduction in the delivery cost for a good from the factory to the nearest

port could result in a 4% rise in merchandise exports and that improving credit information could increase merchandise exports by 16%. They also argued that the simplification of domestic contract enforcement procedures to the average level of the member countries in the Organisation for Economic Cooperation and Development (OECD) can boost merchandise exports by 27%.

Moreover, Duval and Utoktham (2011) established that improving port efficiency and easing access to information and communication technology (ICT) facilities are crucial in lowering trade costs in the Asia-Pacific region. They suggested that engaging in public-private partnerships (PPPs) may be needed in order to fast track the development of ICT and transport infrastructures. They added that prioritizing the improvement of the business environment may be more effective than developing soft infrastructure in implementing trade facilitation measures.

Grosso and Shepherd (2011) used a gravity model on Asia-Pacific economies and verified that a more liberal air transport policy is positively associated with bilateral merchandise trade, particularly in manufactured products, time-sensitive products, and parts and components.

Meanwhile, there are limited studies that focus on trade facilitation measures on the Philippines alone. For instance, De Dios (2010) looked at survey responses on the role of information technology (IT) in trade facilitation and small- and medium-sized enterprises. The results showed that the majority of the problems encountered by importers are IT related, specifically, 1) internet connectivity problems, 2) system breakdowns, 3) inadequate electronic lodgment, and 4) costly IT investments.

Overall, this study suggests the following topics merit further research:

1. the determinants of trade costs between the Philippines and the rest of the world using a gravity model approach;
2. “behind-the-border” measures affecting bilateral trade flows of the Philippines and the rest of the world using a gravity model approach;
3. identification of key NTMs facing Philippine exporters and importers;
4. role of infrastructure in Philippine international trade; and
5. financial sector development and merchandise trade of the Philippines (i.e., the case for trade finance).

Foreign Direct Investments: Implications for Philippine Research

There exist several new studies that looked at the determinants and effects of FDI on Asian economies. Petri (2012) used bilateral FDI flow data of a set of 85 countries over the 1999–2003 period. Utilizing a gravity model approach, the study concluded that inward FDIs into Asia are attracted by technology policies and that bilateral FDI flows within Asia are significant between high-technology and low-technology economies. In the PRC, Xu and Sheng (2012) used firm-level data for the country's manufacturing sector over the 2000–2003 period and found that FDIs have positive spillover effects on firm productivity in the same industry and that these spillover effects are regional in nature, suggesting that domestic firms will benefit more from the presence of foreign firms in the same sector in the same region. Cuyvers, Soeng, Plasmans, and Van Den Bulcke (2011) established that FDI inflows into Cambodia are positively associated with its gross domestic product (GDP), bilateral trade with the source country, and exchange rate and are negatively affected by its geographical distance with its investment partners. Takii (2011) revealed that multinational corporations from East Asian economies have positive spillover effects on the productivity of Indonesian manufacturing firms. In the case of Chinese manufacturing firms, Sun (2010) noted, however, that the FDI spillover effects on exports varies (and are heterogeneous), with some firms receiving positive effects while other firms incurring negative effects.

In the Philippines, the Bangko Sentral ng Pilipinas (2015a) reported that FDIs recorded net inflows totaling US\$1.6 billion in the first five months of 2015, of which US\$879 million were in debt instruments and the rest were in equity and investment fund shares. The continuing net FDI inflows into the economy are likely to be attributed to improvements in investor confidence and the country's business environment. The Bangko Sentral ng Pilipinas (2015b) affirmed that business optimism remains strong in the Philippines with an overall confidence index of 49.2% in the second quarter of 2015, up from 45.2% in the first quarter 2015.

There is, however, paucity of empirical studies on FDIs in the Philippine context. Against this backdrop, this paper proposes the following areas for further research:

1. macroeconomic determinants of FDI inflows into the Philippines. This research aims to empirically identify the macroeconomic factors (i.e., GDP growth, inflation rate, real exchange rate, interest rate, government's budget, etc.) affecting FDIs in the Philippines. This may be helpful for the incumbent administration in crafting

- appropriate fiscal and monetary policies that are aligned with attracting more FDIs into the country;
2. the role of institutions in business environment and FDI inflows in the Philippines. There is anecdotal evidence that institutional bottlenecks and negative business sentiment in the Philippines tend to hamper FDI inflows. In particular, it has been gathered that endemic corruption and inefficiency in public-sector institutions result in low investor confidence, thereby negating FDI inflows. There is a need to verify this with an empirical study;
 3. FDIs, public–private partnerships, and infrastructure development in the Philippines. One of the major thrusts of governments in developing Asia is infrastructure development in order to attain inclusive growth. However, as Asian governments undergo fiscal consolidation resulting from their pump-priming efforts during the 2008–2009 global economic and financial turmoil, there is now a greater need for more active private-sector participation. Thus, public–private partnerships (PPPs) have been revived to boost infrastructure financing. As the Philippine government embarks on infrastructure development through PPPs, there are calls for feasibility studies to pinpoint priority PPP projects. In this regard, there may be a need to formulate a rigorous study to determine the extent of infrastructure development and PPPs on FDIs in the Philippines; and
 4. a firm-level study on FDI spillover effects across (or within) sector(s) and regions in the Philippines.

Conclusions

It is imperative to conduct more Philippine-specific studies on certain areas in international trade and investment in order to increase the volume and quality of policy-oriented research and, thereby, support the formulation of better and more appropriate Philippine trade and investment policies. Among the policy areas that this paper has identified that are in need of further research in the Philippine context are FTAs, trade in services, trade barriers and trade facilitation, and FDIs.

On FTAs, this paper has shown that Asia has been recording an increasing number of bilateral and regional FTAs in the past years, with more of these in the pipeline (i.e., currently under negotiation and/or being finalized). Despite such trend, there is limited research on the economic effects of such trading arrangements, especially with regard to its implications on the

Philippine economy. Accordingly, it is proposed that quantitative research using simulation models (i.e., CGE-microsimulation model) or case studies on local firms, including SMEs, be conducted in order to better understand the economic impact of bilateral and regional FTAs in the Philippine setting.

On trade in services, the Philippines still faces various barriers especially on each of the four modes of GATS. Against this backdrop, there is a need to conduct a comprehensive investigation of the current barriers to services trade facing the Philippines and to empirically identify the determinants of the country's trade in services.

On trade barriers and trade facilitation, it can be gleaned that tariff rates and import quotas are on a downward trend around the world as well as in the Philippines, but NTMs and other nontariff barriers are proliferating. Regional studies on trade facilitation, particularly those covering the Asian region, do exist in the literature, but there is still a dearth of such related studies on the Philippines. Thus, domestic policymakers will be better guided by studies on the Philippines that aim to identify the 1) determinants of trade costs or "behind-the-border" measures using gravity modeling, 2) key NTMs facing Philippine exporters and importers, and 3) role of infrastructure development and trade finance in Philippine trade.

Finally, FDIs into the Philippines are growing in the past years thanks to improvements in investor confidence and the overall business environment, among others. Despite its increasing volume, there is still a lack of understanding as regards the determinants and impacts of FDIs into the country. Against this backdrop, this paper proposes that Philippine-specific studies be conducted to investigate the macroeconomic determinants of FDIs, the role of political institutions in influencing FDIs, the importance of PPPs in attracting FDIs, and the potential spillover effects of FDIs on domestic firms.

Notes

- ¹ The ASEAN defined the AEC as a "highly competitive economic region" with "equitable economic development," a "single market and production base," which is highly integrated with the rest of the world. It encompasses certain areas of cooperation that include capacity building and human resource development, trade financing, connectivity in infrastructure and in information and communications technology, closer macroeconomic and financial policy coordination, and greater private sector involvement, among others. (See <http://www.aseansec.org/18757.htm>)
- ² ASEAN+3 comprises of Brunei Darussalam, Cambodia, People's Republic of China, Indonesia, Japan, Republic of Korea, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

- ³ ASEAN+6 comprises of ASEAN+3 economies as well as Australia, India, and New Zealand.

References

- Asian Development Bank. (2008). *How to design, negotiate, and implement a free trade agreement in Asia*. Mandaluyong City, Philippines: Author.
- Asian Development Bank. (2010). *Institutions for regional integration: Toward an Asian economic community*. Mandaluyong City, Philippines: Author.
- Asian Development Bank. (2015). *Free trade agreements* [Data file]. Retrieved from <http://www.aric.adb.org/1.php>
- Asian Development Bank & United Nations ESCAP. (2009). *Designing and implementing trade facilitation in Asia and the Pacific*. Mandaluyong City, Philippines: Author.
- Association of Southeast Asian Nations. (1995). *ASEAN Framework Agreement on Services*. Jakarta, Indonesia: Association of Southeast Asian Nations. Retrieved from <http://www.asean.org/communities/asean-economic-community/item/asean-framework-agreement-on-services>
- Association of Southeast Asian Nations. (2007). *Agreement on Trade in Services of the Framework Agreement on Comprehensive Economic Co-operation Between the Association of Southeast Asian Nations and the People's Republic of China*. Jakarta, Indonesia: Association of Southeast Asian Nations. Retrieved from <http://www.asean.org/news/item/agreement-on-trade-in-services-of-the-framework-agreement-on-comprehensive-economic-co-operation-between-the-association-of-southeast-asian-nations-and-the-people-s-republic-of-china-2>
- Bangko Sentral ng Pilipinas. (2015a). *Foreign direct investments continue to post net inflows in May 2015; January–May level reaches US\$1.6 billion*. Manila, Philippines: Bangko Sentral ng Pilipinas. Retrieved from <http://www.bsp.gov.ph/publications/media.asp?id=3812>
- Bangko Sentral ng Pilipinas. (2015b). *Business expectations survey: Second quarter 2015*. Manila, Philippines: Bangko Sentral ng Pilipinas. Retrieved from http://www.bsp.gov.ph/downloads/Publications/2015/BES_2qtr2015.pdf
- Bown, C. (2010). *Developing countries and monitoring WTO commitments in response to the global economic crisis* (Policy Research Working Paper 5301). Washington, DC, USA: World Bank.
- Corong, E., Reyes, R., & Taningco, A. (2010). *Poverty impacts of preferential and multilateral trade liberalization on the Philippines: A computable general equilibrium analysis* (MPIA Working Paper 2010-06). Quebec City, Canada: Poverty & Economic Policy (PEP) Research Network.
- Cuyvers, L., Soeng, R., Plasmans, J., & Van Den Bulcke, D. (2011). Determinants of foreign direct investment in Cambodia. *Journal of Asian Economics*, 22(3), 222–234.

- De Dios, L. (2010). *The impact of information technology in trade facilitation on small and medium-sized enterprises in the Philippines*. Asia-Pacific Research and Training Network on Trade.
- Duval, Y., & Utoktham, C. (2009). *Behind the border trade facilitation in Asia-Pacific: Cost of trade, credit information, contract enforcement, and regulatory coherence* (Working Paper Series No. 67). Bangkok, Thailand: Asia-Pacific Research and Training Network on Trade.
- Duval, Y., & Utoktham, C. (2011). *Trade facilitation in Asia and the Pacific: Which policies and measures affect trade costs the most?* (Working Paper Series No. 94). Bangkok, Thailand: Asia-Pacific Research and Training Network on Trade.
- Grosso, M. G., & Shepherd, B. (2011). Air cargo transport in APEC: Regulation and effects on merchandise trade. *Journal of Asian Economics*, 22(3), 203–212.
- Hernandez, J., & Taningco, A. (2010). *Behind-the-border determinants of bilateral trade flows in East Asia* (Working Paper Series No. 80). Bangkok, Thailand : Asia-Pacific Research and Training Network on Trade.
- Kawai, M., & Wignaraja, G. (2010). *Asia's free trade agreements: How is business responding?* Cheltenham, UK: Edward Elgar Publishing Limited.
- Kimura, F., & Lee, H. (2006). The gravity equation in international trade in services. *Review of World Economics*, 142(1), 92–121.
- Office of the President of the Philippines. (2015). Executive Order No. 184: Promulgating the Tenth Regular Foreign Investment Negative List. Manila, Philippines: Office of the President of the Philippines. Retrieved from <http://www.gov.ph/downloads/2015/05may/20150529-EO-0184-BSA.pdf>
- Pasadilla, G., & Liao C. M. (2006). Non-tariff measures faced by Philippine agricultural exports in East Asia. *Asian Journal of Agriculture and Development*, 3(1 & 2), 115–137.
- Petri, P. (2012). The determinants of bilateral FDI: Is Asia different? *Journal of Asian Economics*, 23(3), 201–209 .
- Shepherd, B., & Pasadilla, G. (2011). *Trade in services and human development: A first look at the links* (ADB Working Paper No. 268). Tokyo, Japan: Asian Development Bank Institute.
- Shepherd, B., & Wilson, J. (2008). *Trade facilitation in ASEAN member countries: Measuring progress and assessing priorities* (Policy Research Working Paper No. 4615). Washington, DC, USA: World Bank.
- Stephenson, S., & Robert, M. (2011). *Evaluating the contributions of regional trade agreements to governance of services trade* (ADB Working Paper No. 307). Tokyo, Japan: Asian Development Bank Institute.
- Sun, S. (2010). Heterogeneity of FDI export spillovers and its policy implications: The experience of China. *Asian Economic Journal*, 24(4), 289–303.
- Takii, S. (2011). Do FDI spillovers vary among home countries? Evidence from Indonesian manufacturing. *Journal of Asian Economics*, 22(2), 152–163.

- World Trade Organization. (1999). *Trade policy review: Philippines*. Geneva, Switzerland: Author.
- World Trade Organization. (2005). *Trade policy review: Philippines*. Geneva, Switzerland: Author.
- World Trade Organization. (2008). *World trade report*. Geneva, Switzerland: Author.
- World Trade Organization. (2011a). *Thailand—Customs and fiscal measures on cigarettes from the Philippines*. Geneva, Switzerland: Author.
- World Trade Organization. (2011b). *Philippines—Taxes on distilled spirits*. Geneva, Switzerland: Author.
- World Trade Organization. (2012). *Trade policy review: Philippines*. Geneva, Switzerland: Author.
- World Trade Organization. (2013). *The general agreement on trade in services: An introduction*. Geneva, Switzerland: Author.
- Xu, X., & Sheng, Y. (2012). Are FDI spillovers regional? Firm-level evidence from China. *Journal of Asian Economics*, 23(3), 244–258.

International Migration and Remittances: A Review of Economic Impacts, Issues, and Challenges from the Sending Country's Perspective

Tereso S. Tullao, Jr. and Christopher James R. Cabuay

Globalization, particularly the liberalization of international migration, is facilitating the cultural, financial, and economic integration of economies across the globe. Migration is a means for people to exploit economic opportunities, sidestep undesirable national circumstances, improve human capital, and maximize incomes across time.

Table 1. International Migrants Sending and Receiving Regions 2010 (Thousands)

Sending Region (Across) Destination Region (Down)	Africa	Americas	Asia	Europe	Oceania	Total Received
Africa	14,478	15	342	254	5	15,094
Americas	1,776	29,185	13,965	8,730	354	54,009
Asia	3,898	796	39,467	6,837	62	51,062
Europe	8,153	5,231	18,408	35,397	277	67,466

Table 1 continued...

Oceania	384	300	2,228	2,813	913	6,637
Total Sent	28,689	35,526	74,411	54,032	1,611	

Source: Migration Policy Institute (2011); Calculations of the World Bank Development Prospects Group's Bilateral Migration Matrix Data of 2010.

As seen in Table 1, the top three sending regions as of 2010 are Asia with 74.41 million migrants, Europe with 54.03 million, and the Americas with 35.53 million. The principal receiving regions are Europe with 67.47 million, the Americas with 54.01 million, and Asia with 51.06 million. Although interregional flows are considerable from Asia going to Europe (18.41 million) and Asia to the Americas (13.97 million), the largest migration flows are within regions.

Migration is normally coupled with remittances. Migrants send home money and/or goods for reasons including love and mutual understanding and the maintenance of and further investments in their native land. Regardless of the motive, remittances allow individuals to maximize their income over time and/or to smoothen the families' consumption.

Table 2. Worker's Remittances and Income of Nonresident Workers by Host Country (Current Billion US\$), 1990 to 2010

Country	1990	1995	2000	2005	2006	2007	2008	2009	2010
East Asia and Pacific	8.65	16.88	25.23	62.08	69.20	86.25	105.12	103.47	112.84
Europe and Central Asia	34.46	43.95	51.55	89.85	102.95	130.93	148.06	132.10	132.46
Latin America and Caribbean	5.74	13.42	20.35	50.06	59.11	63.30	64.65	56.84	57.53
Middle East and North Africa	10.48	12.81	11.94	26.09	27.58	33.40	37.75	35.18	36.43
North America	1.17	2.18	4.40	4.80	6.20	6.55	6.78	6.52	6.62
Sub-Saharan Africa	1.79	3.17	4.83	9.65	12.81	18.76	21.72	20.20	21.10

Source: World Bank (2012).

Table 2 shows that the levels of remittances across regions have grown considerably over time. The largest source of remittances—and the most popular migrant destination—is Europe and Central Asia, amounting to nearly US\$ 132.46 billion in 2010, followed by the East Asian and Pacific region with US\$ 112.84 billion (refer to Table 1).

This paper reviews the motivations of people to migrate and remit as well as the impacts of migration and the effects of remittances on the sending country. Section 2 discusses the various motivations for migration. Section 3 tackles the various motivations for remittances. Section 4 identifies the impacts of migration on the household and national level of the sending country. Section 5 discusses the effects of remittances on the macroeconomy.

Motivations for International Migration

Economic Asymmetries

The primary motivation for people to migrate is to respond to a set of incentives—particularly those that stem from economic and demographic asymmetries between countries—that lead to favorable outcomes. For example, poor economic performance and excess labor supply in a country may push individuals to migrate to economically prosperous nations that are experiencing labor shortages.

“Negative” factors about an economy “push” people to migrate to destinations where better conditions prevail. These push factors may include elements such as economic, social, demographic, and political hardships. Acupan and Agbola (2007) conducted an empirical assessment of some of these determinants of migration in the Philippines. The study confirmed that 1) income inequality and migration are positively and significantly related and 2) middle-income families have the largest motivation to migrate. The poor are unlikely to migrate because of low levels of skills and the prohibitive costs of migration, while the rich may find the net rewards of migration insignificant and marginal. Thus, the middle-income households are the more likely group to migrate.

Indeed, the common causes of emigration are the availability of jobs and higher remunerations (Lall, Selod, & Shalizi, 2006), which become more pronounced given an increasing population and inadequate jobs and accommodation opportunities in sending countries (Martin, 2009). At the macro-level, emigration is fueled by labor surpluses, relatively low wages and per capita GDP, lack of security of tenure and employee benefits, “deteriorating economic conditions, the scarcity of foreign exchange, and institutional policies” (IHPDS, 2005, p. 32). The presence and consistency of economic crises also reinforce emigration tendencies (Asis, 2006).

Political climate, which includes the presence of war and persecution, is also an important push factor (Martin, 2009; Aldaba, 2007). Acupan and Agbola (2007) confirmed that an increase in the restriction of travel decreases the amount of emigration.

Push factors can also be personal and social or nonmonetary in nature. The top reasons for female migration, for instance, are problems with parents and marriages and, more positively, as a quest for personal growth and development—not financial difficulties (IHPDS, 2005). Distortions in the labor market coupled with undesirable working conditions may also push individuals to seek employment abroad (IHPDS, 2005; Aldaba, 2007), particularly healthcare workers who are exposed to the dangers of the HIV/AIDS pandemic. Other factors include relatively undefined land property rights, the absence of a rural credit market (Katz & Stark, 1986), and the concentration of a migrant pool in certain destinations (Mora & Taylor, 2005).

Conversely, pull factors are “positive” features associated with the host country that attract migrants. A good example is the strong demand for nurses—with very attractive compensation packages—in the U.S., UK, and Saudi Arabia that has encouraged the migration of Filipino nurses and stimulated the interest in nursing education investments (Tullao, Conchada, & Rivera, 2010). Most pull factors for international migration are centered on the availability of jobs, higher remunerations and better benefits (Schwartz, 1973; Greenwood, Ladman, & Siegel, 1981), better quality of life, and opportunities for increased personal growth (IHPDS, 2005).

“Positive” features aside, migrants face numerous challenges in the host country. Finding work, for instance, may not be easy due to information asymmetries on the type and quality of job opportunities available to them (Banerjee, 1984). In addition, migrants have difficulty accessing credit and public goods that are available to citizens. They may also have to contend with racial and other forms of discrimination (Assaad, 1997; Meng & Zhang, 2001).

Responses to Demographic Asymmetries

Demographic asymmetries, which arise from differences in the fertility and mortality rates among countries, provide considerable motivations for international migration and enable a more efficient distribution of labor services across the world (Losch, 2008). As some countries experience exponential population growth, the proportion of dependents increases, thereby necessitating the reallocation of resources from employment generating investments to programs that support the needs of these dependents. A larger labor force and limited domestic capacity to absorb manpower keep wages down and encourage workers to migrate and seek employment abroad. In contrast, countries with lower fertility rates may suffer labor market rigidities and, thus, increase wages. The labor shortages in these countries can be addressed by allowing the entry of foreign workers.

The population of the Philippines has increased by more than 400% in the past 50 years—from 20 million in 1950 (Arenas, 2006) to nearly 89 million in 2007 (NSO, 2007). Despite decreasing birth rates—still considered to be high relative to the rates in neighboring countries, high population growth rates persist and contribute to an elevated dependency ratio. The data from the National Statistic Office (NSO, 2007) found that a very large portion of the population is relatively young since almost 72% of the population belonged to the 1- to 34-year-old bracket. As of 2000, the highest concentration was in the 5- to 9-year-old age bracket—12.7% of the population.

Impact of Demographic Dividends on the Labor Market

The literature indicates that the demographic dividend can provide room for accelerated growth (Ross, 2004). Fewer resources are required for the youngest age groups as the population shifts toward working ages. Accelerated national income expansions are made possible by financing investments in family welfare and economic development. Mapa, Balisacan, and Briones (2006) highlighted the three phases of demographic transition: 1) phase one is characterized by a declining mortality rates and high fertility rates, resulting in the increase of the young-dependents group, which may corner resources for economic growth; 2) phase two is where the demographic dividend occurs. The young dependents enter the labor market. Resources are reallocated to investments, which fuels economic growth (Ross, 2004); and 3) phase three is when the proportion of the elderly swells. Since the elderly live on their accumulated savings; however, there is no significant depressing effect on the economy (Mapa et al., 2006).

Rooted on the improvements of labor inputs (i.e., quantity and quality of available workers), the demographic dividend contributes to the acceleration of the country's economic growth. Ross (2004) asserted that the main effect of the demographic dividend is to enhance the labor supply. Women have fewer children to rear, enjoy better health, and are available for work. However, this assumes that government policies are in place to accommodate the dividend. Mapa and Balisacan (2004) underscored that a higher population growth—coupled with illiteracy—would decrease the opportunity to achieve the demographic dividend and, therefore, impede economic growth.

The dependency ratios of the Philippines have decreased since the 1960s; thus, the demographic dividend should have been realized in 2010. However, Mapa et al. (2006) have shown that the Philippines has failed to capitalize on the window of opportunity. Comparing the age structures of the Philippines and Thailand from 1970 to 2000, they determined that the

Philippines remained in the first phase of the transition for 30 years. Over the course of the same period, Thailand's per capita GDP grew at 8.8% per year, while the Philippines' grew at only 4.1%. Even in the decade of 2010s, the Philippines is still stuck on the first phase of the transition (U.S. Census Bureau, n.d.).

Rapid Population Growth and Surplus Labor

Despite falling birth and death rates, the Philippine population is still rapidly rising—putting an increasing pressure on the government to continuously create jobs and allocate more resources to housing, schools, hospitals, and other social services (Tullao, 2008). Individuals who cannot find employment in the domestic labor market, evidenced by rising unemployment rates, seek work in the international labor market (Tullao, 2008). Tullao et al. (2010), for instance, confirmed that the Philippine labor market's limited absorptive capacity and poor compensation provide strong incentives for Filipino nurses to work abroad. Indeed, even if they choose to stay in the Philippines, they start their own businesses or seek employment in fields that are completely unrelated to their degrees resulting in underemployment and distortions in the labor market.

Investment in Human Resources

People are motivated to migrate because of their desire to improve their earning capacity. As individuals and households are able to derive returns and, eventually, maximize their income from the endeavor, migration is a means of investing in human resources

Individual Decisions and the Rate of Return to Migration

For any particular individual, the returns to migration consist of a positive (or negative) increment to his earning stream (Sjaastad, 1962). By moving to another place, higher compensations are made possible by differences in prices, nominal earnings, and costs of employment. Another form of return to migration is via the investment in education that improves productive capacity achieved through 1) educated workers or relatively skilled workers relocating abroad due to the higher rates of return and 2) people moving to other countries to invest further in their human capital.

Sjaastad (1962) classified the returns to migration into nonmonetary and monetary returns. The former includes locational advantages determined by an individual's preferences for factors like climate, congestion, and the environment. In contrast, monetary returns primarily consist of interspatial

labor earning differences that arise from occupational composition, investment in human capital, age, and sex. Specifically, Ramcharan (2002) found that migration is greatly affected by the individual's level and growth of educational attainment, which increase the "skill premium" and, therefore, the rate of return to migration. Tullao et al. (2010) provided an example of Ramcharan's (2002) findings by pointing out that the popularity of nursing programs in the Philippines can be explained by the high return to migration that is attributed to considerable wage differentials.

Reaping the full benefits of migration requires high productivity and, thus, significant investments in human capital development. Young people typically invest more in formal education than in training for experience in a specific occupation (Sjaastad, 1962). As the age-income relation within an occupation is, at least, partially due to accumulated experience, complementary investments are required to make migration feasible.

Household Decisions and Maximizing Income Across Time

Most theories of international labor migration imply that migration is a decision made by the household rather than a decision of an individual member. Founded on the household's objective to maximize the prospect of higher wages through migration (Solomon & Eden, n.d.), the Harris-Todaro model is instrumental in analyzing the microfoundation of this phenomenon. Borjas (1989) posited that individuals realize the highest possible utility by choosing a country of residence that maximizes their welfare given certain constraints (i.e., financial resources, migration regulations, non-monetary restrictions, etc.). Clearly, consistent with the income-maximizing behavior, wage differentials provide incentives for people to migrate.

The New Economics of Labor Migration Theory (NELM) views migration as an alternative for households to increase their sources of income and "diversify their portfolio." The NELM assumes that households use remittances to increase their liquidity and investment opportunities in the home country (Wouterse & Taylor, 2006). Consistent with the Harris-Todaro model and Borjas's (1989) conclusions, the relative deprivation theory confirmed that individuals choose to migrate to alleviate poverty (Acupan & Agbola, 2007).

Poirine's (1997) diagrammatic model attributed migration to a contract between adults and the youth. Adults, having no education, provide the youth with improvements in human capital, which will enable them to emigrate. The youth must, therefore, honor the contract—through remittances—or lose their inheritance. Stark and Lucas (1988) supported the idea that the migrant and his family enter a voluntary contractual arrangement because

both will benefit from higher returns in urban labor markets in other countries. Furthermore, because the head of the family holds the migrant's bequest, the migrant will be compelled to remit.

Culture of Migration

Through the length and extent of migration history, a certain degree of "culture" has developed. Ernest Ravenstein (1885) formulated the first seven laws of migration in 1885—later refined by Everett Lee (1966)—namely, 1) the majority migrates short distances and establishes migration currents toward larger centers, 2) the currents of migration develop with the transitions of populations in countries, 3) a certain "stream" of migration is met by a corresponding "counter stream," 4) rural residents have a higher propensity to migrate than urban residents, 5) females migrate short distances more frequently than males, 6) the rate of migration increases with the development of technology and more migrants gravitate towards innovative and commercial centers, and 7) economic motives and the inherent "desire" of individuals to better their material aspects dominate migration motives.

A very popular culture of migration in the Philippines is observed in the nursing field. Choy (2003) claimed that most migration studies in the Philippines find that the migration of Filipino nurses is strongly influenced by the wage differential between the Philippines and the United States' nursing industries and the strong Philippine–U.S. ties. Others contended that this culture of migration accelerated in the 1970s as a consequence of the Marcos regime's labor export policies (Asis, 2006). Indicators of this culture include findings 1) of a 2005 nationwide survey that 33% of Filipinos want to migrate permanently and 2) that 47% of children between 10–12 years desire to work abroad and 60% of these are children of migrants (ECMI/AOS-MANILA, SMC, & OWWA, 2004).

Migration Network

In the development of a culture of migration, migrant networks are formed especially in popular migrant destinations. Migrant networks are the bases for collective action. They can provide financial, informative, and emotional resources and support to migrants. These networks are often based on kinship/communal ties or organizational ties.

From a sociological and network perspective, Massey (1988) and Martin (2009) hypothesized that the chances of migration would increase if individuals are related to someone in the destination country or have extensive experience in international travel. Massey (1988) further theorized

that an individual who has migrated internationally is likely to do so again, causing repeated movements over time. The literature also suggests that “mass migration” is explained by the presence of social ties and international migratory experience—spreading migratory patterns from the middle to lower segments of the socioeconomic hierarchy. For example, Filipino migrant networks around the world and prosperous Filipino communities in different countries have started Filipino-culture-based commercial centers. Tullao’s (2008) research, for example, verified that in the top five destinations of Filipino migrants—Saudi Arabia, United Arab Emirates, Hong Kong, Kuwait, and Qatar—overseas Filipino workers are engaged in social migrant networks where there is collective action and purchase of communal resources.

Migration Costs

Migration costs may be classified into either private or social costs. Sjaastad (1962) broke down the private cost of migration into monetary and non-monetary costs. Monetary costs increase with distances traveled and the number of dependents in the case of family migration (i.e., expenditures on food, lodging, and transportation). Nonmonetary costs, meanwhile, include forgone costs and “psychic” costs (Sjaastad, 1962). Forgone costs are opportunity costs (i.e., travel, learning a new job, etc.), which can be attributed to the distance and time spent in finding a new job. The psychic costs of migration, on the other hand, are influenced by the migrant’s tastes and preferences (i.e., leaving familiar surroundings, family, and friends) (Sjaastad, 1962).

Opiniano (2008) further stated that the returns to migration are coupled with challenges in the short run, such as inequality, the loss of manpower, risks of travel overseas, emotional and familial issues centered on the absence of a family member, and the thought of identifying migrants and workers as “putting the image of the country in a bad light.”

Trade in Services and the Movement of Natural Persons

The expansion of trade in services has contributed to migration flows through the movement of natural persons (MNP) or the provision of services through the temporary movement of a service provider to the territory of the service consumer. From a trade and negotiations perspective, MNP focuses on initiatives that facilitate intracorporate transfers of professionals, managers, technical, and support staff, whereas from the labor market perspective, MNP is a legitimate response to labor market disparities between countries. For

example, Japan's main demographic problem is its aging population, which requires more health service providers. The Philippines with its labor surplus can meet Japan's needs (Tullao & Cortez, 2003). However, for Filipinos to maximize their income through migration and for Japan to satisfy its health professionals' shortage, facilitation measures are needed for the movement of natural persons.

Motivations to Send Remittances

Motivations to remit include considerations pertaining to the income portfolio diversification of migrants, precautionary savings of the migrants' families, increasing the migrants' bequest or inheritance, altruism, and enhancement of the migrants' standard of living (Stark, 2009). For the sake of discussion, this study will classify the motivations to remit under two general categories: 1) altruism and 2) self-interest.

Altruistic Motives

Altruism is the expression of one's unselfish concern and dedication towards the well-being of others (Dictionary.com, n.d.). Hence, the driving force for sending remittances is the mutual care individuals experience (Alba & Orbeta, n.d.), which results in migrants deriving utility or happiness from the consumption of his immediate family (Zanker & Siegel, 2007).

If indeed remittances are determined by altruism, then a higher earning capacity and a tighter solidarity among household members should increase the migrant's remittances (Lucas & Stark, 1985; Chami, Fullenkamp, & Jahjah, 2003; Rapoport & Docquier, 2006; Alba & Sugui, n.d.). Similar to the concept of self-sacrifice, this phenomenon is classified as an act of "unrequited love where the migrant considers the pain of the household and the feedback effect when he remits" (Alba, 2008, p.3). Funkhouser (1995) added that under the motivation of pure altruism, remittances increase with proximity, the number of household members left behind, and the probability of the migrant's return to the home country. Transfers, on the other hand, decrease when the number of emigrants in the household rises. Alba and Sugui (n.d.) and Rapoport and Docquier (2005) also discovered that remittances decrease when the recipient household's income increases.

Under this motivation, remittances are counter-cyclical (Reside, 2009) and, therefore, rise when the home country is hit with adverse income shocks. This motivation is actually very prominent in the Philippines. Surveys revealed that it is for this reason that individuals initially decide to migrate.

Insurance Motives

Insurance motives are prevalent in less developed country households living in rural areas or those engaged in agricultural businesses. Migration and, ultimately, remittances serve as insurance and protection from the absence of credit and insurance markets in rural areas (Rapoport & Docquier, 2005; Stark, 2009; Alba & Sugui, n.d.).

This framework is rooted on the perspective that household incomes are subject to risks. Thus, households will choose to lessen the degree of risk or variance in their annual income by sending members to another country (urban area). Accordingly, even if an adverse shock hits the home country—but not the host country—and income levels drop, households with at least one migrant will still have a steady inflow of income (through remittances). “Having a migrant means that the household has a form of insurance against agricultural shocks” (Sugui, Alba, Abdon, & Garde, 2007, p. 5; Hoddinott, 1994), but at the same time, the migrant himself is also being supported by the household as he establishes a foothold in the host country.

Osili (2007) and Reside (2009) postulated that migrants send remittances to serve as precautionary savings in case of bad economic conditions or simply to smoothen consumption. Alba and Orbeta (n.d.) summarized how remittances are affected under this model: 1) households initially pay a premium consisting of migration costs and remittances serve as returns to the investment, 2) the likelihood of remittances goes up when there are income shocks or relative increases in income volatility, 3) remittances are not affected by distance or time away from the home country, and 4) remittances do not drop when the number of family members that engage in contracted services abroad rises. The predictions of this model include the possibility of moral hazard and dependency problems, which occur when households end up depending entirely on remittances (Alba & Orbeta, n.d.).

Exchange Motives

In contrast to the altruistic motive, the motive of exchange does not bind the migrant by mutual ties but, rather, by contractual agreement. Similar to the self-interest motives, exchange motives do not consider the migrant’s care for the recipient household. Instead, remittances serve as payments for the services rendered by those who are left in the motherland (Alba & Sugui, n.d.). Migrants remit for their own interests, particularly the maintenance of their own assets in the home country. Accordingly, those left behind are tasked to tend to the assets as intermediaries or agents (Lucas & Stark, 1985; Osili, 2007) and may be able to bargain with the migrant on the amount of transfers (Rapoport & Docquier, 2005).

Consequently, remittances increase as the migrant's income in the host country increases. Migrant income, in turn, is derived from his contracted services in the host country. As the number, quality, diversity, and intensity of Pareto-improving contracted services rise, so do the transfers from the migrant to the household (Rapoport & Docquier, 2005; Alba & Sugui, n.d.). Unlike in the altruistic model, there appears to be no clear relationship between pretransfer income and the amount or the propensity to remit. Rapoport & Docquier (2005) discovered that if there is complementarity between the migrant's service and the household's income, then remittances decrease, but if they are independent of each other, remittances go up due to what can be considered as the household's opportunity cost of tending to the migrant's assets (Alba & Sugui, n.d.). Additionally, the magnitude of transfers varies with the fluctuations in the performance of the home country's economy (Alba & Sugui, n.d.). If the unemployment rate is high or there are unfavorable economic fluctuations, then the recipient household's opportunity cost decreases. Consequently, the migrant is less likely to remit or reduce the magnitude of remittances under the exchange motive (Alba & Sugui, n.d.).

The exchange motive is also associated with loan repayment, particularly the reimbursement of the "initial investment undertaken by the family to support migration" (Sugui, Alba, Abdon, & Garde, 2007, p. 5; Poirine, 1997). Lucas and Stark's (1985) study, for instance, showed that migrants with greater educational investments prior to migration are expected to give greater compensation to their families and, therefore, remit larger amounts (Lucas & Stark, 1985).

Strategic Motives

Stark (1995) suggested that there may be a strategic endogeneity between remittances and the selection of the migrant; that is, remittances serve as the purpose for migration (potentially due to higher wages) and are the result of it as well. Quoting Rapoport and Docquier (2005) regarding the rationale for this motive:

...when migrants are heterogeneous in skills and individual productivity is not perfectly observable on the labor market of the host country (at least for a given period of time), employers apply statistical discrimination so that migrant workers are paid the average productivity of the minority group to which they belong. (p. 16)

Given the discrepancy in skills and, thus, wages, skilled workers can opt to act cohesively and "bribe" unskilled workers—through transfers—to stay

in the home country (Alba & Orbeta, n.d.; Rapoport & Docquier, 2005) and prevent the “contamination” of the wages of skilled workers (Stark, 2009). In fact, Rapoport and Docquier’s (2005) game-theoretic framework shows that remittances provide the motivation for migration and vice versa. The result of their analysis implied that there is incentive for skilled migrant workers to induce unskilled workers to stay at home. The nature of the motivation is clearly non-altruistic and is based on self-interest.

Another strategy is for agents, specifically the eldest child, to remit for the purpose of securing a larger inheritance from their parents. Studies in different countries confirmed that migrant remittances are larger when parents have greater capabilities of bequeathing land, cattle, or other assets to their children (Stark & Lucas, 1988; Hoddinott, 1994; Sugui et al., 2007). Consistent with the self-interest motive, the approach contributes to the development of assets in the home country, assets that migrants will eventually inherit. On the part of the parents, the behavior creates incentives for migrant children to honor their “contractual obligations” and demonstrate their care and concern for the household.

Investment Motives

The investment motive and the concept of having purchasing power differentials across countries are two complementary concepts where the latter enhances the effects and the objectives of the former. As the term suggests, families send migrants for the purpose of increasing their wealth (Alba & Sugui, n.d.). The motivation stems from the perception that families use interspatial differences in wages to enhance their income potentials. Migration is costly; thus, the strategy is deemed as an investment (Rapoport & Docquier, 2005).

The investments prior to migration, usually accounted for by requirements for migration, constitute a significant share of the migration costs. These prior investments include resources that enhance educational attainment and experience in specific occupations that, in turn, generally increase an individual’s employability (Alba & Sugui, n.d.).

The investment motive also adheres to portfolio investment conventions such as spreading risks or diversifying the portfolio. In maximizing income, the main assets in the investment motive would be the supply of labor or, more specifically, the amount and level of human capital development (Rapoport & Docquier, 2005; Alba & Orbeta, n.d.). What is unique about this motive is that it adopts a long-term view of migration that involves “a series of preparatory activities and related decisions, such as choice of school, years of schooling, and educational attainment, occupation, career, and work experience” (Alba & Sugui, n.d., p. 13).

Economic Impacts of International Migration

Household Level

Determining the impacts of migration on the economy has centered on remittances as the main avenue through which the effects of migration are felt. At the household level, migration and remittances are integrated in determining the impacts on the recipient households.

As explored in the earlier portions of the paper, migrants almost always send remittances to their households in the home country. It is apparent that this is the first and foremost impact of migration on households (Asian Development Bank, 2005; Opiniano, 2008). Remittances are expected to alter the household's total consumption expenditure and the allocation of household resources to the different expenditure items (i.e., food versus luxury goods) (Orbeta, 2008). In general, remittance income is mostly spent on consumption and not on investment (Orbeta, 2008). However, Yang (2008) found that remittance-receiving households make riskier investments and that migrants' children were sent to better schools accompanied by other education-related investments. Also, Asis (2006) discovered that remittances were used for land purchases, renovation of houses, increases in educational investments, entrepreneurial activities, consumer durables, and savings.

Other positive impacts of migration include the skills and knowledge transfers as well as wisdom and experience that migrants take home with them, which, as the new methods are imparted to others, can improve local services (Guellec & Cervantes, 2001). This type of benefit stems from the development of migration networks (Baptise-Meyer, 2001) that facilitates the exchange of expertise and information.

However, Opiniano (2008) determined that households tend to develop a dependency on remittances—resulting in the misuse of transfers (Asis, 2006) and lower productivity and earnings of non-migrant relatives (Rodriguez & Tiongson, 2001). Indeed, case studies showed that migrant households have a hard time saving (Burgos & De Vera, 2005; Idang & Yap, 2002; Antonio & Perez, 2000).

Asis (2006) explained that migration induces separation of family members, which may, in turn, destabilize the family unit. The feminization of migration (that is, women in the labor force) is also alarming from a sociocultural perspective given the risks to their safety and well-being as overseas workers. In addition, employment abroad prevents mothers from looking after their children, leading to the erosion of family values and the reduction in the acquisition of human capital investment (Asis, 2006).

At the national level, there are significant discrepancies between the effects of migration and remittances. The former affects three economic components: income distribution, human resource development, and the labor market.

Human Resource Development and Investments in Human Capital

As investments in human capital bring about improvements in labor productivity, which in turn enhance individual income (Mankiw, Romer, & Weil, 1992), it is an important component of poverty alleviation.

In general, expenditure shares in education and health are larger among households with migrants vis-à-vis households without migrants (Orbeta, 2008). Tullao, Cortez, and See (2007) and Tabuga (2007) determined that education-expenditure elasticities are greater in remittance-receiving households and that they react positively to changes in income. Moreover, richer households spend more on education and health, thus raising inequality in human capital expenditures, which may be attributed to remittances (Tabuga, 2007). Yang (2008) confirmed that transfers through favorable exchange rate shocks increase education expenditures and child schooling and decrease child labor incidence.

As laborers cannot be immediately replaced, Cattaneo (2008) posited that the departure of skilled laborers can 1) decrease the productivity of other resources, 2) hinder growth owing to the loss of skilled labor, and 3) result in the deterioration of the investment climate given that educated workers take on critical roles in managing foreign-owned institutions.

The Brain Drain and the Labor Force Participation

The concern regarding brain drain is rooted on the contention that remittances increase the demand for the consumption of normal goods and leisure, which, eventually, would result in drops in output and growth. Other than being the outward transfer of skill and knowledge, it is implied that brain drain may induce the migrant's remaining family members to work less (Orbeta, 2008).

Using simple comparative analysis, Tullao et al. (2007) confirmed that labor participation and employment rates are lower in remittance-receiving households as compared to non-remittance-receiving households. A follow up on Tullao et al.'s (2007) work, Ducanes and Abella (2008) discovered that labor force participation does not differ across the two household classifications. Attributing the finding to a back-bending supply curve that occurs at higher income levels, Ducanes and Abella (2008) rejected the notion that migration decreases the labor force participation of the remaining

family. However, Rodriguez and Tiongson's (2001) study contradicted these results and concluded that increased remittances decrease full-time work hours. Cabegin (2006) further showed that the response varied with the gender of the migrant's spouse/remaining family members and on whether or not children are involved. Her findings were as follows: 1) the presence or number of children in the household has no significant effect on the labor participation of husbands, but the presence of school-age children decreases the wives' labor participation; 2) the presence of working-age children decreases full-time labor participation but increases work hours for self-employment; 3) the presence of preschool children have no significant effect; and 4) remittances decrease participation for both genders, but the magnitude differs for males and females. Despite shocks to the economy, particularly during the Asian Financial Crisis, Yang (2008) ascertained that remittances do not affect the number of work hours but raise the number of hours in entrepreneurship or self-employment.

On the other hand, cross-country comparisons showed that brain drain results in a 0.025% annual GDP per capita net loss in the Philippines (Beine, Docquier, & Rapoport, 2003). Danila and Ortigas (2000) asserted that decreases in a country's GNP triggers labor migration. Furthermore, the data indicated that whenever migration increases, labor force and unemployment figures also rise (Opiniano, 2008).

The Participation Rate and the Impacts of Migration on Wages

Economic theory shows that labor participation is significantly affected by wage levels. Lewis (1954), in fact, claimed that urban-sector expansion requires a high fixed real wage to encourage the migration of surplus labor in the rural sector. Todaro (1969) asserted that imperfections in urban labor markets, particularly the urban-rural wage differentials, promote migration. Hence, the studies concluded that for as long as the expected urban wage exceeds rural wages, there would be a continuous movement of labor from the rural to the urban sectors.

Brucker and Jahn's (2010) reassessment of international migration and the wage-setting framework yielded the following: 1) simulation results indicated that wages decrease by 0.18% and unemployment increases by 0.31% when 1% of the labor force is externally sourced. Likewise, the foreign labor force bears a larger burden as wages decline by 1.11% and unemployment increases by nearly 2%, and 2) there are limited spillovers of education and experience of foreign workers on local workers. They attributed the differences in the adjustments to the wide disparity between the two labor markets that leave unskilled workers to manage in the home country.

Economic Impacts of Remittances

The most apparent effect of remittances on the macroeconomy is on the real exchange rate. The Keynesian school of thought posits that remittance inflow increases the supply of foreign currency, which will cause a real exchange rate appreciation, a decrease in exports, and an increase in imports.

An offshoot of the theory, known as the “Dutch disease,” cautions against expansions in a country’s income brought about by an influx of foreign currency as it may result in increases in imports and reductions in the price competitiveness of exported goods and the amount of exports.

Lartey, Mandelman, and Acosta (2008) showed that the non-tradable sectors benefit at the expense of tradable sectors because of the spending effects and factor movements in developing countries brought about by increases in remittances. Their results supported the claim of real exchange rate appreciations and provided evidence that countries shift from manufacturing towards the service industry, which is a notable characteristic of the Dutch disease that is amplified in fixed exchange rate regimes. In their study of El Salvador, Acosta, Lartey, and Mandelman (2007) suggested that the economy’s inability to absorb and facilitate remittances gives rise to the Dutch disease because increases in remittances raise household incomes and the demand for the consumption of non-tradable goods. Consequently, the appreciation of real exchange rate brings about an expansion of the non-tradable sectors coupled with the contraction of the tradable sectors.

The relationship between remittances and inflation is yet to be established. Balderas and Nath’s (2005) study of Mexico revealed that there is little significant evidence on whether or not remittances have an impact on inflation and relative price variability. The literature shows that remittances respond very strongly to prices, thus implying that remittances are used for consumption. However, as the supply of the non-tradable sector does not immediately expand when consumption rises, prices go up.

Such is the case in Indonesia, where a significant portion of remittances is used for food consumption and the purchase of non-durable household items (IOM, 2010). Indonesia faced double-digit inflation in the late 90s, and although inflation has been reduced significantly in recent years, transfers still cause inflationary pressure.

Similarly, there are conflicting views and scant information about the economic impacts of migration and remittances on growth (Jongwanich, 2007). Barajas, Chami, Fullenkamp, Gapen, and Montiel (2009) suggested a two-way causality: 1) domestic economy performance drives remittance inflows through the promotion of emigration or through the altruistic behavior of migrants and 2) growth and remittance flows are influenced by

other determinants such as poor domestic governance or high economic growth in major trading partners of countries with high emigration. Ultimately, Barajas et al. (2009) concluded that remittances may not even contribute to economic growth and may even prove detrimental to the economy.

Jongwanich (2007) identified the following channels through which remittances can positively affect economic growth: 1) reduce credit constraints of recipient households and increase entrepreneurial activities and private investments (Yang, 2008; Woodruff & Zenteno, 2004); 2) increase the international reserves of a country, which improves credit, and the households' access to capital markets; and 3) enhance growth through the multiplier-effect mechanisms and positive externalities from remittance-receiving households' spillovers to non-receiving households.

Stark and Levhari (1982) and Ahlburg (1991), however, underscored the downside of remittances, particularly, that transfers 1) are primarily used for consumption and very little is allocated to investments and other productive or economic activities, 2) induce moral hazard (i.e., reduction of the local labor participation of recipient-households), and 3) result in the Dutch disease.

Meanwhile, the researches on the effects of remittances on poverty and inequality provide evidence that remittances reduce the incidence of poverty by increasing the income of recipients (Jongwanich, 2007). Various studies likewise concur with the poverty-dampening, consumption-smoothing effect of migration and remittances and their role in raising the levels of living standards (Adams & Page, 2005; Yang & Martinez, 2005; Sawada & Estudillo, 2006; Ducanes & Abella, 2008), particularly in the Philippines.

Regarding income inequality, Cattaneo (2008) posited that at low levels, migration—hence, remittances—worsens income distribution and does not decrease the level of poverty due to the high risks and costs of migration investments. Adams (1989) and Rodriguez (1998) confirmed that the bottom income quintile households receive smaller remittances compared to top income quintile households. However, a more long-term migration experience may provide a wider range of benefits of migration, thereby creating and equalizing its impact. Empirical literature suggests that, in the long run, migration and inequality exhibit an inverted-U relationship (Stark, Taylor, & Yitzhaki, 1986), which implies that greater levels of migration enable households to better cope with its risks and costs owing to increased compensation and migrant productivity.

In sum, despite the poverty-reducing effects of migration and remittances, inequality increases due to the high migration costs. Low-income households cannot afford to migrate, whereas high-income households have no incentive

to migrate. Since the middle-income households have sufficient resources to shoulder migration costs and exploit opportunities derived from interspatial wage, they have the greatest incentive to seek better opportunities abroad (Acupan & Agbola, 2007).

Studies on how households use the remittances they receive concluded that transfers are primarily spent on consumption—not investment. Remittance-receiving households depending on the migrant's motivation to remit, were found to have a harder time saving (Opiniano, 2008; Burgos & De Vera, 2005; Idang & Yap, 2002; Antonio & Perez, 2000). Thus, it may be the case that remittances have no significant impact on investments.

Conversely, Cabegin (2006) confirmed that remittances increase the hours of self-employment and entrepreneurial activities, particularly in capital-intensive activities such as transportation, communication, and manufacturing (Orbeta, 2008). Yang (2008), despite establishing that transfers have no clear impact on existing entrepreneurial activity and income, supported the finding that the number of new entrepreneurial activities increases with remittances.

The relationship between financial development, remittances, and growth may go in either direction: transfers can aid financial development, and financial development can aid market expansions and augment the benefits of remittances. In fact, the broad impacts of remittances on capital investment are suggesting that "...the lack of financial market development had been an impediment that the remittances had helped overcome" (Goldberg & Levi, 2008, p. 12).

In terms of human capital, studies on the Philippines found that, relative to non-remittance-receiving households, remittance receiving households have 1) larger expenditures (Orbeta, 2008; Tullao et al., 2007; Tabuga, 2007); 2) "higher expenditure elasticities in remittance-receiving households in housing, education, health care, durables, transportation, and communications; and 3) lower elasticities for food regularly eaten outside the home" (Orbeta, 2008, p. 4). Thus, remittances increase the demand for education, healthcare, and housing opportunities.

Orbeta (2008) emphasized that transfers raise the demand for human resource development. However, as suggested by Sjaastad (1962), investments in human capital prior to migration facilitate migration given that higher education and good health increase one's chances of being employed abroad. Hence, an individual will endeavor to train as hard as possible in the home country to enhance his prospects for migration (Ang, 2006).

The implications of these outcomes, particularly in the Philippines are twofold: 1) higher demand for higher education, which already suffers from problems in the areas of scale efficiency, student flows, budget and

performance articulation, and adherence to international standards (Tullao & Rivera, 2009) and 2) possible threats to the healthcare system owing to the considerable emigration of Filipino nurses that distorts the healthcare system and the labor market (IHPDS, 2005; Tullao et al., 2010).

Conclusion

The motivations of people to migrate vary, but they can be summarized in terms of push and pull factors, namely, the economic, demographic, political, and social features of the sending and destination countries.

Empirically, it is worthwhile to conduct studies that examine family decisions to migrate, the culture of migration, migration networks, and the extent to which these elements, relative to other economic factors, shape the motivations of people to move spatially. Additionally, solid references on a general theory of remittances are necessary to supplement the findings of 1) Stark's (2009) work on the motivations for remittances and their corresponding intuitions, 2) Rapoport and Docquier's (2005) theoretical and mathematical analyses of the different motivations for remittances, and 3) Alba and Sugui's (n.d.) analyses of Rapoport and Docquier's (2005) framework as applied to the Philippine setup.

Furthermore, an important gap in the current literature pertains to the disaggregation of remittances according to the corresponding theoretical motivations. Given that data are available, isolating the various motivations for sending remittances would allow researchers and policymakers to understand the impact of remittances on households and the macroeconomy.

Similarly, studies that link education, migration, and remittances can be used to investigate how the investment motive is enhanced by differences in interspatial purchasing power. A starting point may be the integration of the altruistic and investment motives of sending remittances through the interspatial differences in the purchasing power of remittances. Indeed, depending on the migrant's utility function, findings may either provide another reason for altruism or negate it altogether.

The sheer magnitude of Philippine remittance inflows warrants its inclusion in any future macroeconometric model for the Philippines. The model can then factor in the impact of remittances on the real exchange rate, inflation, and the labor market. In the process, future researches can also verify the relationships between remittances, inflation, the Dutch disease, reservation wage, labor participation rate, and economic growth. Causation among these variables must be accurately established to enable governments to efficiently manage remittances (i.e., channel the funds to priority sectors like services and nontradable).

In the end, this study embarked on a journey to understand the migration and remittances phenomena. There is no doubt that they have positive and negative outcomes. Future work in this field must, therefore, concentrate on enhancing their benefits while mitigating migration and remittances costs to the individual, the household, and society.

References

- Acosta, P. A., Lartey, E. K., & Mandelman, F. S. (2007). *Remittances and the Dutch disease* (Working Paper Series 2007-8). Federal Reserve Bank of Atlanta, 1000 Peachtree Street NE, Atlanta. Retrieved from <https://www.frbatlanta.org/-/media/Documents/filelegacydocs/wp0708.pdf>
- Acupan, A. B., & Agbola, F. W. (2007). *On the determinants of international labor migration in the Philippines*. A paper presented at the Singapore Economics Review Conference, Meritus Mandarin Singapore, 2–4 August 2007.
- Adams, R. H. (1989). Workers remittances and inequality in rural Egypt. *Economic Development and Cultural Change*, 38(1), 45–71.
- Adams, R. H., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? *World Development*, 33(10), 1645–69.
- Ahlburg, D. (1991). *Remittances and their impact: A study of Tonga and Western Samoa* (Pacific Policy Paper No.7). Canberra: Australian National University.
- Alba, M.M., (2008). *Economic models on the motives behind migrant workers' remittances* (UP School of Economics Discussion Paper No. 0807). UP School of Economics, UP Diliman, Quezon City, Retrieved from https://www.google.com.ph/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCMQFjABahUKEwihoPONGv3HAhWkPKYKHXR6Cfo&url=http%3A%2F%2Fwww.econ.upd.edu.ph%2Fdp%2Findex.php%2Fdp%2Farticle%2Fdownload%2F94%2F86&usq=AFQjCNEsx2eC_6Bl9dR_1oMoyziYUaeEdw&sig2=cenYCwDvcuxW3xBB4jSBNw&cad=rja
- Alba, M. M., & Orbeta, A. (n.d.). *The determinants of overseas Filipinos' remittances: Some preliminary findings* [Powerpoint slides]. Manila: Economics Department, De La Salle University–Manila, Philippines. Retrieved from <https://phileconsoc.files.wordpress.com/2013/03/>
- Alba, M. M., & Sugui, J. C. (n.d.). *Exploring the correlates of the remittance motives of overseas Filipino workers and their recipient households* (Draft paper). Retrieved from http://aer.ph/pdf/papers/Remittance_Alba.pdf
- Aldaba, F. (2007). *Key social, political, and economic issues in the Philippines: For consideration by migrant donors*. Paper presented at the forum Pursuing Efficiency and meaning by “Changemakers”: The Second National Conference on Filipino Migrant Philanthropy, Manila, Philippines (organized by the Institute for Migration and Development Issues), 1–2 August 2007.

- Ang, A. P. (2006). *Workers' remittances and economic growth in the Philippines*. Paper presented at 2nd Development Conference of the GRES (Theme: "Which Financing for Which Development?"), held at University of Bordeaux, France, on 23–24 November 2006.
- Antonio, M., & Perez, L. (2000). *Significance of OFW remittances on personal savings (1982–1996)* (Undergraduate thesis). Philippines: University of the Philippines–Diliman.
- Arenas, M. L. (2006). *Population growth and Philippine development*. Retrieved from http://www.ey.com/GLOBAL/content.nsf/Philippines/Population_growth_and_Philippine_development
- Asian Development Bank. (2005). *Enhancing the efficiency of overseas Filipino workers' remittances*. Manila, Philippines: Asian Development Bank.
- Asis, M. M. B. (2006). *How international migration can support development: A challenge for the Philippines*. Philippines: Scalabrini Migration Center.
- Assaad, R. (1997). Kinship ties, social networks, and segmented labor markets: Evidence from the construction sector in Egypt. *Journal of Development Economics*, 52(1), 1–30.
- Balderas, J. U., & Nath, H. K. (2005). *Remittances, relative price variability and inflation in Mexico*. Preliminary working version presented at the 75th Annual Meeting of Southern Economics Association, Washington, DC, 18–25 November 2005.
- Banerjee, B. (1984). Information flow, expectations and job search: Rural-to-urban migration process in India. *Journal of Development Economics*, 15(1–3), 239–257.
- Baptise-Meyer, J. (2001, July–August). The brain drain: New aspects of the South/North exodus. *The Courier*, 187, 46–47.
- Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., & Montiel, P. (2009). *Do workers' remittances promote economic growth?* (Working Paper No. 09/153). International Monetary Fund, Washington, D.C.. Retrieved from <https://www.imf.org/external/pubs/cat/longres.aspx?sk=23108.0>
- Beine, M., Docquier, F., & Rappoport, H. (2003). *Brain drain and LDCs' growth: Winners and losers* (Discussion Paper No. 819). Bonn, Germany: Institute for the Study of Labour.
- Borjas, G. J. (1989). Economic theory and international migration. *International Migration Review*, 23(3), 457–485.
- Brucker, H., & Jahn, E. (2010). *Migration and wage-setting: Reassessing the labor market effects of migration*. Transnationality of Migrants (TOM) Marie Curie Research Training Network "International Migration: Transnational Links, Effects and Policies," 16–18 September 2010 Venice International University. Center for Economic Policy Research (CEPR).
- Burgos, V. F., & De Vera, C. R. (2005). *The saving behavior and consumption pattern of remittance-receiving households in the Philippines* (Undergraduate thesis). Philippines: University of the Philippines–Diliman.

- Cabegin, E. (2006). *The effect of Filipino overseas migration on the non-migrant spouse's market participation and labor supply behavior* (IZA DP No. 2240). Retrieved from anon-ftp.iza.org/dp2240.pdf
- Cattaneo, C. (2008). *International migration, the brain drain and poverty: A cross country analysis* (Working Paper No. 212). Centro di Ricerca sui Processi di Innovazione e Internazionalizzazione, Milan. Retrieved from <https://ideas.repec.org/p/cri/cespri/wp212.html>
- Chami, R., Fullenkamp, C., & Jahjah, S. (2003). *Are immigrant remittance flows a source of capital for development?* (Working Paper 03/189). Washington, DC: International Monetary Fund.
- Choy, C. C. (2003). *Empire of care: Nursing and migration in Filipino American history*. Durham, NC: Duke University Press.
- Danila, M. C., & Ortigas, K. S. (2000). *Labor emigration as it affects the demand for higher education, productivity, employment and income in the Philippines* (Undergraduate thesis). Philippines: University of the Philippines–Manila.
- Dictionary.com*. (n.d.). Retrieved from dictionary.reference.com/browse/altruism
- Ducanes, G., & Abella, M. (2008). *Overseas Filipino workers and their impact on household employment decisions* (Working Paper No. 5). International Labour Organization Asian Regional Programme on Governance of Labour Migration, Bangkok, Thailand. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_160330.pdf
- Episcopal Commission on Migrants and Itinerant People/Apostleship of the Sea–Manila, Scalabrini Migration Center, and Overseas Workers Welfare Administration. [ECM/AOS-Manila. SMC, OWWA] (2004). *Hearts apart: Migration in the eyes of Filipino children*. Retrieved from www.smc.org/ph/heartsapart.html
- Funkhouser, E. (1995). Remittances from international migration: A comparison of El Salvador and Nicaragua. *Review of Economics and Statistics*, 77(1), 137–146.
- Goldberg, M. A., & Levi, M. D. (2008). *The impact of remittances on economic growth*. Knowledge Leadership, Master Card Worldwide Insights, Toronto, Canada. Retrieved from http://www.mastercard.com/us/company/en/insights/pdfs/2008/KL_Brochure_Remittances.pdf
- Greenwood, M., Ladman, J., & Siegel, B. (1981). Long-term trends in migratory behavior in a developing country: the case of Mexico. *Demography*, 18(3), 369–388.
- Guellec, D., & Cervantes, M. (2001). International mobility of highly skilled workers: From statistical analysis to policy formulation. In *International mobility of the highly skilled* (pp. 71–98). Organization for Economic Cooperation and Development, Paris, France. Retrieved from http://www.keepeek.com/Digital-Asset-Management/oecd/employment/international-mobility-of-the-highly-skilled_9789264196087-en#page6

- Hoddinott, J. (1994). A model of migration and remittances applied to Western Kenya. *Oxford Economic Papers New Series*, 46(3), 459–476.
- Idang, R., & Yap, C. (2002). *Determinants of the saving behavior of Filipino households*. (Undergraduate thesis). Philippines [IHPDS]: University of the Philippines–Diliman.
- Institute of Health Policy and Development Studies. (2005). *Migration of health workers: Country case study Philippines* (ILO Working Paper 236). Manila: International Labor Organization. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_161163.pdf
- International Organization for Migration. (2010). *International migration and migrant workers' remittances in Indonesia*. Makati City, Philippines: International Organization for Migration.
- Jongwanich, J. (2007). *Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries* (MPDD Working Paper Series WP/07/01). United Nations Economic and Social Commission for Asia and the Pacific, Rajadamnern Nok Avenue, Bangkok, Thailand. Retrieved from <https://ideas.repec.org/p/unt/wpmpdd/wp-07-01.html>
- Katz, E., & Stark, O. (1986). Labor migration and risk aversion in less developed countries. *Journal of Labor Economics*, 4(1), 134–149.
- Lall, S. V., Selod, H., & Shalizi, Z. (2006). *Rural–urban migration in developing countries: A survey of theoretical predictions and empirical findings* (Policy Research Working Paper 2915). Washington, DC: World Bank. Retrieved from <https://openknowledge.worldbank.org/handle/10986/8669>
- Lartey, E. K., Mandelman, F. S., & Acosta, P. A. (2008). *Remittances, exchange rate regimes and the Dutch disease: A panel data analysis*. Paper presented at BSP International Research Conference on Remittances: “The Macroeconomic Consequences of Remittances: Implications for Monetary and Financial Policies in Asia,” 30–31 March 2009, Mandaluyong City, Philippines.
- Lee, E. S. (1966). A theory of migration. *Demography*, 3(1), 47–57.
- Lewis, A. W. (1954). Economic development with unlimited supplies of labor. *Manchester School of Economic and Social Studies*, 22(2), 139–191.
- Losch, B. (2008). *Migrations and the challenge of demographic and economic transitions in the new globalization era*. Paper presented at Social Science Research Council, Panel 4: Migration and Economic Globalization, New York, on 28 February to 1 March 2008.
- Lucas, R., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of Political Economy*, 93(5), 901–918.
- Mankiw, G., Romer, D., & Weil, D. (1992). A contribution to the empirics of economic growth. *The Quarterly Journal of Economics*, 107(2), 407–437.
- Mapa, D., & Balisacan, A. (2004). *Quantifying the impact of population on economic growth and poverty: The Philippines in an East Asian context*. Paper presented at the 9th Convention of the East Asian Economic Association, 13–14 November 2003, Hong Kong.

- Mapa, D. S., Balisacan, A. M., & Briones, K. J. (2006). Robust determinants of income growth in the Philippines. *Philippine Journal of Development*, 32(1 & 2), 45–76.
- Martin, P. (2009). *Migration in the Asia-Pacific region: Trends, factors, impacts* (Human Development Research Paper Series, Vol. 32). United Nations Development Programme, One United Nations Plaza, New York, USA. Retrieved from <http://mpira.uib.uni-muenchen.de/19215/>
- Massey, D. (1988). Economic development and international migration in comparative perspective. *Population and Development Review*, 14(3), 383–413. Retrieved from <http://worldroom.tamu.edu/Workshops/Migration06/EuropeanUnion/EU%20articles/Economic%20Development%20and%20International%20Migration.pdf>
- Meng, X., & Zhang, J. (2001). The two-tier labor market in urban China: Occupational segregation and wage differentials between urban residents and rural migrants in Shanghai. *Journal of Comparative Economics*, 29(3), 485–504.
- Migration Policy Institute. (2011). *Calculations of the World Bank Development Prospects Group's bilateral migration matrix data of 2010* [Data file]. Retrieved from <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,ContentMDK:21352016~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>
- Mora, J., & Taylor, J. (2005). Determinants of migration, destination, and sector choice: Disentangling individual, household, and community effects. In C. Ozden & M. Schiff (Eds.), *International migration, remittances and the brain drain* (pp. 21–51). Washington, DC: World Bank and Palgrave Macmillan. Retrieved from <https://openknowledge.worldbank.org/handle/10986/6929>
- National Statistics Office. (2007). *Population and annual growth rates for region, provinces and highly urbanized cities based on censuses 1995, 2000 and 2007* [Data file]. Retrieved from <https://psa.gov.ph/old/data/pressrelease/2008/pr0830tx.html>
- Opiniano, J. M. (2008). The panorama and drama of international migration and development in the Philippines. In R. Stojanov, J. Novosak, J. Opiniano, F. Gemenne, and T. Siwek, *Development, environment and migration: Analysis of linkages and consequences*, pp. 105–120. Olomouc, Czech Republic: Palacky University.
- Orbeta, A. (2008). *Economic impact of international migration and remittances on Philippine households: What we thought we knew, what we need to know* (Development Economics Working Papers 22673). East Asian Bureau of Economic Research, Crawford School of Public Policy, Australian National University, Canberra, Australia.
- Osili, U. O. (2007). Remittances and savings from international migration: Theory and evidence using a matched sample. *Journal of Development Economics*, 83(2), 446–465.

- Poirine, B. (1997). A theory of remittances as an implicit family loan arrangement. *World Development*, 25(5), 589–611.
- Ramcharan, R. (2002). *Migration and human capital formation: Theory and evidence from U.S. high school movement* (IMF Working Paper No. 02/123). International Monetary Fund, Washington, D.C. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=879881
- Rapoport, H., & Docquier, F. (2005). *The economics of migrants' remittances* (IZA DP No. 1531). Bonn: Institute for the Study of Labor. Retrieved from <http://ftp.iza.org/dp1531.pdf>
- Rapoport, H., & Docquier, F. (2006). The economics of migrants' remittances. In S. Kolm & J. Ythier (Eds.), *Handbook on the economics of giving, reciprocity and altruism* (Volume 2: Applications, pp. 1136–1195). Amsterdam: Elsevier.
- Ravenstein, E. G., (1885). The laws of migration. *Journal of Statistical Society of London*, 48(2), 167–235. Retrieved from http://www.jstor.org/stable/2979181?seq=1#page_scan_tab_contents
- Reside, R. E. (2009). *Determinants of overseas Filipino worker (OFW) remittances* [Draft] (Discussion Paper No. 2009-11). Philippines: University of the Philippines, School of Economics.
- Rodriguez, E. R. (1998). International migration and income distribution in the Philippines. *Economic Development and Cultural Change*, 46(2), 329–350.
- Rodriguez, E. R., & Tiongson, E. (2001). Temporary migration overseas and household labor supply: Evidence from urban Philippines. *International Migration Review*, 35(3), 709–725.
- Ross, J. (2004). *Understanding the demographic dividend*. Washington, DC: POLICY Project.
- Sawada, Y., & Estudillo, J. (2006). *Trade migration and poverty reduction in the globalizing economy* (Working Paper Series RP2006/58). United Nations University–World Institute for Development Economic Research, Helsinki, Finland. Retrieved from <https://ideas.repec.org/p/unu/wpaper/rp2006-58.html>
- Schwartz, A. (1973). Interpreting the effect of distance on migration. *Journal of Political Economy*, 81(5), 1153–1169.
- Sjaastad, L. A. (1962). The costs and returns of human migration. *The Journal of Political Economy*, 70(5), 80–93.
- Solomon, M. S., & Eden, A. (n.d.). *Beyond “push and pull”: Rethinking medical migration from the Philippines* (Draft). University of South Florida, Interdisciplinary Initiative on Sustainable Communities, Fowler Avenue, Tampa, Florida. Retrieved from http://www.umdcipe.org/conferences/Maastricht/conf_papers/Papers/Rethinking_Medical_Migration_from_the_Philippines.pdf
- Stark, O. (1995). *Altruism and beyond*. Oxford and Cambridge: Basil Blackwell.
- Stark, O. (2009). Reasons for remitting. *World Economics*, 10(3), 147–157.
- Stark, O., & Levhari, D. (1982). On migration and risk in LDCs. *Economic Development and Cultural Change*, 31(1), 191–196.

- Stark, O., & Lucas, R. (1988). Migration, remittances, and the family. *Economic Development and Cultural Change*, 36(3), 465–481.
- Stark, O., Taylor, E., & Yitzhaki, S. (1986). Remittances and inequality. *The Economic Journal* 96(383), 722–740.
- Sugui, J. S., Alba, M. M., Abdon, A. M., & Garde, M. M. (2007). *Overseas workers, remittances, and household welfare in the Philippines*. Paper presented at 6th Poverty and Economic Policy Research Network General Meeting, Lima, Peru, 14–16 June 2007. Retrieve from http://www.pep-net.org/sites/pep-net.org/files/typo3doc/pdf/files_events/soraya-pa.pdf
- Tabuga, A. (2007). *International remittances and household expenditures: The Philippine case* (Discussion Paper No. 2007-18). Philippine Institute for Development Studies, Makati, Philippines. Retrieved from <http://www.pids.gov.ph/dp.php?id=4225&pubyear=2007>
- Todaro, M. P. (1969). A model of migration and urban unemployment in less-developed countries. *The American Economic Review*, 59(1), 138–148.
- Tullao, T. S. (2008). *Demographic changes and international labor mobility in the Philippines: Implications for business and cooperation*. A paper presented to the Philippine Pacific Economic Cooperation Committee. Manila, Philippines: De La Salle University.
- Tullao, T. S., Conchada, M. P., & Rivera, J. R. (2010). *Distortions in the international migration of Filipino nurses*. Manila, Philippines: Angelo King Institute, School of Economics, De La Salle University.
- Tullao, T. S., & Cortez, M. A. (2003). *Movement of natural persons between Philippines and Japan: Issues and prospects*. Manila, Philippines: Center for Business and Economics Research and Development, De La Salle University.
- Tullao, T. S., Cortez, M. A., & See, E. (2007). *The economic impacts of international migration: A case study on the Philippines*. Report submitted to East Asia Development Network.
- Tullao, T. S., & Rivera, J. R. (2009). *The impact of temporary labor migration on the demand for higher education and its implications on the human resource development in the Philippines*. Manila, Philippines: De La Salle University, Angelo King Institute.
- U.S. Census Bureau. (n.d.). *Philippine population pyramids*. Retrieved from www.nationmaster.com/country/rp-philippines/Age-distribution
- Woodruff, C., & Zenteno, R. (2004). *Remittances and micro enterprises in Mexico*. (Unpublished manuscript). San Diego, CA: University of California, San Diego, and ITESM.
- World Bank. (2012). *Global migration database* [Data file]. Retrieved from data.worldbank.org.
- Wouterse, F., & Taylor, J. (2006). *Migration and income diversification: Evidence from Burkina Faso* (Paper No. 25379). A paper presented at the International Association of Agricultural Economists 2006 Annual Meeting, 12–18 August 2006, Queensland, Australia.

- Yang, D. (2008). International migration, remittances, and household investment: Evidence from Philippine migrants' exchange rate shocks. *Economic Journal*, 118(528), 591–630.
- Yang, D., & Martinez, C. (2005). Remittances and poverty in migrants' home areas: Evidence from the Philippines. In C. Ozden & M. Schiff (Eds.), *International migration, remittances, and the brain drain*. Washington, DC: World Bank and Palgrave Macmillan.
- Zanker, J. H., & Siegel, M. (2007). *The determinants of remittances: A review of the literature* (MGSoG/2007/WP003). Maastricht, Netherlands: Maastricht Graduate School of Governance, Maastricht University.

Signal Extraction from the Components of the Philippine National Accounts Statistics Using ARIMA Model-Based Methodology

Cesar C. Rufino

The set of macroeconomic variables comprising the country's national accounts statistics is one of the most eagerly monitored databases anywhere. Economists, financial analysts, and other social scientists keenly watch the movements of the components of the gross domestic product (GDP) to make their prognostications on the health of the economy over time. Economic growth is frequently equated to sustained upward movements of the real gross domestic product and its main component parts while spells of stagnation, even recessions, have been indicated by down-trending movements of the real aggregate GDP and most of its various components. Accurately anticipating the future magnitudes and directions of these macroeconomic variables, as well as deriving from them relevant predictive signals, has become a major requisite of effective fiscal and development planning.

Forecasting macroeconomic variables is one of the most fruitful applications of time series econometrics. In the light of the ever-improving coordination among data monitoring and collecting agencies, reliable and timely statistics of varying periodicities have become more readily

available to researchers than ever before. This development, coupled with the widespread availability of cheaper yet powerful computational devices, and the advances in information technology have been narrowing the gap between the theory and practice of economic forecasting. As the state-of-the-art time series econometrics rapidly unfolds, analysts can now effectively extract additional predictive information from available sub-annual macro variables, creating more value to the forecasting task. This study is an attempt to apply the current modeling technology (which is now standard in most Western countries) to the different components of the country's gross domestic product and other quarterly national accounts statistics. The goal is to ascertain the plausibility of adopting a leading edge, model-based forecasting and signal extraction methodology in isolating unobserved signals from the available series that may be of utmost interest to a wide variety of analysts and planners.

The ARIMA Model-Based Signal Extraction from Univariate Series

The observed realization of a time series variable has been thought to consist of unobserved but intuitively appealing components (which in this study are collectively referred to as signals) such as secular trend (τ_t), cyclical fluctuations (C_t), seasonal variations (S_t), and irregular variations or noise (ε_t). Secular trend represents the upward or downward movement of the data over a long period of time, generally associated with the underlying structural causes of the phenomenon. Seasonal variations represent the pattern of changes in the data that completes itself within a calendar year, which are mainly the effects of climatic and institutional events that repeat more or less regularly every year. Cyclical fluctuations (popularly called business cycle) are characterized by upward and downward change in the data pattern that occurs over the duration of 2 to 10 years or longer mainly due to fluctuations in economic activity. Finally, the noise is the erratic movements of the data that have no predictable pattern.

The conventional practice in applied time series analysis relies heavily on the use of moving average filters in extracting these unobserved signals from macro variables. Some of the most popular techniques are the classical (multiplicative or additive) decomposition (in isolating τ_t , C_t , and S_t), the Census X-11 method of seasonal adjustment, and the Hodrick-Prescott filter of extracting the business cycle (Hodrick & Prescott, 1997). However, over time the application of these mathematically elegant but basically ad-hoc filtering methodologies, manifested various limitations, most of which stem from the fixed nature of the signals wherein underestimations or overestimations are likely to occur.

An alternative approach was suggested by Cleveland and Tiao (1976) and Burman (1980), whereby filtering is accomplished by a statistical model called autoregressive integrated moving average (ARIMA), introduced earlier by Box and Jenkins (1970). The approach known as the ARIMA model-based (AMB) technique consists of a two-pronged strategy: first, an appropriate ARIMA model is fitted to the observed time series, and second, signal extraction techniques are employed to isolate the unobserved components of the series with filters that are, in certain well-defined ways, optimal.

Among the different AMB methodologies that achieved widespread use is the signal extraction in ARIMA time series (SEATS) developed by Bank of Spain mathematicians Gomez and Maravall (1996). Signal extraction by SEATS presupposes the prior cleansing of the raw data and the development of a highly desirable ARIMA model of the pre-treated data. Cleansing requires corrections or adjustments to account for certain factors that distort the inherent patterns of the data. These factors are classified into three categories: outliers (additive outliers, level shifters, and transitory changes), calendar effects (i.e., trading day, Easter effect, leap year effect, and holidays), and intervention variables (i.e., strikes, devaluations, natural disasters, political events, etc.).

Data cleansing and the development of the optimal ARIMA model are accomplished by the companion program to SEATS called time series regression with ARIMA noise, missing observations and outliers (TRAMO). The two programs are traditionally considered as just one expert system known worldwide as TRAMO-SEATS.

TRAMO-SEATS can efficiently handle, in an automatic manner, applications to a single series or thousands of series making it extremely suitable for production use by data monitoring and producing agencies, policy-making institutions, private think-tank groups, and business firms. Its most widespread use is in seasonal adjustment. These two programs are virtually fused, with the latest version residing within TRAMO-SEATS for Windows (TSW), a Windows interface also developed at the Bank of Spain (Caporello & Maravall, 2004; 2010). The objective of TSW is to estimate a seasonal ARIMA model and to decompose it into additive signal components; estimation is done by TRAMO and decomposition, by SEATS.

Literature Review

The Evolution of the AMB Signal Extraction Approach

Although the traditional approach to model the unobserved components

of time series variables has been generally attributed to Macaulay (1931), the practice of mathematically isolating predictive parts of historical data originated further back in history during the early part of the last century. It was noted that observed time series appeared to be coming from unobserved manifestations coinciding with well-recognized events (Bell & Hillmer, 1992), and, ever since, the idea has stuck. Early researchers concentrated on removing the trend and seasonal differentials from annual data (mostly production figures and prices) by averaging over several years or by freehand fitting of mathematical equations. Anderson (1914) introduced the fitting of linear and higher order polynomials to eliminate the trend component, thereby ushering in the era of “trend analysis.” During the same period, Henderson (1916) and Flux (1921) were active in trying to forecast the stages of the economic cycle by removing both the trend (via trend analysis) and seasonality (via averaging) from economic data to derive residual series that was seen to contain indications of cyclical changes. What appeared to be lacking during the era was a unified procedure or model that would link the various techniques of extracting these unobserved components.

A flurry of research activities was noted during the 1920s and the 1930s, precipitated by the work of Persons (1919) in the area of seasonal adjustment. His method, called the “link relative method,” specifies an algebraic representation of a time series as a product of its (unobserved) component parts that is:

$$X_t = S_t T_t C_t R_t$$

where S_t is the *seasonal component*, T_t is the *trend component*, C_t is the *cyclical component*, and R_t is the *random component* of time series X_t observed at time t . The link relative method employs simple transformations to isolate T_t and S_t via averaging and the judicious use of running medians. The end products of applying the method are the fixed estimates of the four components of the series.

The Classical Decomposition Method

Macaulay (1931) improved on the link relative method by employing both the curve fitting technique of Anderson (1914) in isolating the trend and an innovative approach called the ratio-to-moving average method in extracting the other components of the time series. The system proposed by Macaulay came to be known as the “Classical Decomposition Methodology,” which is still being used extensively today by “traditionalists.” The Macaulay approach also laid the groundwork for many modern signal extraction

systems including the extremely popular Census X-11 (Shiskin & Eisenpress, 1958) and its successor, Census X-12 (Shiskin, Young, & Musgrave, 1967).

After the introduction of the Macaulay method, two major developments occurred in the early 1950s. The first was the emergence of a wide array of exponential smoothing techniques, which greatly simplified the rigorously repetitive computations and, in addition, produced estimates with remarkable forecasting performance. The second development was the introduction of computers, thereby facilitating the forecasting and signal extraction tasks using the techniques of the era (Shiskin & Eisenpress, 1958). This development also allowed researchers to develop even more intricate techniques, spearheaded by the Census I method (1954), which formalized the Macaulay (1931) ratio-to-moving average method into a computer amenable form with substantial enhancements. The Census I method was later modified to produce a more complex Census II method (1955). Both systems were developed by the U.S. Bureau of Census with technical help and funding from the National Bureau of Economic Research (NBER) (Shiskin & Eisenpress, 1958).

Critical reviews of the Census II method revealed areas for improvement, which, eventually, led to a sequence of progressively more sophisticated variants of the technique, presently referred to as the Census X-3 to Census X-10 methods. The high watermark level of these methods was reached in 1965 when the Census X-11 method was introduced, which to this day remains to be one of the most widely used seasonal adjustment programs worldwide. This modification of Census II also retained the use of the ratio-to-moving average procedure introduced by Macaulay (1931) and incorporated enhancements which included 1) adjustments for trading day and other outliers, 2) the use of efficient ad hoc filters, and 3) improved model options and output generation. The ad hoc filters cleanse or adjust the series from the variance that falls in a certain band around the frequencies, which are regarded as noise. After its introduction in 1965, many statistical agencies around the world adopted the technique and soon became a mainstay tool in various econometric software.

The Model-Based Approach to Signal Extraction

The modern approach to time series analysis can be traced back to Yule (1927), who introduced the autoregressive models, and to Slutsky (1937), who proposed the moving average models. Wold (1938) started the application of these models to actual data and also described the mixed autoregressive moving average (ARMA) models. The application of the ARMA family of models was limited to a special type of time series data

called stationary series, which are not commonly encountered in practice. Furthermore, the computational aspect of estimating and diagnosing such models was enormously tedious using the facilities of the era. Hence, prior to the introduction of the computer, large-scale application of such models was simply not feasible. These difficulties put major stumbling blocks for data-producing agencies and researchers to use the ARMA modeling technology in the area of routine signal extraction and forecasting in their ever growing time series archives.

Following the publication of the work of Box and Jenkins (1970) on autoregressive integrated moving average (ARIMA) models of non-stationary time series, a new modification of Census X-11 method called X-11 ARIMA emerged. This variation of the X-11 method was developed by Statistics Canada (Dagum, 1975, 1978, 1980), beating the U.S. Bureau of Census in launching a true model-based technique in the spirit of Cleveland and Tiao (1976) and Burman (1980). The introduction of X-11 ARIMA offered an attractive alternative to the ad hoc filtering methods (which characterized the traditional approach) of signal extraction and forecasting, not only because of its intuitive appeal but also due to its sound statistical underpinnings.

Model-based approach to signal extraction provides a sound basis for statistical inference to be made on the non-observable components of the time series, allowing analysts to make appropriate diagnosis of the results. Properties of the estimates can be assessed and standard errors, as well as confidence intervals of the extracted signals, can be properly established to reflect the inaccuracies with which these components are estimated. The necessity for measuring the precision of these estimates has been emphasized by experts for a long time (Bach et al., 1976; Moore, Box, Kaltz, Stephenson, & Zellner, 1981).

The success of the X-11 ARIMA and that of the model-based technology provided a strong impetus to the U.S. Bureau of Census to come up with an AMB enhancement to the X-11 Census method. This resulted in the emergence of the X-12 ARIMA, which employed the basic X-11 ARIMA procedure but with certain alterations like 1) the implementation of the sliding span diagnostics for improved model-selection, 2) the ability to efficiently process many series at once, and 3) a revolutionary routine that handles data pretreatment (to cleanse the data) prior to signal extraction. This pretreatment routine has come to be known as the regression models with ARIMA noise (RegARIMA) procedure, which is designed to estimate calendar effects, extreme values, and different forms of outliers via built-in or user-defined regressors. Estimation is undertaken by the exact maximum likelihood technique (Findley, Monsell, Bell, Otto, & Chen, 1998).

Experimental versions of the X-12 ARIMA called X-13A-S and X-13A-T, which are fusions of the X-12 ARIMA and SEATS, and X-12-ARIMA and TRAMO, respectively, are currently being developed at the U.S. Bureau of Census in cooperation with the Bank of Spain and NBER (Findley, 2005).

The introduction of the model-based signal extraction system (particularly the AMB system) was received enthusiastically by the international research community and statistical data agencies, especially after Gomez and Bengoechea (2000), Findley et al. (1998), Depoutot and Planas (1998), Hillmer and Tiao (1982), and Kuiper (1978) confirmed the relative superiority of model-based approach over the traditional approach.

The widespread adoption of the AMB methodology encouraged model developers to come up with a wide range of alternative AMB systems to the standard X-12 ARIMA. These systems include the following: X-11 ARIMA/88 and X-11 ARIMA/2000 by Statistics Canada (Dagum, 1988), X-12 ARIMA UK Version (Thorp, 2003), TRAMO-SEATS by the Bank of Spain (Gomez & Maravall, 1996), STAMP (Koopman, Harvey, Doornik, & Shephard, 2000) by the Bank of England, DEMETRA by Eurostat (Eurostat, 2002), SEASABS by Statistics Australia (McLaren, McCaskill, & Zhang, 2006), DAINITIES by the European Commission (Fok, Franses, & Paap, 2005), SABL by Bell Laboratories (Cleveland, Dunn, & Terpenning, 1978), and BV4 by the Federal Statistical Office of Germany (Cieplik, 2006; Speth, 2006). Currently, the list of countries that use the X-12 ARIMA include the United States, United Kingdom, Canada, New Zealand, Japan, Israel, Argentina, and other industrialized countries.

Among the current crop of model-based systems, the twin models developed at the Bank of Spain named TRAMO-SEATS have been receiving good reviews (Fok et al., 2005; Pollock, 2002; Hood, 2002; Maravall & Gomez, 2001; Gomez & Bengoechea, 2000; Hood, Ashley, & Findley, 2000; Albert, 2002; Monsell, Aston, & Koopsman 2003; Scott, Tiller, & Chow 2007; McDonald-Johnson, Hood, Monsell, & Li, 2008) and have an excellent capability of implementing automatic simultaneous modeling of and signal extraction from hundreds or even thousands of time series. The goal is to implement a model-based procedure of seasonal adjustment and trend extraction that requires little intervention on the part of the user. TRAMO cleanses the data then identifies and estimates the appropriate seasonal ARIMA model for each time series as a prelude to signal extraction by SEATS via optimal filters like the Weiner-Kolmogorov and Kalman filters.

In many ways, TRAMO presents similarities with the pre-treatment RegARIMA program of X-12 ARIMA, particularly on the automatic modeling aspect. Current research undertakings involve the fusing of the X-12 ARIMA with TRAMO and/or SEATS to take advantage of the good features of the programs such as that of Monsell et al. (2003) and Hood

(2002). The TRAMO-SEATS procedure is currently being used extensively by Eurostat for routine seasonal adjustments of thousands of time series produced by the different European Union countries (Eurostat, 2009).

Seasonal Adjustment of Philippine Time Series

In the Philippines, the current official methodology adopted by the National Statistical Coordination Board (NSCB) is the X-11 ARIMA method (Bersales, 2010). The version of X-11 ARIMA employed by NSCB for production use is the X-11 ARIMA 2000 developed by Statistics Canada, mainly for routine seasonal adjustment tasks. The computation of seasonally adjusted time series in the Philippine statistical system commenced in 1992 under the technical assistance of Asian Development Bank, with Dr. Estela Bee Dagum of Statistics Canada as one of the consultants (National Statistical Coordination Board, 2005).

The first seasonally adjusted national accounts (SANA) were released in 1994, with the first quarter of 1988 as starting point. The SANA is now being published concurrently with the regular quarterly system of national accounts (SNA). The national accounts series being seasonally adjusted and published are gross national product (GNP); the agriculture, fishery and forestry (AFF) sector; the industry sector; the services sector; and the gross domestic product (GDP)—aggregation of major sectors and personal consumption expenditure (PCE) as per the Technical Working Group on Seasonal Adjustment of Philippine Time Series (2007).

In 2002, Albert (2002) explored the viability of applying X12 ARIMA and TRAMO-SEATS methods to some Philippine time series data. The study sought to consider, on the grounds of some empirical criteria, which procedure should be preferred for routine seasonal adjustment of Philippine time series. The conclusion was clear: “for the domain of Philippine time series studies, TRAMO-SEATS is recommended” (Albert, 2002).

The current study may also be considered as an attempt to provide additional empirical basis for the recommendation of the Albert (2002) study on the judiciousness of the use of TRAMO-SEATS for routine large-scale seasonal adjustment, forecasting, and signal extraction involving the hundreds of time series being produced and maintained by the Philippine Statistical System.

Modeling Framework

Under the ARIMA model-based approach, each of the quarterly national accounts time series will be depicted as being generated by a stochastic

process driven by a host of deterministic factors and a seasonal autoregressive integrated moving average (SARIMA)-type noise element. These factors, known as intervention variables, are mainly classified into three categories: 1) trading day (TD) effects caused by the different distribution of weekdays in different months and captured by the number of trading days of the month; 2) the Easter effect (EE), which captures the moving dates of Easter in different years; and 3) outliers, events that happen on certain months capable of shifting levels or directions of the time series. Outliers are further categorized into three different types: additive outliers (AO), transitory change (TC) outliers, and level shift (LS) outliers. AOs are events that cause one-time spikes in the series, and TC outliers create transitory changes, while LS outliers are shocks with permanent effects.

Symbolically, if Y_{it} is the observed value of the i th national account variable during quarter t and D_{sjit} is a dummy variable that indicates the position of the s th event of the category j th outlier (i.e., AO, TC, and LS) for the i th country during time t and TD_t is the number of trading days in month t and $D_{EEt} = 1$ if Easter occurs during time t ; 0 otherwise), the model can be specified as follows:

$$Y_{it} = \varphi_i + \psi_{TDt}TD_t + \psi_{EEt}D_{EEt} + \sum_{j=AO}^{LS} \sum_{s=1}^{n_j} \psi_{sjit}D_{sjit} + X_{it} \quad (1)$$

for the i th national account component during time t . The parameter ψ_{sjit} is the effect of the s th event of the j th outlier type on the series during time t and X_{it} is a stochastic noise element (random error) that follows an $ARIMA(p, d, q)(P, D, Q)_{12}$ process for each country over time. Algebraically, the noise X_{it} is represented in lag polynomial form as

$$\phi_p(L)\Phi_p(L)\delta(L)X_{it} = \theta_q(L)\Theta_D\varepsilon_{it} \quad (2)$$

where ε_{it} is a white noise innovation (i.e., independently and identically distributed [i.i.d.] with mean zero and constant variance) and $\phi_p(L)$, $\Phi_p(L)$, $\theta_q(L)$, and $\Theta_D(L)$ are finite lag polynomials in L (lag notation with the property $L^n y_t = y_{t-n}$). The first two contain, respectively, the p stationary regular AR roots and the P seasonal AR roots of X_{it} . The last two are, respectively, the q invertible regular MA roots and Q seasonal MA roots of X_{it} . Algebraically, these lag polynomials are specified as

$$\phi_p(L) = 1 - \phi_1 L - \phi_2 L^2 - \dots - \phi_p L^p \quad \rightarrow \text{regular autoregressive lag polynomial}$$

$$\Phi_p(L) = 1 - \Phi_1 L^s - \Phi_2 L^{2s} - \dots - \Phi_p L^{Ps} \quad \rightarrow \text{seasonal autoregressive lag polynomial}$$

$\theta_q(L) = 1 + \theta_1 L + \theta_2 L^2 + \dots + \theta_q L^q \rightarrow$ regular moving average lag polynomial

$\Phi_Q(L) = 1 + \Phi_1 L^s + \Phi_2 L^{2s} + \dots + \Phi_Q L^{Qs} \rightarrow$ seasonal moving average lag polynomial

The lag polynomial $\delta(L) = (1-L)^d (1-L^s)^D = \nabla^d \nabla_s^D$ contains the d regular and the D seasonal unit roots of the noise component X_{it} . In this study, $s = 4$ since the data used of quarterly frequency.

Summary of the Estimation and Inference Procedures

The standard method implemented by the different well-known signal extraction software calls for the pre-adjustment of the series prior to signal extraction (i.e., the RegARIMA component of Census X-12 and the TRAMO component of TRAMO-SEATS implement this initial step). This procedure is necessary to establish the estimated models (1) and (2) for each national accounts variable and its stochastic noise element, respectively. In this study, the twin programs TRAMO-SEATS will be used in implementing all computational aspects.

The pre-adjustment procedure (TRAMO) assumes initially that the noise follows the parsimonious default model known as the airline model ($ARIMA(0,1,1)(0,1,1)_s$), where s is the frequency of the series ($s = 12$ for monthly and $s = 4$ for quarterly). The airline model is well suited for a large number of real-world time series (Box & Jenkins, 1970) and has become the benchmark model in modern time series analysis.

The airline model is initially applied to the series and then pre-tested for the log-level specification using the Schwarz information criterion (SIC), sometimes referred to as the Bayesian information criterion (BIC) as basis of choice. Once the decision to use either the level or log transformed version of the series is reached, regressions are then run for the residuals of the default model to test for the trading day (TD) and Easter (EE) effects, after which an iterative procedure is implemented to identify the various outliers. This procedure iterates between the following two stages: 1) outlier detection and correction and 2) identification of an improved model. To maintain the model's parsimony, model identification is confined within the following integral ranges: $0 \leq p, q \leq 3$ and $0 \leq P, Q \leq 2$ for the regular/seasonal autoregressive/moving average orders and $0 \leq d \leq 2$ and $0 \leq D \leq 1$ for the number of regular and seasonal unit roots, respectively. Pre-testing for the presence of deterministic mean μ_i of X_{it} is also embedded in the

procedure, where, in case the mean is significant, the X_{it} in (1) and (2) is replaced by its demeaned value $x_{it} = X_{it} - \mu_i$.

Aside from testing the statistical adequacy of the parameters, the following diagnostic procedures will be implemented to handle the goodness-of-fit assessment of the alternative models for each series: 1) the Ljung-Box (Q) test for residual autocorrelation, 2) the Jarque-Bera (JB) test for normality of residuals, 3) the SK and Kur t -tests for skewness and kurtosis of the residuals, 4) the Pierce (QS) test of residual seasonality, 5) the McLeod and Li (Q2) test of residual linearity, and 6) the Runs t -test for residuals randomness. The exact maximum likelihood estimation (EML) procedure via Kalman filtering is used in parameter estimation and inference. The Hannan-Rissanen (H-R) method is used to get starting values for likelihood evaluation (Gomez & Maravall, 1996).

The general Box-Jenkins iterative methodology is followed in modeling the noise element of each quarterly national accounts series. For each series, the iteration will go on until the best noise model is established for use in coming up with a linearized series from which signals are to be extracted. This resulting series has been adjusted for the influence of the calendar factors and outliers as well as the impact of missing observations, if there are any. In the TRAMO-SEATS system, the signal extraction procedure is accomplished by the program SEATS.

SEATS was originally devised for seasonal adjustment of economic time series (i.e., removal of the seasonal signal) and the basic references are Cleveland and Tiao (1976); Box, Hillmer, & Tiao (1978); Burman (1980); Hillmer and Tiao (1982); and Bell and Hillmer (1984). Eventually, the program evolved into a full signal extraction system that decomposes a series that follows model (2) into several components. The decomposition can be multiplicative or additive, but since the former becomes the latter by taking logs, the additive model of decomposition provides a more universal way of presenting how the components are resolved. The components that SEATS considers are

- x_{pt} = the TREND component,
- x_{st} = the SEASONAL component,
- x_{ct} = the CYCLICAL component, and
- x_{ut} = the IRREGULAR component.

If the pre-adjusted log-linearized series is x_t , then $x_t = x_{pt} + x_{st} + x_{ct} + x_{ut}$. The SEATS program estimates these components via the Wiener-Kolmogorov filter (Gomez & Maravall, 1996). Both the

TRAMO and SEATS programs can handle routine applications for a large number of series and provide a complete model-based solution to the problems of forecasting, interpolation, and signal extraction for non-stationary time series. The flowchart of the process is exhibited in Figure 1.

Application of the Modeling Framework

The interest of the study centers on a large-scale application of TRAMO-SEATS to the various quarterly national accounts components of the Philippine Statistical System spanning the period from the first quarter of 1981 to the fourth quarter of 2010 (some of the series started only in the first quarter of 1991). A total of 194 quarterly time series data are the subject matter variables in the study. The complete list is presented together with their respective descriptive statistics in Appendix A. Because of the sheer size of the database, the automatic modeling capability of the program is heavily exploited in this study.

The first part of the program (TRAMO) estimates the possible outliers and calendar effects, which are treated as deterministic factors and, hence, decomposes the observed series Y_{it} into a deterministic portion and a stochastic component. The first four terms of the right-hand side (RHS) of model (1) add up to the deterministic element of the series and are referred to as the “pre-adjustment” component, and once it is removed from Y_{it} , an estimate of the stochastic part X_{it} is obtained. This stochastic component (called the noise) is assumed to be the output of a stochastic process specified by model (2) and is also referred to as the “linearized series” (Gomez & Maravall, 1996).

In the second part of the program (which is the SEATS), the ARIMA model-based (AMB) methodology is used to estimate the unobserved stochastic components (i.e., x_{pt} , x_{st} , x_{ct} , and x_{ut}) in the “linearized” series of X_{it} generated by TRAMO. Among these components, the seasonal (x_{st}) and the secular trend (x_{pt}) constitute the two most important signals to economists and policy makers, although, in recent times, substantial interests are generated by the cyclical component x_{ct} . If the program determines that the identified model in the TRAMO portion is deemed unacceptable by the signal extraction criteria of SEATS, an appropriate modification of the model will be implemented.

Results and Analysis

After establishing the input parameters needed by the TRAMO-SEATS system, the two programs are set in production (i.e., automatic modeling) mode and run using Intel i3 4GB RAM notebook computer. The TSW (TRAMO-SEATS for Windows) Version Beta 1.0.4 Rev 177 (June 2010) implemented the system. Total execution time is about 30 seconds. A sequence of matrices, graphs, and output series generated from which the results are derived. This Windows interface of the expert system can be implemented using minimal analyst intervention as it is suitable to handle up to 10,000 sub-annual (quarterly and monthly) time series variables. The number of observations the software can handle is limited by the memory of the PC hardware used. As with any ARIMA modeling exercise, application of the procedure requires at least 50 data points for each univariate series in order to turn out robust results. The system also has an optimal procedure to handle/interpolate missing observations, which is not used in the current study due to lack of missing observations.

TRAMO Analysis

When automatic model identification (AMI) mode is activated, all of the 194 quarterly series are simultaneously modeled using the procedure described earlier. Under this mode of operation, the most important output is the eight-worksheet matrix called “Out Matrix” for TRAMO analysis and the companion three-worksheet matrix for SEATS analysis. For the TRAMO portion of the results, the primary worksheet is presented in Appendix B detailing the modeling results for all of the 194 national accounts series. It exhibits the empirical noise model identified automatically by TRAMO for each series and the results of the various diagnostic tests performed to assess the statistical and econometric adequacy of the models. Out of the information presented in the worksheet, a series of summary tables (Tables 1 to 4) were created to highlight the overall results of the modeling process.

It can be seen in Table 1 that close to 87% of the series requires logarithmic transformation prior to modeling, with the rest being modeled in their level values. About 94% are deemed non-stationary, necessitating the extraction of regular/seasonal unit root(s). Only 6% are inherently stationary (integrated of order zero). About 1 in 20 (5%) series has no multiplicative seasonal structure (purely regular). For 66 of the series (34%), the default airline model ($ARIMA(0, 1, 1)(0, 1, 1)_4$) proved to be the most appropriate noise process.

Among the nonstationary series, 87 (45%) require the $\nabla\nabla_4$ transformation (regular and seasonal differencing) for conversion into stationary series, with only 15 series (8%) needing the ∇ transformation (regular differencing), while 80 series (41%) are required to undertake the ∇_4 transformation (seasonal differencing). No series turned out to contain more than one unit roots (regular or seasonal). Table 2 details the cross tabulation of the regular (d) and seasonal (D) unit roots.

The features of ARMA parameters of the stationarized series are presented in Table 3. The average number of the ARMA parameters (regular and seasonal) is 1.64 implying the highly parsimonious nature of the models identified by TRAMO to characterize the noise process of the national accounts series. Most of the parameters are of the autoregressive variety (AR(1), AR(2), or AR(3)) with 49.48%, followed by the first-order seasonal moving average (SMA(1)) with a share of 43.30%. The least frequent ARMA parameter is the first-order seasonal autoregressive (SAR(1)), which accounts for only 11.34% of the series.

The results of various diagnostic tests are presented in Table 4. The statistic Q refers to the Ljung-Box test for residual autocorrelation, which in our case follows a χ^2 distribution with approximately 22 degrees of freedom. JB is the Jarque-Bera test for normality of the residuals having χ^2 distribution with 2 degrees of freedom. SK and Kur are t -test for skewness and kurtosis, respectively, in the residual series. QS is the modified Pierce test for seasonality of the residuals, which is χ^2 with 2 degrees of freedom. Q2 represents the McLeod-Li test of residual linearity (χ^2 with 24 degrees of freedom). Finally, Runs is a t -test for randomness in the algebraic signs of the residuals. Very few of the series failed some of the diagnostics at the 5% level; however, all passed the most relevant Ljung-Box test of residual autocorrelation signifying the success of the differencing transformation in converting the series into stationary stochastic processes.

SEATS Analysis

After TRAMO generates the pre-adjusted linearized series, SEATS starts the actual signal extraction process. The program produces an output matrix that shows the results of the various procedures employed. The matrix labeled "General shows, for each series, the following information: 1) whether or not the model identified by TRAMO is modified by SEATS, 2) the final model used in the ultimate signal extraction, 3) the standard error of the residuals of the final model, 4) the result of the spectral factorization (i.e., if decomposition of the model has been successful), 5) if the empirical ACF/CCF is in agreement with the theoretical ACF/CCF, and 6) if the signals

(trend-cycle, seasonal, irregular, and transitory component) estimated by SEATS are modified by some of the deterministic effects captured by TRAMO. The “General” matrix is shown in Appendix C from which the information presented in Table 5 are derived.

Out of the 194 models pre-adjusted by TRAMO, only 28 (14.43%) are modified by SEATS before the actual signal extraction is undertaken for each series. One reason for the modification is the inadmissibility of the pre-adjusted model for spectral decomposition procedure, and this happened to 18 (9.28%) of the models. The other models modified resulted in the fine-tuning steps undertaken by SEATS. The quality of the final models used can be gleaned from the proportion of these models in agreement with the theoretical autocorrelation (ACF) and cross-correlation (CCF) patterns. All models (100%) passed the cross-correlation criterion, while 97.94% concurred with the autocorrelation patterns predicted by theory.

Conclusions

Among the most important economic data produced by the Philippine Statistical System are the quarterly time series of the components of the country’s national accounts. These sub-annual macroeconomic statistics represent an essential input for economic policy-making, business cycle analysis, and forecasting. However, these statistics are often swayed by a variety of short-term movements, which distort one’s perception of the true evolution of the variables and, thus, impede a clear understanding of the economic phenomena.

The key aspect of handling these mostly unobserved influences is to treat them as important signals that have to be isolated in aid of analysis. Central among these influences is the seasonality (or seasonal fluctuations) of the time series. Statistical agencies worldwide routinely subject most of the sub-annual statistics that they produce to seasonal adjustments due to the heavy demand for these treated data from central banks, research institutions, and think-tank organizations.

The state of the art in signal extraction gradually evolved from the use of a mechanical form of moving average filters to the present sophisticated model-based techniques that are capable of performing automatic modeling and signal extraction involving hundreds or even thousands of time series in one production run. The leading edge of technology is being shared by two ARIMA model-based systems: ARIMA X-12 of the U.S. Bureau of Census and the twin programs TRAMO-SEATS developed at by the Bank of Spain. These specialized expert systems have been adopted by most of the statistical

agencies of advanced OECD countries and the European community. The Philippines, on the other hand, is still using the ARIMA X-11 system modified by the Bank of Canada in its routine seasonal adjustment and time series decomposition tasks.

This study is an attempt to implement the ARIMA model-based (AMB) approach of extracting unobserved signals from 194 quarterly national accounts statistics of the Philippines using the TRAMO-SEATS system in a fully automatic modeling mode. The highly successful result of the application adequately demonstrates the feasibility of adopting a system being used routinely by countries in more advanced economies.

A follow-up study involving the use of monthly time series data of the Philippine Statistical System is proposed to be done to clarify the robustness of the system with the other type of sub-annual series, thus accentuating its general suitability to routine signal extraction in the Philippine context.

Note

- ¹ The author would like to thank Angelo King Institute (AKI) for funding this study and Ms. Paula Arnedo for research assistance rendered.

References

- Albert, J. R. (2002). *A comparative study of seasonal adjustment methods for Philippine time series data*. Quezon City: Statistical Research and Training Center Publication.
- Anderson, D. (1914). The elimination of spurious correlation due to position in time or space. *Biometrika*, 10(2), 253–261.
- Bach, G., Cagan, P., Friedman, M., Hildreth, C., Modigliani, F., & Okun, A. (1976). *Improving the monetary aggregates: Report of the advisory committee on monetary statistics*. Washington, DC: Board of Governors of the Federal Reserve System.
- Bell, W., & Hillmer, S. C. (1984). Issues involved with the Seasonal Adjustment of Economic Time Series. *Journal of Business and Economic Statistics*, 2(1984), 291–320.
- Bell, W., & Hillmer, S. C. (1992). Issues involved with the seasonal adjustment of economic time series. In S. Hylleberg (Ed.), *Modeling Seasonality*. Oxford University Press.
- Bersales, L. G. (2010). *Enhancing seasonal adjustment of Philippine time series: Procedures under seasonal volatilities* (BSP-UP Professorial Chair Lectures). Manila: Bangko Sentral ng Pilipinas.

- Box, G. E. P., & Jenkins, G. M. (1970). *Time series analysis: Forecasting and control*. San Francisco, CA: Holden Day.
- Box, G. E. P., Hillmer, S., & Tiao, G. (1978). Analysis and modeling of seasonal time series. In A. Zellner (Ed.), *Seasonal analysis of economic time series* (pp. 309–333). Washington, DC: U.S. Department of Commerce, Bureau of the Census.
- Burman, J. P. (1980). Seasonal adjustment by signal extraction. *Journal of Royal Statistical Society*, 143(Series A), 321–337.
- Caporello, G., & Maravall, A. (2004). *Program TSW: Revised reference manual* (Working Paper 0408). Madrid, Spain: Servicios de Estudios, Banco de España.
- Caporello, G., & Maravall, A. (2010). *TSW beta* (Ver. 1.0.4. Rev 17) (Software). Spain: Bank of Spain.
- Cieplik, U. (2006). *BV4.1—Methodology and user-friendly software for decomposing economic time series*. Berlin, FRG: Federal Statistical Office.
- Cleveland, W. P., & Tiao, G. C. (1976). Decomposition of seasonal time series: A model for the X-11 program. *Journal of the American Statistical Association*, 71, 581–587.
- Cleveland, W. P., Dunn, D. M., & Terpenning, I. J. (1978). *SABL: A resistant seasonal adjustment procedure with graphical methods for interpretation and diagnosis*. London, England: Bell Laboratories.
- Dagum, E. (1975). Seasonal factor forecasts from ARIMA models. In *Proceedings of the International Statistical Institute, 40th Session, Contributed Papers, Vol. 3* (pp. 206–219). Warsaw.
- Dagum, E. (1978). Modelling, forecasting and seasonally adjusting economic time series with the X-11 ARIMA method. *The Statistician*, 27, 203–216.
- Dagum, E. (1980). *The X-11 ARIMA seasonal adjustment method*. Place of publication: Statistics Canada Catalogue.
- Dagum, E. (1988). *The X-11 ARIMA/88 seasonal adjustment method user's manual* (Research Paper Series 23). Ontario: Statistics Canada.
- Depoutot, R., & Planas, C. (1998). *Comparing seasonal adjustment and trend extraction filters with application to model-based selection of X-11 linear filters* (Tech. Paper TP361). Ispra, Italy: Joint Research Center.
- Eurostat. (2002). *Demetra 2.0 user manual*. Brussels: Statistical Office of the European Communities.
- Eurostat. (2009). *ESS guidelines on seasonal adjustment*. Luxembourg: Eurostat.
- Findley, D. F. (2005). Some Recent Developments and Directions in Seasonal Adjustment. *Journal of Official Statistics*, 21(2), 343–365.
- Findley, D. F., Monsell, B., Bell, W. R., Otto, M. C., & Chen, B. C. (1998). New capabilities of the X-12 ARIMA seasonal-adjustment program. *Journal of Business and Economic Statistics*, 16(2), 127–177.
- Flux, A. W. (1921). The measurement of price change. *Journal of Royal Statistical Society*, 84, 167–199.

- Fok, D., Franses, P. H., & Paap, R. (2005). *Performance of seasonal adjustment procedures: Simulation and empirical results* (Econometric Institute Report EI 2005-30). Erasmus University Rotterdam.
- Gomez, V., & Bengoechea, P. (2000). The quarterly national accounts trend-cycle filter versus model-based filters. *Spanish Economic Review*, 2, 29–48.
- Gomez, V., & Maravall, A. (1996). *Programs TRAMO and SEATS, instructions for the user* (Working Paper 9628). Madrid, Spain: Servicios de Estudios, Banco de España.
- Henderson, D. (1916). Note on graduation by adjusted average. *Transactions of Actuarial Society of America*, 17, 43–48.
- Hillmer, S., & Tiao, G. (1982). An ARIMA model-based approach to seasonal adjustment. *Journal of American Statistical Association*, 77, 63–70.
- Hodrick, R., & Prescott, E. (1997). Postwar business cycles. *Journal of Money, Credit and Banking*, 29, 1–16.
- Hood, C. (2002). *Comparison of time series characteristics for seasonal adjustments from SEATS and X-12 ARIMA*. American Statistical Association Meeting Proceedings.
- Hood, C., Ashley, J., & Findley, D. (2000). *An empirical evaluation of the performance of TRAMO/SEATS on simulated series*. American Statistical Association Meeting Proceedings.
- Koopman, S., Harvey, A., Doornik, J., & Shephard, N. (2000). *STAMP—Structural time series analyzer, modeller and predictor*. London: Timberlake Consultants Press.
- Kuiper, J. (1978). A survey and comparative analysis of various methods of seasonal adjustment. In A. Zellner (Ed.), *Seasonal analysis of time series* (pp. 59–94). Washington, DC.
- Macaulay, F. R. (1931). *The smoothing of time series*. New York: National Bureau of Economic Research.
- Maravall, A. & Gomez, V. (2001). Seasonal adjustment and signal extraction in economic time series. D. Peña, G. C. Tiao, & R. S. Tsay (eds.), *A course in time series analysis*. John Wiley and Sons.
- McDonald-Johnson, K., Hood, C., Monsell, B., & Li, C. (2008). *Comparing automatic modeling procedures of TRAMO and X-12 ARIMA*. Joint Statistical Meeting, U.S. Bureau of Census.
- McLaren, C. H., McCaskill, D., & Zhang, X. M. (2006). *SEASABS: Australian Bureau of Statistics seasonal adjustment package*. Sydney, Australia.
- Monsell, B., Aston, J., & Koopsman, S. J. (2003). *Toward X-13?* American Statistical Association Meeting Proceedings.
- Moore, G., Box, G., Kaltz, H., Stephenson, J., & Zellner, A. (1981). *Seasonal adjustment of the monetary aggregates: Report of the committee of experts on seasonal adjustment techniques*. Washington, DC: Board of Governors of the Federal Reserve System.

- National Statistical Coordination Board. (2005). *Seasonally adjusted national accounts series of the Philippines* (Press Release 200503-ES3-01). Makati.
- Persons, W. M. (1919). Indices of business conditions. *Review of Economics and Statistics*, 1, 5–107.
- Pollock, D. S. G. (2002). A review of TSW: The Windows version of the TRAMO-SEATS program. *Journal of Applied Econometrics*, 17, 291–299.
- Scott, S., Tiller, R., & Chow, D. (2007). *Empirical evaluation of X-11 and model-based seasonal adjustment methods*. Joint Statistical Meetings, American Statistical Association.
- Shiskin, J., & Eisenpress, H. (1958). *Seasonal adjustments by electronic computer methods* (Technical Paper No. 12). Washington, DC: National Bureau of Economic Research, Inc.
- Shiskin, J., Young, A., & Musgrave, J. (1967). *The X-11 variant of the census method II seasonal adjustment program* (Technical Paper No. 15). Washington, DC: U.S. Bureau of Census.
- Slutsky, E. (1937). The summation of random causes as the choice of cyclical processes. *Econometrica*, 5(3), 105–146.
- Speth, H. T. (2006). *The BV4.1 procedure for decomposing and seasonally adjusting economic time series*. Wiesbaden: Statistisches Bundesamt.
- Technical Working Group on Seasonal Adjustment of Philippine Time Series. (2007). *Current methodologies and results of seasonally adjusting selected Philippine time series*. Paper presented at the 10th National Convention on Statistics on 1–2 October 2007 at Mandaluyong City.
- Thorp, J. (2003). *Change of seasonal adjustment method to X-12 ARIMA* (Monetary and Financial Statistics). London: Bank of England.
- Wold, H. (1938). *A study on the analysis of stationary time series*. Uppsalla: Almqvist and Wicksells.
- Yule, G. (1927). On the method of investigating periodicities in disturbed series with special reference to Wolfers sunspot numbers. *Philosophical Transactions of the Royal Society, Series A*, 226, 267–298.

Tables and Figures

Table 1. General Features of the Final Noise Models for the Series Identified by TRAMO

Model features	Number of Series	Percent (%)
Levels	26	13.40
Logs	168	86.60
Regular differenced	102	52.58
Seasonal differenced	167	86.08
Stationary	12	6.19
Nonstationary	182	93.81
Purely regular	9	4.64
Airline model (default)	66	34.02

Table 2. Breakdown of Series with Regular (d) and Seasonal (D) Unit Roots

Number of Series ith	d = 0	d = 1	d = 2	Total
D = 0	12 (6.19%)	15 (7.73%)	0 (0.00%)	27 (13.92%)
D = 1	80 (41.24%)	87 (44.85%)	0 (0.00%)	167 (86.08%)
Total	92 (47.42%)	102 (52.58%)	0 (0.00%)	194 (100%)

Table 3. ARMA Parameters of the Noise Models

Percent of Series With AR or MA Order	AR(p)	MA(q)	SAR(P)	SMA(Q)
0	50.52%	58.25%	88.66%	56.70%
1	39.18%	38.14%	11.34%	43.30%
2	6.19%	3.09%	0.00%	0.00%
3	4.12%	0.52%	0.00%	0.00%
Total > 0	49.48%	41.75%	11.34%	43.30%
Average of parameters	0.64	0.46	0.11	0.43

Table 4. Summary of the Diagnostic Tests for the Final Noise Models

Diagnostic Test	Mean Score	Standard Deviation (SD)	Maximum	Minimum	Approximately 1% CV	Beyond 1% CV	% of Series That Pass Test
Ljung-Box (LB test of residual autocorrelations)	13.30	5.25	28.61	3.74	30.58	0.00	100.00
Jarque-Bera (JB) test of normality of residuals	5.43	12.65	116.42	0.00	9.21	14.95	85.05
Skewness of residuals t- test	0.06	1.28	4.35	-2.65	2.58	4.12	95.88
Kurtosis of residuals t-test	0.79	1.78	10.49	-1.52	2.58	12.37	87.63
Pierce QS test for residual seasonality	—	—	6.87	0.00	9.21	0.00	100.00
McLeod and Li Q2 linearity test	15.40	9.45	61.42	2.85	32.00	4.64	95.36
Runs test for residual randomness	-0.17	0.91	2.26	-3.30	2.58	0.52	99.48

Table 5. Summary of Regression Outliers and Calendar Variations

Attributes	Outliers					Calendar Variations		
	Missing Observations (MO)	Additive Outliers (AO)	Transitory Changers (TC)	Level Shifters (LS)	Total	Trading Day (TD)	Easter Effect (EE)	Total
Percent of series with	0.00	46.91	42.27	53.61	77.84	10.82	4.12	14.43
Average per series	0	0.77	0.61	0.91	2.29			
Maximum number per series	0	5	5	6	14			
Minimum number per series	0	0	0	0	0			

Table 6. Summary Results of Models Used by SEATS

Features of the Models Used by SEATS	Number of Series	Percent of Total Series
Models pre-adjusted by TRAMO	194	100.00
Pre-adjusted models modified by SEATS	28	14.43
Models modified by SEATS due to inadmissible spectral decomposition	18	9.28
Models with successful spectral factorization	194	100.00

Table 6 continued...

Models in agreement with theoretical autocorrelation function (ACF)	190	97.94
Models in agreement with theoretical cross-correlation function (CCF)	194	100.00
Models with components modified by deterministic effects (outliers) estimated by TRAMO	166	85.56

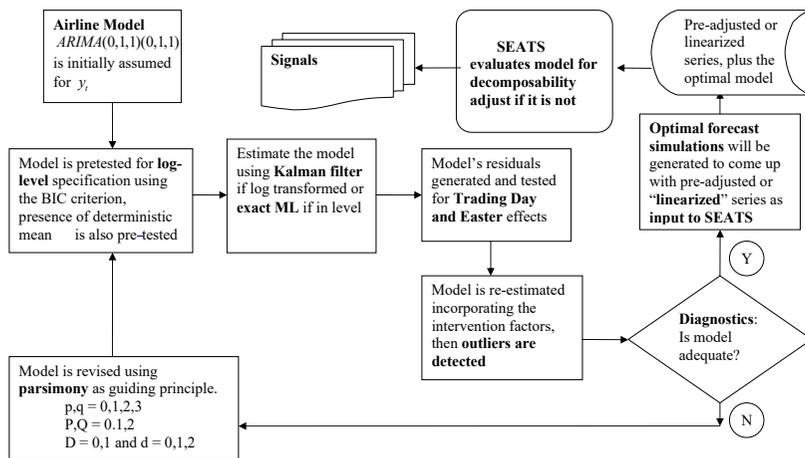


Figure 1. The TRAMO-SEATS procedure.

Appendices

Appendix A. Listing of the Quarterly National Accounts Variables Used in the Study and their Descriptive Statistics

Variable	Description	Obsv	Mean	Std Dev	Min	Max
gnppceco	Gross National Product by (1) Personal Consumption Expenditure (constant)	120	176,568.60	61,243.41	94,727	350,112
gnppcecu	Gross National Product by (1) Personal Consumption Expenditure (current)	120	510,742.30	437,122.10	39,297	1,772,127
gnpgceco	Gross National Product by (2) government consumption (constant)	120	16,907.63	4,444.33	10,006	30,463
gnpgcecu	Gross national product by (2) government consumption (current)	120	76,152.97	63,359.46	5,780	250,835
gnpcfco	Gross national product by (3) capital formation (constant)	120	47,440.83	13,428.49	17,616	75,986
gnpcfcu	Gross national product by (3) capital formation (current)	120	126,352.30	90,375.07	17,723	353,019
gnpcfcco	Gross national product by (A) fixed capital (constant)	120	47,105.77	12,610.16	20,683	82,675
gnpcfccu	Gross national product by (A) fixed capital (current)	120	124,692.30	88,886.61	18,351	402,892
gnpcfcco~o	Gross national product by fixed capital—construction (constant)	120	22,187.21	6,572.77	8,387	48,639
gnpcfcco~u	Gross national product by fixed capital—construction (current)	120	62,852.53	49,713.16	8,992	268,978
gnpcfcdco	Gross national product by fixed capital—durable equipment (constant)	120	21,576.87	6,667.97	8,057	35,466
gnpcfcdcu	Gross national product by fixed capital—durable equipment (current)	120	52,066.36	34,027.97	6,352	123,967
gnpcfcbso~o	Gross national product by fixed capital—breeding stock and orchard development (constant)	120	3,341.68	936.60	1,686	5,454
gnpcfcbso~u	Gross national product by fixed capital—breeding stock and orchard development (current)	120	9,773.27	7,998.76	1,164	38,034
gnpcfsciso	Gross national product by (B) changes in stocks (constant)	120	335.05	3,414.75	-10,630	8,536
gnpcfscisu	Gross national product by (B) changes in stocks (current)	120	2,129.67	11,645.72	-49,873	45,178
gnpexco	Gross national product by (4) exports (constant)	120	93,964.48	47,171.23	32,562	220,118
gnpexcu	Gross national product by (4) exports (current)	120	332,338.30	329,624.20	15,424	1,352,281

Appendix A continued...

gnpextmeco	Gross national product by (A) total merchandise exports (constant)	63	105,896.70	30,284.46	56,686	183,196
gnpextmecu	Gross national product by (A) total merchandise exports (current)	60	456,397.00	162,296.00	121,873	748,024
gnpexnfsc0	Gross national product by (B) non-factor services (constant)	63	25,555.98	9,397.29	12,917	53,788
gnpexnfscu	Gross national product by (B) non-factor services (current)	60	140,105.00	150,368.60	38,774	604,257
gnpmco	Gross national product by (5) imports (constant)	120	105,011.20	48,896.12	28,529	217,042
gnpmcu	Gross national product by (5) imports (current)	120	313,643.80	264,410.50	17,349	811,634
gnpmtmico	Gross national product by (A) total merchandise imports (constant)	63	134,031.40	23,832.97	84,709	199,992
gnpmtmicu	Gross national product by (A) total merchandise imports (current)	60	494,667.50	162,980.80	205,044	756,705
gnpmnfsc0	Gross national product by (B) non-factor services (constant)	63	12,166.76	4,624.60	6,551	26,618
gnpmnfscu	Gross national product by (B) non-factor services (current)	60	54,886.17	18,448.43	23,164	109,605
gnpsdco	Gross national product by (6) statistical discrepancy non-factor (constant)	120	525.07	13,795.46	-46,769	42,086
gnpsdcu	Gross national product by (6) statistical discrepancy (current)	120	17,576.67	54,222.99	-101,265	182,198
gnpmittgci-o	Gross national product by memorandum items: trading gain/loss from changes in trade (constant)	120	4,810.34	13,468.95	-40,920	54,059
gnpmignico	Gross national product by memorandum items: gross national income (constant)	117	242,385.80	86,702.87	124,260	510,605
gdpepxco	Gross domestic product by expenditure shares (constant)	120	230,395.40	72,028.90	130,098	425,927
gdpepxcu	Gross domestic product by expenditure shares (current)	120	716,109.70	613,290.70	66,656	2,431,902
nfiapxco	Net factor income from abroad by expenditure shares (constant)	120	13,045.03	17,726.78	-7,437	62,986
nfiapxcu	Net factor income from abroad by expenditure shares (current)	120	55,516.34	84,187.65	-6,492	328,192
gnpexpc0	Gross national product by expenditure shares (constant)	120	243,440.40	89,210.48	123,705	488,913
gnpexpcu	Gross national product by expenditure shares (current)	120	771,626.10	693,563.30	66,087	2,760,094
gnpaffco	Gross national product by (1) agriculture, fishery, and forestry (constant)	120	46,651.18	11,445.01	26,718	79,658

Appendix A continued...

gnpaffcu	Gross national product by (1) agriculture, fishery, and forestry (current)	120	116,714.40	84,503.68	14,022	390,919
gnpisco	Gross national product by (2) industry sector (constant)	120	78,410.72	21,453.66	48,248	140,049
gnpiscu	Gross national product by (2) industry sector (current)	120	228,549.90	189,770.40	26,037	766,323
gnpssco	Gross national product by (3) service sector (constant)	120	101,510.70	40,637.11	54,623	206,093
gnpsscu	Gross national product by (3) service sector (current)	120	370,845.30	341,289.20	24,077	1,274,660
gnpindgdpco	Gross national product—by industry—gross domestic product (constant)	120	226,577.50	71,913.49	130,098	425,927
gnpindgdp <u>c</u>	Gross national product—by industry—gross domestic product (current)	120	716,109.70	613,290.70	66,656	2,431,902
gnpindfiaco	Gross national product—by industry—net factor income from abroad (constant)	120	12,332.18	17,699.97	-7,437	62,986
gnpindfiac <u>c</u>	Gross national product—by industry—net factor income from abroad (current)	120	55,516.34	84,187.65	-6,492	328,192
gnpindco	Gross national product by industry (constant)	120	238,909.60	89,064.06	123,705	488,913
gnpindc <u>c</u>	Gross national product by industry (current)	120	771,626.10	693,563.30	66,087	2,760,094
gdcfdempico	Gross domestic capital formation in durable equipment by (A) machinery for particular industries (constant)	56	9,563.27	2,450.46	6,111	14,810
gdcfdempic <u>c</u>	Gross domestic capital formation in durable equipment by (A) machinery for particular industries (current)	56	32,667.46	7,370.31	21,294	46,601
gdcfdegimeco	Gross domestic capital formation in durable equipment by (B) general industrial machinery and equipment (constant)	56	7,092.27	1,473.79	4,444	10,618
gdcfdegimec <u>c</u>	Gross domestic capital formation in durable equipment by (B) general industrial machinery and equipment (current)	56	19,219.04	4,226.66	12,369	28,641
gdcfdeteco	Gross domestic capital formation in durable equipment by (C) transport equipment (constant)	56	4,506.27	2,373.65	1,759	11,867

Appendix A continued...

gdcfdetecu	Gross domestic capital formation in durable equipment by (C) transport equipment (current)	56	18,782.29	11,576.47	5,956	52,274
gdcfdemeco	Gross domestic capital formation in durable equipment by (D) miscellaneous equipment (constant)	56	5,304.63	1,175.26	3,071	7,688
gdcfdemecu	Gross domestic capital formation in durable equipment by (D) miscellaneous equipment (current)	56	13,018.14	2,297.95	8,615	18,518
pceco	Personal consumption expenditure (constant)	56	226,744.90	46,235.41	156,862	350,112
pcecu	Personal consumption expenditure (current)	56	886,656.80	360,048.30	396,431	1,772,127
pcecfco	Personal consumption expenditure by (A) clothing and footwear (constant)	56	7,414.00	1,128.82	5,384	10,344
pcecfcu	Personal consumption expenditure by (A) clothing and footwear (current)	56	20,356.41	5,335.74	11,153	33,022
pcebevco	Personal consumption expenditure by (B) beverages (constant)	56	4,704.66	699.72	3,224	6,341
pcebevcu	Personal consumption expenditure by (B) beverages (current)	56	15,230.50	4,515.25	7,955	25,845
pcefcoc	Personal consumption expenditure by (C) food (constant)	56	122,018.30	26,156.84	85,621	197,583
pcefcucu	Personal consumption expenditure by (C) food (current)	56	414,332.30	171,071.50	202,091	882,053
pceflwco	Personal consumption expenditure by (D) fuel, light, and water (constant)	56	9,278.36	1,314.96	6,685	11,997
pceflwcu	Personal consumption expenditure by (D) fuel, light, and water (current)	56	41,105.21	16,928.76	15,710	79,825
pcehhfco	Personal consumption expenditure by (E) household furnishings (constant)	56	6,366.05	1,451.73	4,557	10,516
pcehhfcu	Personal consumption expenditure by (E) household furnishings (current)	56	14,188.07	4,158.81	8,489	25,786
pcehhoco	Personal consumption expenditure by (F) household operations (constant)	56	20,089.89	2,150.11	16,517	24,164

Appendix A continued...

pcehhocu	Personal consumption expenditure by (F) household operations (current)	56	92,035.16	24,566.94	51,475	139,666
pcehboco	Personal consumption expenditure by (G) tobacco (constant)	56	4,821.18	584.43	3,857	6,873
pcehbocu	Personal consumption expenditure by (G) tobacco (current)	56	14,943.25	4,014.01	8,461	27,259
pcehbcco	Personal consumption expenditure by (H) transportation and communication (constant)	56	17,738.89	6,979.40	8,301	29,000
pcehbccu	Personal consumption expenditure by (H) transportation and communication (current)	56	78,929.57	52,257.81	16,766	170,711
pcehmcco	Personal consumption expenditure by (I) miscellaneous (constant)	56	34,313.43	7,630.84	22,716	56,437
pcehmccu	Personal consumption expenditure by (I) miscellaneous (current)	56	195,536.30	83,813.75	71,733	416,919
gvaaffco	Gross value added in agriculture, fishery, and forestry (constant)	56	55,049.07	10,311.44	37,680	79,786
gvaaffcu	Gross value added in agriculture, fishery, and forestry (current)	56	186,824.90	70,748.87	100,422	390,919
gvaindaico	Gross value added in agriculture, fishery, and forestry by industry (1) agriculture industry (constant)	56	54,735.66	10,356.02	37,509	79,658
gvaindaicu	Gross value added in agriculture, fishery, and forestry by industry (1) agriculture industry (current)	56	185,929.20	70,739.79	99,780	390,511
gvaindaiaig~o	Gross value added in agriculture, fishery, and forestry by industry (a) agriculture (constant)	56	42,766.07	8,049.38	29,539	61,256
gvaindaiaig~u	Gross value added in agriculture, fishery, and forestry by industry (a) agriculture (current)	56	157,835.80	62,258.31	82,963	345,437
gvaindaiaifi~o	Gross value added in agriculture, fishery, and forestry by industry (b) fishery (constant)	56	11,969.66	2,952.13	7,129	18,403

Appendix A continued...

gvaindaifi~u	Gross value added in agriculture, fishery, and forestry by industry (b) fishery (current)	56	28,093.36	9,699.89	15,182	46,759
gvaindfico	Gross value added in agriculture, fishery, and forestry by industry (2) forestry (constant)	56	313.43	133.98	54	640
gvaindficu	Gross value added in agriculture, fishery, and forestry by industry (2) forestry (current)	56	895.71	427.07	139	2,111
gvconscoco	Gross value in construction (constant)	56	26,583.89	5,042.44	19,054	48,639
gvconscocu	Gross value in construction (current)	56	104,697.70	42,115.78	64,879	268,978
gvconsgv~bco	Gross value of construction and gross value added in construction by type of construction (1) public (constant)	56	11,634.32	4,351.88	5,395	29,244
gvconsgv~bcu	Gross value of construction and gross value added in construction by type of construction (1) public (current)	56	44,742.43	24,596.16	22,571	164,462
gvconsgv~vco	Gross value of construction and gross value added in construction by type of construction (2) private (constant)	56	14,949.57	2,530.76	11,009	23,430
gvconsgv~vcu	Gross value of construction and gross value added in construction by type of construction (2) private (current)	56	59,955.23	23,010.06	31,975	125,086
gvaconscoco	Gross value added in construction (constant)	56	14,127.48	3,289.36	9,524	28,316
gvaconscocu	Gross value added in construction (current)	56	60,838.39	24,725.21	37,361	159,566
gvamfgco	Gross value added in manufacturing (constant)	56	68,867.84	12,078.21	50,408	103,400
gvamfgcu	Gross value added in manufacturing (current)	56	276,331.90	108,491.40	118,701	565,686
gvamfgmco	Gross value added in manufacturing by food manufactures (constant)	56	27,349.95	7,534.46	17,270	48,071
gvamfgmco	Gross value added in manufacturing by food manufactures (current)	56	132,145.30	64,184.92	50,204	314,267

Appendix A continued...

gvamfgbico	Gross value added in manufacturing by beverage industries (constant)	56	2,501.52	691.13	1,345	4,018
gvamfgbicu	Gross value added in manufacturing by beverage industries (current)	56	10,288.34	4,101.12	3,927	20,475
gvamfgtomco	Gross value added in manufacturing by tobacco manufactures (constant)	56	987.71	501.80	219	2,058
gvamfgtomcu	Gross value added in manufacturing by tobacco manufactures (current)	56	2,832.73	1,259.64	759	6,145
gvamfgtemco	Gross value added in manufacturing by textile manufactures (constant)	56	1,179.38	262.62	788	1,753
gvamfgtemcu	Gross value added in manufacturing by textile manufactures (current)	56	3,866.70	1,079.51	2,052	6,232
gvamfgwaco	Gross value added in manufacturing by footwear wearing apparel (constant)	56	3,008.20	1,010.83	1,574	5,330
gvamfgwacu	Gross value added in manufacturing by footwear wearing apparel (current)	56	12,494.66	4,523.24	4,188	20,899
gvamfgwcpco	Gross value added in manufacturing by wood and cork products (constant)	56	511.95	174.66	208	874
gvamfgwpcu	Gross value added in manufacturing by wood and cork products (current)	56	1,481.54	425.93	704	2,506
gvamfgffco	Gross value added in manufacturing by furniture and fixtures (constant)	56	988.93	334.35	549	2,083
gvamfgffcu	Gross value added in manufacturing by furniture and fixtures (current)	56	3,590.13	1,339.82	1,536	7,327
gvamfgppco	Gross value added in manufacturing by paper and paper products (constant)	56	562.68	99.60	382	813
gvamfgppcu	Gross value added in manufacturing by paper and paper products (current)	56	1,391.50	327.19	717	2,227
gvamfgppco	Gross value added in manufacturing by publishing and printing (constant)	56	801.61	241.87	332	1,174
gvamfgppcu	Gross value added in manufacturing by publishing and printing (current)	56	2,477.98	949.71	1,009	4,262

Appendix A continued...

gvamfgllpco	Gross value added in manufacturing by leather and leather products (constant)	56	46.05	30.36	2	109
gvamfgllpcu	Gross value added in manufacturing by leather and leather products (current)	56	123.52	100.03	6	440
gvamfgrrpco	Gross value added in manufacturing by rubber products (constant)	56	482.32	77.54	304	655
gvamfgrrpcu	Gross value added in manufacturing by rubber products (current)	56	1,279.39	324.21	730	2,082
gvamfgccpco	Gross value added in manufacturing by chemical and chemical products (constant)	56	4,031.70	855.85	2,690	6,363
gvamfgccpcu	Gross value added in manufacturing by chemical and chemical products (current)	56	18,705.86	6,882.12	9,251	38,930
gvamfgppcco	Gross value added in manufacturing by products of petroleum and coal (constant)	56	9,850.50	1,404.59	5,930	12,829
gvamfgppccu	Gross value added in manufacturing by products of petroleum coal (current)	56	24,910.02	12,831.19	9,076	58,457
gvamfgnmpco	Gross value added in manufacturing by non-metallic mineral products (constant)	56	1,653.46	415.98	1,018	2,826
gvamfgnmpcu	Gross value added in manufacturing by nonmetallic mineral products (current)	56	7,576.20	3,159.56	4,204	17,898
gvamfgbmico	Gross value added in manufacturing by basic metal industries (constant)	56	1,705.55	738.74	714	3,912
gvamfgbmicu	Gross value added in manufacturing by basic metal industries (current)	56	7,320.30	4,398.06	2,313	20,796
gvamfgmico	Gross value added in manufacturing by metal industries (constant)	56	1,482.23	597.83	696	3,132
gvamfgmicu	Gross value added in manufacturing by metal industries (current)	56	4,869.52	2,410.46	1,723	10,823
gvamfgmeeco	Gross value added in manufacturing by machinery except electrical (constant)	56	1,010.73	221.28	660	1,684
gvamfgmeecu	Gross value added in manufacturing by machinery except electrical (current)	56	2,491.48	570.33	1,479	4,167

Appendix A continued...

gvamfgemco	Gross value added in manufacturing by electrical machinery (constant)	56	8,026.21	2,174.75	4,073	12,565
gvamfgemcu	Gross value added in manufacturing by electrical machinery (current)	56	28,289.55	9,906.89	9,942	47,532
gvamfgteco	Gross value added in manufacturing by transport equipment (constant)	56	657.96	196.33	358	1,275
gvamfgtecu	Gross value added in manufacturing by transport equipment (current)	56	2,757.89	1,133.77	1,041	6,058
gvamfgmmco	Gross value added in manufacturing by miscellaneous manufactures (constant)	56	2,029.07	620.75	964	3,947
gvamfgmmcu	Gross value added in manufacturing by miscellaneous manufactures (current)	56	7,439.27	2,518.93	2,457	12,533
gvamqco	Gross value added in mining and quarrying (constant)	56	4,534.55	2,119.50	2,179	12,408
gvamqcu	Gross value added in mining and quarrying (current)	56	15,570.89	11,882.26	3,672	50,662
gvamqcmco	Gross value added in mining and quarrying by (1) copper mining (constant)	56	152.52	127.37	52	800
gvamqcmcu	Gross value added in mining and quarrying by (1) copper mining (current)	56	677.21	587.19	169	2,817
gvamqgmco	Gross value added in mining and quarrying by (2) gold mining (constant)	56	1,282.55	204.16	776	1,664
gvamqgmcu	Gross value added in mining and quarrying by (2) gold mining (current)	56	5,572.91	3,592.24	1,359	16,390
gvamqchmco	Gross value added in mining and quarrying by (3) chromium mining (constant)	56	7.46	6.72	0	29
gvamqchmku	Gross value added in mining and quarrying by (3) chromium mining (current)	56	17.36	12.14	0	53
gvamqnmco	Gross value added in mining and quarrying by (4) nickel mining (constant)	56	196.89	266.67	5	1,307

Appendix A continued...

gvamqnmcu	Gross value added in mining and quarrying by (4) nickel mining (current)	56	1,889.73	3,444.98	14	17,947
gvamqommco	Gross value added in mining and quarrying by (5) other metallic mining (constant)	56	14.61	15.78	3	75
gvamqommcu	Gross value added in mining and quarrying by (5) other metallic mining (current)	56	60.70	87.30	7	395
gvamqcoco	Gross value added in mining and quarrying by (6) crude oil (constant)	56	887.63	794.86	14	3,251
gvamqcocu	Gross value added in mining and quarrying by (6) crude oil (current)	56	2,659.57	2,250.10	10	6,480
gvamqsqcscsco	Gross value added in mining and quarrying by (7) stone quarrying, clay, and sandpits (constant)	56	617.07	197.16	285	1,093
gvamqsqcscscu	Gross value added in mining and quarrying by (7) stone quarrying, clay, and sandpits (current)	56	1,510.41	470.03	596	3,020
gvamqonmco	Gross value added in mining and quarrying by (8) other nonmetallic (constant)	56	1,375.86	1,173.22	245	5,740
gvamqonmcsu	Gross value added in mining and quarrying by (8) other nonmetallic (current)	56	3,183.05	3,144.25	404	12,707
gvaosco	Gross value added in other services (constant)	56	36,563.79	7,837.90	25,631	53,028
gvaoscsu	Gross value added in other services (current)	56	267,157.10	111,049.30	105,110	510,750
gvaosgovtco	Gross value added in other services by (1) government (constant)	56	13,164.64	1,536.61	10,660	18,307
gvaosgovtcsu	Gross value added in other services by (1) government (current)	56	100,646.80	29,829.38	51,491	177,231
gvaosprivco	Gross value added in other services by (2) private (constant)	56	23,399.11	6,479.83	14,575	38,286
gvaosprivcsu	Gross value added in other services by (2) private (current)	56	166,510.40	82,215.95	53,619	342,575
gvaosprivb~o	Gross value added in other services by (A) business (constant)	56	4,510.27	2,593.01	1,725	10,178

Appendix A continued...

gvaosprivb~u	Gross value added in other services by (A) business (current)	56	40,747.09	30,902.48	7,449	108,997
gvaosprive~o	Gross value added in other services by (B) educational (constant)	56	2,241.71	327.51	1,572	2,883
gvaosprive~u	Gross value added in other services by (B) educational (current)	56	30,571.63	12,855.90	8,814	55,206
gvaosprivh~o	Gross value added in other services by (C) hotel and restaurant (constant)	56	3,752.32	722.35	2,766	5,708
gvaosprivh~u	Gross value added in other services by (C) hotel and restaurant (current)	56	22,735.04	8,686.32	10,448	44,391
gvaosprivm~o	Gross value added in other services by (D) medical and health (constant)	56	3,553.98	788.96	2,241	5,153
gvaosprivm~u	Gross value added in other services by (D) medical and health (current)	56	19,298.63	8,804.62	6,348	38,439
gvaosprivr~o	Gross value added in other services by (E) recreational (constant)	56	3,098.46	970.54	2,020	7,135
gvaosprivr~u	Gross value added in other services by (E) recreational (current)	56	14,109.34	7,181.90	4,894	40,601
gvaosprivp~o	Gross value added in other services by (F) personal (constant)	56	5,559.61	1,241.23	3,707	8,044
gvaosprivp~u	Gross value added in other services by (F) personal (current)	56	36,212.46	14,238.41	14,375	62,930
gvaosprivo~o	Gross value added in other services by (G) others (constant)	56	682.89	103.20	514	932
gvaosprivo~u	Gross value added in other services by (G) others (current)	56	2,836.21	887.09	1,291	4,761
Gvaodreco	Gross value added in ownership of dwellings and real estate (constant)	56	13,896.75	2,071.79	11,735	18,093
gvaodrecu	Gross value added in ownership of dwellings and real estate (current)	56	74,739.50	22,891.81	40,669	117,831
gvaodrereco	Gross value added in ownership of dwellings and real estate by (1) real estate (constant)	56	3,191.11	1,079.74	1,958	5,630

Appendix A continued...

gvaodrerecu	Gross value added in ownership of dwellings and real estate by (1) real estate (current)	56	13,059.82	7,134.09	6,546	29,602
gvaodreodco	Gross value added in ownership of dwellings and real estate by (2) ownership of dwellings (constant)	56	10,705.61	1,072.20	9,122	12,677
gvaodreodcu	Gross value added in ownership of dwellings and real estate by (2) ownership of dwellings (current)	56	61,679.77	16,272.58	33,848	88,420
gvatrcoc	Gross value added in trade (constant)	56	47,776.20	11,768.41	29,674	77,985
gvatrcuc	Gross value added in trade (current)	56	179,352.40	78,968.28	68,822	384,756
gvatrwscoc	Gross value added in trade by (1) wholesale (constant)	56	11,519.36	2,282.78	8,122	17,744
gvatrwscuc	Gross value added in trade by (1) wholesale (current)	56	39,041.32	14,505.79	18,242	73,088
gvatrrtcoc	Gross value added in trade by (2) retail (constant)	56	36,256.84	9,650.97	21,369	62,614
gvatrrtcuc	Gross value added in trade by (2) retail (current)	56	140,311.10	65,061.29	50,580	319,473
gvatcsco	Gross value added in transportation, communication, and storage (constant)	56	23,251.25	6,825.38	12,844	34,854
gvatcsco	Gross value added in transportation, communication, and storage (current)	56	84,237.63	36,720.35	26,975	141,384
gvatcstscoc	Gross value added in transport, communication, and storage by (1) transport and storage (constant)	56	11,440.23	1,596.99	8,715	15,001
gvatcstscuc	Gross value added in transport, communication and storage by (1) transport and storage (current)	56	45,909.88	17,344.73	19,116	76,825
gvatcscomcoc	Gross value added in transport, communication, and storage by (2) communication (constant)	56	11,811.05	5,309.24	4,129	21,468
gvatcscomcuc	Gross value added in transport, communication, and storage by (2) communication (current)	56	38,327.80	19,655.76	7,859	71,092

Appendix B. Summary of the Diagnostics Results for the Final Noise Models Automatically Identified by TRAMO

National Accounts _Component	Level(1) or Log(0)	With W/O 1,0 Mean	SARIMA Noise Model					SE	BIC/SI	LB-Stat	JB-Test	SK t-Test	KUR t-Test	QS	Q2	RUNS t-Test	
			<i>p</i>	<i>d</i>	<i>q</i>	<i>P</i>	<i>D</i>										<i>Q</i>
gnppceco	0	0	3	1	0	0	1	0	0.0130087	-8.31650	13.88	116.4	-2.54	10.5	3.57	28.98	-3.30
gnppceco	0	0	0	1	3	0	1	0	0.0179651	-7.81263	23.53	9.61	-1.91	2.44	0.0	59.08	-1.34
gnpgceco	0	1	0	0	1	0	1	0	0.0574648	-5.61643	18.21	1.57	-1.03	0.709	0.0	35.98	-2.07
gnpgceco	0	0	0	1	1	0	1	1	0.0462528	-5.98541	14.16	0.923	-0.56	0.781	0.074	16.71	-0.38
gnpcfco	1	0	0	1	1	0	1	1	4925.086	17.1338	5.897	0.853	0.725	0.572	0.951	22.22	1.32
gnpcfco	0	0	0	1	1	1	1	1	0.1001066	-4.37702	6.700	1.89	-0.80	1.12	0.0	8.583	-0.95
gnpcfcco	1	0	1	1	0	1	0	1	3772.604	16.6603	9.202	0.649	-0.76	0.261	0.034	15.70	1.68
gnpcfcco	0	1	1	1	0	1	0	0	0.0978567	-4.55355	10.38	4.71	1.80	1.22	0.113	23.95	-0.18
gnpcfcco-o	1	0	0	1	1	0	1	0	2741.666	16.0266	19.20	5.92	0.956	2.24	0.000	14.93	-0.96
gnpcfcco-u	0	0	0	1	1	0	1	1	0.1210345	-3.99734	10.37	9.65	1.87	2.48	1.07	10.41	-0.19
gnpcfcdco	1	0	0	1	1	0	1	1	1956.013	15.3513	13.04	8.39	-2.65	1.16	0.0	14.72	-0.95
gnpcfcdco	0	1	0	1	1	0	0	1	0.1036624	-4.43828	8.485	0.280	0.528	0.029	0.0	26.22	-0.55
gnpcfcbso-o	0	1	0	0	0	1	1	0	0.0370694	-6.20737	18.67	22.2	0.871	4.63	0.459	27.63	-2.55
gnpcfcbso-u	0	1	0	0	2	0	1	1	0.0526577	-5.59984	9.512	8.15	-2.08	1.95	0.002	17.34	-0.96
gnpcfisco	1	0	0	0	1	0	1	1	2598.085	15.8539	19.35	2.82	1.42	-0.90	1.52	13.49	2.26
gnpcfisco	1	0	0	0	0	0	1	1	6105.783	17.6586	25.57	37.7	-1.74	5.89	0.114	16.37	-0.57
gnpexco	0	1	1	0	0	0	1	1	0.0788665	-4.91916	9.509	5.12	-1.55	1.64	2.20	15.77	-1.70
gnpexco	0	0	0	1	0	0	1	1	0.0684963	-5.23231	11.16	1.62	-1.19	-0.46	0.0	20.95	0.570
gnpextmeco	0	1	1	0	0	0	1	0	0.0796980	-4.85278	4.684	5.44	-2.24	0.649	0.049	12.96	0.270
gnpextmeco	0	1	1	0	0	1	0	1	0.0740378	-4.90228	13.29	1.06	-0.63	-0.82	0.0	8.001	1.34
gnpextfisco	0	1	1	0	0	0	0	0	0.0894367	-4.34365	7.895	1.20	0.133	-1.09	0.182	8.967	0.0
gnpextfisco	0	1	0	1	0	0	0	0	0.1131168	-4.12613	17.13	1.06	0.894	-0.51	3.29	7.635	-0.30
gnpmco	0	0	1	1	0	0	1	1	0.0594763	-5.39805	16.91	9.34	-2.58	1.63	2.07	10.91	-0.61
gnpmco	0	1	0	1	1	0	0	0	0.0891262	-4.73213	15.10	0.007	0.080	0.030	2.87	22.69	-0.59
gnpmtmico	0	1	1	0	0	0	1	1	0.0738420	-5.00542	12.75	1.31	-1.10	0.325	0.186	10.57	-1.07
gnpmtmico	0	1	2	1	0	0	0	0	0.0858167	-4.73599	17.40	0.474	-0.63	0.280	0.975	26.24	1.46
gnpmnfisco	0	0	0	1	1	0	1	1	0.1423369	-3.63923	12.52	0.507	0.680	0.211	0.020	6.348	-1.36
gnpexco	0	1	1	0	0	0	1	1	0.0788665	-4.91916	9.509	5.12	-1.55	1.64	2.20	15.77	-1.70
gnpexco	0	0	0	1	0	0	1	1	0.0684963	-5.23231	11.16	1.62	-1.19	-0.46	0.0	20.95	0.570
gnpextmeco	0	1	1	0	0	0	1	0	0.0796980	-4.85278	4.684	5.44	-2.24	0.649	0.049	12.96	0.270
gnpextmeco	0	1	1	0	0	1	0	1	0.0740378	-4.90228	13.29	1.06	-0.63	-0.82	0.0	8.001	1.34
gnpextfisco	0	1	1	0	0	0	0	0	0.0894367	-4.34365	7.895	1.20	0.133	-1.09	0.182	8.967	0.0
gnpextfisco	0	1	0	1	0	0	0	0	0.1131168	-4.12613	17.13	1.06	0.894	-0.51	3.29	7.635	-0.30
gnpmco	0	0	1	1	0	0	1	1	0.0594763	-5.39805	16.91	9.34	-2.58	1.63	2.07	10.91	-0.61
gnpmco	0	1	0	1	1	0	0	0	0.0891262	-4.73213	15.10	0.007	0.080	0.030	2.87	22.69	-0.59
gnpmtmico	0	1	1	0	0	0	1	1	0.0738420	-5.00542	12.75	1.31	-1.10	0.325	0.186	10.57	-1.07
gnpmtmico	0	1	2	1	0	0	0	0	0.0858167	-4.73599	17.40	0.474	-0.63	0.280	0.975	26.24	1.46
gnpmnfisco	0	0	0	1	1	0	1	1	0.1423369	-3.63923	12.52	0.507	0.680	0.211	0.020	6.348	-1.36

Appendix B continued...

gnpmnfscu	0	1	1	0	0	1	0	0	0.1264826	-3.79369	20.75	1.98	-1.13	-0.83	0.497	12.08	-0.30
gnpsdco	1	0	0	1	1	0	1	0	8069.371	18.1213	19.09	3.96	-1.84	0.756	0.0	61.42	-1.33
gnpsdco	1	0	1	0	0	0	1	1	13155.62	19.4765	15.12	1.33	0.704	0.913	0.0	17.06	0.796
gnpmigtci-o	1	0	1	0	0	1	0	0	6789.748	17.8033	21.75	2.41	1.39	0.689	5.32	61.08	-0.37
gnpmignico	0	0	2	0	0	0	1	0	0.0398860	-6.27954	9.511	7.47	1.71	2.13	1.80	15.39	-0.19
gdpepxco	0	0	1	1	1	0	1	0	0.0273671	-7.06719	17.80	2.41	0.098	1.55	0.494	30.55	-0.19
gdpepxcu	0	0	0	1	0	0	1	1	0.0180416	-7.83618	13.48	1.53	0.697	1.02	0.0	30.23	-0.77
nfiexpco	1	0	1	1	0	0	1	1	1985.341	15.3489	10.41	1.88	0.978	0.963	0.0	47.44	0.0
nfiexpco	1	0	1	1	0	0	1	0	5531.763	17.4625	19.77	18.8	1.45	4.09	0.0	25.56	-0.77
gnpexpcu	0	0	1	1	0	0	1	0	0.0257409	-7.09333	26.34	12.1	0.688	3.41	1.17	11.37	-1.54
gnpexpcu	0	0	0	1	0	0	1	1	0.0218100	-7.52114	18.58	0.872	-0.60	0.717	0.0	14.32	0.380
gnpaffco	1	0	0	1	1	0	1	0	1366.184	14.5692	8.072	1.24	-0.77	-0.80	0.0	13.02	0.0
gnpaffcu	0	1	1	0	0	0	1	1	0.0507916	-5.79921	14.98	2.26	1.41	0.537	0.208	14.36	0.378
gnpisco	0	0	1	0	0	0	1	0	0.0356960	-6.53661	12.98	0.113	0.329	0.068	0.068	32.92	0.567
gnpiscu	0	0	1	1	1	0	1	1	0.0384227	-6.29219	10.70	4.85	0.112	2.20	0.003	18.72	0.954
gnpscco	0	0	0	1	1	0	1	1	0.0118041	-8.55699	17.05	13.6	2.66	2.56	0.0	15.43	0.583
gnpscco	0	0	1	1	0	0	1	0	0.0125054	-8.40987	28.44	14.9	-2.15	3.20	0.427	9.925	0.196
gnpindgdpco	0	1	1	0	0	0	1	0	0.0154148	-8.08848	21.63	1.98	-1.26	-0.62	0.021	15.98	0.385
gnpindgdpco	0	0	0	1	0	0	1	1	0.0180416	-7.83618	13.48	1.53	0.697	1.02	0.0	30.23	-0.77
gnpindnfiaco	1	1	3	1	0	1	0	1	1763.856	15.2643	19.40	4.89	1.75	1.34	0.0	35.40	1.13
gnpindnfiaco	1	0	1	1	0	0	1	0	5531.763	17.4625	19.77	18.8	1.45	4.09	0.0	25.56	-0.77
gnpindco	0	0	0	1	1	0	1	0	0.0209906	-7.53338	26.24	7.44	2.33	1.42	0.067	21.98	0.0
gnpindco	0	0	0	1	0	0	1	1	0.0218100	-7.52114	18.58	0.872	-0.60	0.717	0.0	14.32	0.380
gdcdemspico	0	0	1	0	0	0	1	0	0.0819812	-4.72370	14.82	0.102	0.221	0.230	0.0	5.440	0.0
gdcdemspico	0	0	1	0	0	1	1	0	0.0978616	-4.47987	12.04	0.202	0.254	0.371	0.0	11.75	-0.57
gdcddegimeco	0	1	1	0	0	1	0	0	0.1280144	-3.89781	10.69	0.217	-0.38	-0.27	0.638	8.766	0.0
gdcddegimeco	0	0	0	0	2	0	1	0	0.1505142	-3.67465	5.733	0.688	-0.01	-0.83	0.0	23.57	0.0
gdcdeteco	0	0	0	1	1	0	1	1	0.2395015	-2.68773	9.009	2.61	1.37	0.857	0.0	4.778	-1.71
gdcdeteco	0	0	0	1	1	1	0	0	0.2201169	-2.81126	6.661	0.001	0.039	0.003	0.095	13.34	1.11
gdcdemeco	0	1	3	0	1	0	1	1	0.1057385	-4.05274	17.26	3.77	1.01	1.66	0.0	14.55	-0.29
gdcdemeco	0	1	1	0	0	1	0	0	0.1285242	-3.94269	10.90	1.29	0.160	1.12	0.377	12.14	0.272
pceco	0	0	1	1	0	0	1	0	0.0056047	-10.1416	16.81	7.65	-0.73	2.67	2.37	16.53	-0.88
pceco	0	0	1	1	0	0	1	0	0.0128705	-8.59145	16.20	1.09	-0.49	0.925	0.0	15.52	-0.57
pcecfco	0	1	0	0	0	0	1	0	0.0230440	-7.20739	10.70	1.87	0.924	1.01	0.622	19.93	-0.60
pcecfco	0	1	0	0	0	0	1	0	0.0245154	-7.13808	7.880	1.53	-0.11	1.23	0.675	8.836	0.885
pcebevco	0	1	0	0	1	0	1	1	0.0124567	-8.43768	9.653	0.018	0.038	0.128	0.0	9.862	-1.46
pcebevco	0	0	0	1	1	0	1	0	0.0237830	-7.36338	20.87	2.76	1.66	-0.01	0.0	12.09	-0.29
pcefcu	0	0	1	1	0	0	1	0	0.0071008	-9.78091	8.644	5.40	-1.54	1.74	0.909	14.15	0.0
pcefcu	0	0	1	1	0	0	1	0	0.0170740	-8.02621	18.38	24.2	-1.62	4.65	0.0	5.738	0.0
pceflwco	0	0	0	1	1	0	1	0	0.0221467	-7.22811	20.82	44.0	4.05	5.25	0.568	5.675	-1.21
pceflwco	0	0	1	1	0	0	1	1	0.0270528	-6.82790	13.82	2.83	-0.93	1.40	0.0	12.79	-0.60
pcehfco	0	0	0	0	1	1	1	1	0.0205256	-7.27834	18.54	1.67	1.13	0.635	0.015	12.58	0.596
pcehfco	0	0	0	1	0	0	1	1	0.0374097	-6.40099	14.07	15.5	2.53	3.01	0.537	17.93	-0.87
pcehhoco	1	0	2	1	0	0	1	0	76.01081	8.83241	7.884	0.821	-0.41	0.808	0.0	6.111	0.572
pcehhoco	0	0	0	1	1	0	1	0	0.0067048	-9.72758	19.14	1.59	-1.26	-0.09	0.0	17.41	0.0
pceobco	0	1	0	0	2	0	1	0	0.0288786	-6.75600	24.97	20.5	2.66	3.66	5.28	16.97	1.46
pceobco	0	1	0	0	0	0	1	0	0.0326529	-6.61974	24.23	29.6	1.93	5.08	6.87	15.00	-1.17
pceocco	0	0	0	1	0	0	1	1	0.0188025	-7.83335	9.104	1.71	1.18	-0.56	0.162	11.70	0.572
pceocco	0	0	0	1	1	0	1	1	0.0371318	-6.41590	7.128	0.441	0.138	-0.65	0.0	19.62	0.0
pcemiscco	0	0	0	1	0	0	1	1	0.0132176	-8.54854	10.57	0.022	-0.14	-0.05	0.0	13.78	0.572
pcemiscco	0	0	0	1	1	0	1	0	0.0137337	-8.40515	10.15	0.876	0.896	-0.27	0.0	13.19	-0.58

Appendix B continued...

gvaaffco	1	1	1	0	0	0	1	1	1754.414	15.1083	5.019	10.2	-2.41	2.10	0.764	9.984	0.566
gvaaffcu	0	1	1	0	0	0	1	1	0.0334867	-6.45990	15.02	0.523	0.146	0.708	0.0	15.28	-1.75
gvaindaico	0	1	0	0	2	0	1	0	0.0282708	-6.90795	9.501	2.15	-0.60	-1.34	0.0	9.686	-0.29
gvaindaicu	0	1	1	0	0	0	1	1	0.0336457	-6.45043	14.48	0.735	-0.02	0.857	0.0	14.73	-0.58
gvaindaia~o	1	1	0	0	0	0	1	1	1174.524	14.3611	10.84	0.581	-0.09	-0.76	0.743	16.11	-2.31
gvaindaia~u	0	1	1	0	0	0	1	1	0.0374311	-6.18319	10.10	1.01	0.757	0.659	0.0	4.652	-5.9
gvaindaifi~o	0	0	0	1	1	0	1	0	0.0360104	-6.53371	11.25	4.24	1.84	0.922	0.0	7.880	-0.86
gvaindaifi~u	0	1	3	1	1	0	0	0	0.0373247	-6.20231	11.56	1.27	-0.78	0.813	0.636	9.229	-0.56
gvaindfico	0	1	0	0	0	1	0	0	0.3560555	-1.90475	9.680	0.261	-0.27	-0.44	0.0	19.98	-2.47
gvaindficu	0	0	1	0	0	0	1	0	0.3999998	-1.71983	10.45	1.25	-0.19	1.10	0.0	10.21	-0.28
gvconscso	0	0	1	0	0	0	1	1	0.0727864	-4.96162	6.698	1.54	0.849	0.903	0.241	4.211	-0.29
gvconscsu	0	1	1	0	0	0	1	1	0.0715230	-4.94216	6.919	2.92	1.69	0.258	0.0	12.12	0.0
gvconsgv~bco	0	0	1	0	0	0	1	0	0.1679410	-3.39975	16.38	0.087	-0.26	-0.13	0.0	7.684	0.286
gvconsgv~bcu	0	0	0	1	1	0	1	1	0.1874534	-3.17779	14.69	0.586	0.759	-0.10	0.0	11.43	-0.29
gvconsgv~vco	0	1	0	1	1	0	1	1	0.0817186	-4.83829	10.40	1.30	0.376	-1.08	2.28	14.91	0.857
gvconsgv~vcu	0	1	0	1	1	0	1	1	0.0771542	-4.95324	8.981	1.40	0.037	-1.18	0.181	14.96	0.286
gvaconscso	0	0	1	0	0	0	1	0	0.0851643	-4.75781	16.58	0.553	0.711	-0.22	0.0	12.65	0.857
gvaconscsu	0	1	1	0	0	0	1	1	0.0737295	-4.88139	7.741	3.53	1.87	0.201	0.0	11.21	0.0
gvamfgco	0	1	2	0	0	0	1	1	0.0171732	-7.74150	20.38	1.37	0.895	0.754	0.0	16.56	0.584
gvamfgcu	0	1	2	0	0	0	1	0	0.0285754	-6.83159	11.89	1.24	0.315	-1.07	0.0	10.53	-0.29
gvamfgfmcso	0	1	0	0	1	0	1	0	0.0305141	-6.75524	9.586	0.469	0.355	-0.59	0.261	13.73	-1.44
gvamfgfmcu	0	1	2	0	0	0	1	0	0.0336644	-6.50380	5.342	0.226	0.084	-0.47	0.0	7.986	-0.87
gvamfgbico	0	1	1	0	0	0	1	1	0.0616083	-5.35002	13.39	0.737	-0.68	-0.53	0.926	19.21	-0.57
gvamfgbicu	0	1	1	0	0	0	1	1	0.0684685	-5.19423	9.086	1.80	-0.31	-1.31	0.294	25.54	-0.28
gvamfgtomcso	0	0	1	0	0	0	1	0	0.1083244	-4.16642	13.81	0.209	-0.25	0.380	1.33	6.132	0.584
gvamfgtomcu	0	0	1	0	0	0	1	0	0.1148556	-4.04933	15.02	0.446	-0.03	0.667	0.322	9.286	0.0
gvamfgtemcso	0	0	1	0	0	0	1	0	0.0997711	-4.55319	18.16	7.08	-1.35	2.29	0.0	18.99	-0.84
gvamfgtemcu	0	0	1	0	0	0	1	0	0.0941734	-4.66867	12.39	13.3	-2.14	2.95	0.0	20.81	-0.56
gvamfgfwaco	0	0	1	0	0	0	1	0	0.1103548	-4.29536	11.32	0.114	0.334	-0.05	0.0	17.31	-0.85
gvamfgfwacu	0	0	1	0	0	0	1	0	0.1065064	-4.42253	14.80	0.998	-0.95	-0.31	0.0	25.38	-0.56
gvamfgwcpco	0	0	1	0	0	0	1	0	0.1365669	-3.86913	19.20	0.230	0.428	0.216	0.0	12.28	0.0
gvamfgwpcu	0	0	1	0	0	0	1	0	0.1069250	-4.24736	18.20	0.091	-0.05	-0.30	0.0	16.42	0.0
gvamfgffco	0	1	1	0	0	0	1	0	0.0942143	-4.50047	23.21	0.142	-0.22	-0.31	0.0	15.41	-0.87
gvamfgfcu	0	0	0	1	1	0	1	1	0.1114451	-4.27426	9.180	1.35	-0.09	1.16	0.001	15.85	-1.13
gvamfgpppco	0	0	1	0	0	0	1	1	0.0765967	-5.02565	10.88	0.393	-0.06	-0.62	0.0	20.50	-1.40
gvamfgpppcu	0	1	1	0	0	0	1	1	0.0805137	-4.87012	10.02	1.03	0.725	-0.71	0.096	19.09	-0.57
gvamfgpppco	0	0	1	0	0	0	1	0	0.0685960	-5.19051	7.366	0.484	0.174	-0.67	0.0	6.277	-0.57
gvamfgppcu	0	1	1	0	0	0	1	0	0.0745568	-5.02386	15.58	1.76	-0.65	1.16	2.82	9.313	-1.14
gvamfgllpco	0	0	0	0	1	0	1	0	0.2760219	-2.35065	17.37	5.40	-0.25	2.31	3.87	40.49	1.16
gvamfgllpcu	0	0	2	0	1	0	1	0	0.2145076	-2.69150	7.956	4.72	-1.69	1.36	0.400	8.828	-0.29
gvamfgprco	0	0	1	0	0	0	1	1	0.0755277	-4.88768	9.847	0.582	-0.15	-0.75	0.0	30.28	0.867
gvamfgprcu	0	1	2	0	0	0	1	0	0.1046199	-4.29094	17.38	2.55	1.18	1.08	0.0	8.121	0.286
gvamfgccpco	0	0	0	1	1	0	1	1	0.0632143	-5.40827	10.14	2.56	-0.51	-1.52	0.523	10.30	0.283
gvamfgccpcu	0	1	1	0	0	0	1	1	0.0578981	-5.47424	21.48	1.80	-1.20	-0.59	0.078	13.54	-0.29

Appendix B continued...

gvamfgppcco	1	0	0	0	1	1	1	0	741.4462	13.4411	9.255	0.712	0.350	-0.77	0.821	6.113	1.14
gvamfgppccu	0	1	1	0	1	1	1	0	0.1239532	-3.89687	5.748	1.36	-0.99	0.622	0.0	8.069	-0.86
gvamfgnmpcco	0	1	0	1	1	0	1	1	0.0988364	-4.45792	15.38	0.536	-0.63	-0.37	0.0	7.510	0.286
gvamfgnmpccu	1	1	1	0	0	0	1	0	750.1485	13.3533	20.55	0.499	0.121	-0.70	5.74	4.951	0.283
gvamfgbmicco	0	0	1	0	0	0	1	0	0.1408780	-3.80697	6.000	0.224	0.411	-0.23	0.0	17.04	-0.57
gvamfgbmicu	0	1	1	0	0	0	1	0	0.1532130	-3.58332	10.27	0.441	-0.49	-0.45	0.0	17.66	-0.86
gvamfgmicco	0	1	0	0	2	0	1	0	0.0767501	-4.80109	19.44	18.8	-2.13	3.78	6.33	7.628	-1.17
gvamfgmicu	0	0	0	1	1	0	1	0	0.0632522	-5.29455	28.61	0.078	-0.24	-0.15	0.0	10.29	0.584
gvamfgmeeco	0	1	2	0	0	0	0	1	0.1350775	-3.79040	8.944	0.250	0.498	-0.05	0.011	11.76	-0.54
gvamfgmeecu	0	0	0	1	1	0	0	1	0.1396417	-3.82867	10.01	1.56	-1.22	0.244	0.004	15.46	-0.54
gvamfgemcco	0	0	0	1	1	0	1	1	0.1066307	-4.30611	6.410	2.05	1.40	0.325	0.0	7.664	-1.14
gvamfgemccu	0	1	1	0	0	1	0	0	0.1203233	-4.07456	11.18	1.28	1.06	-0.40	0.043	5.033	1.36
gvamfgtecco	0	0	1	0	0	0	1	1	0.1334135	-3.91585	7.924	0.917	-0.50	-0.82	0.078	19.38	0.0
gvamfgteccu	0	1	1	0	0	0	1	1	0.1122092	-4.20625	8.521	1.25	-0.93	-0.62	1.37	15.52	0.566
gvamfgnmcco	0	1	0	0	2	0	1	0	0.0666100	-5.24927	7.388	1.04	-0.54	-0.86	0.0	9.886	0.849
gvamfgnmccu	0	1	1	0	0	1	0	0	0.0699231	-5.10730	11.58	0.346	-0.44	-0.39	0.527	10.48	-0.82
gvamqcco	0	0	0	1	1	0	1	1	0.1270625	-3.95549	8.848	0.256	-0.11	-0.49	0.0	4.133	-0.86
gvamqccu	0	1	3	1	0	0	0	0	0.0809268	-4.50048	9.896	1.01	0.556	-0.84	0.987	11.22	1.46
gvamqcmcco	0	0	1	0	0	0	1	0	0.2156454	-2.89971	11.60	12.8	0.750	3.50	3.18	12.06	-2.29
gvamqcmccu	0	0	0	1	1	0	0	1	0.3103123	-2.17786	12.15	88.1	4.35	8.32	0.0	3.481	-2.20
gvamqgmcco	1	0	0	1	1	0	1	1	167.1530	10.3520	13.73	2.25	-0.43	-1.44	0.0	15.11	0.566
gvamqgmccu	0	0	0	1	1	0	1	1	0.1665510	-3.47072	12.81	1.80	-0.54	-1.23	0.077	13.22	1.13
gvamqchmcco	1	1	1	0	0	1	0	0	3.186927	2.58399	6.719	7.96	2.57	1.17	1.96	21.35	0.278
gvamqchmccu	1	0	0	1	1	0	1	1	7.078467	4.08477	12.59	1.57	0.787	-0.97	0.0	10.99	0.0
gvamqnmcco	0	0	1	0	0	0	1	1	0.4773416	-1.20021	5.934	12.0	1.82	2.94	0.0	5.969	0.289
gvamqnmccu	0	0	1	0	0	0	1	1	0.7002703	-0.59983	10.47	1.68	-0.31	1.26	0.046	5.929	-1.12
gvamqomcco	0	0	2	0	0	1	1	0	0.4386228	-1.42433	3.740	0.593	0.761	-0.12	0.0	43.93	0.283
gvamqomccu	0	0	0	1	1	0	0	0	0.3817321	-1.87156	14.89	0.082	0.00	-0.29	0.0	17.33	1.36
gvamqcocco	0	0	0	1	1	0	1	1	0.2874457	-2.32278	9.180	1.24	-0.69	-0.87	0.0	8.804	1.14
gvamqcoccu	0	1	1	0	0	0	0	0	0.2765498	-2.35731	12.46	3.89	-1.93	0.400	4.97	12.91	-0.83
gvamqsqsccco	1	0	0	1	1	0	1	0	65.86956	8.71276	16.16	13.9	2.08	3.09	0.005	9.417	-1.19
gvamqsqscccu	1	0	1	0	0	0	1	0	186.4118	10.6798	8.623	2.31	-1.51	0.139	0.0	17.70	0.867
gvamqonmcco	0	1	0	0	0	0	1	1	0.1912615	-3.08433	10.89	0.086	-0.29	-0.02	0.555	21.94	0.289
gvamqonmccu	0	0	0	1	1	1	1	0	0.2040111	-2.89687	22.09	1.04	1.01	0.158	0.696	22.86	-0.88
gvaoscco	0	0	0	1	1	0	1	1	0.0100250	-9.03468	12.57	0.284	0.349	0.402	0.0	5.873	-1.14
gvaosccu	0	0	2	1	1	0	1	1	0.0127115	-8.44821	26.03	1.12	-1.04	0.219	0.0	7.781	-1.43
gvaosgovtcco	0	0	0	1	1	0	1	0	0.0225136	-7.47309	6.016	22.8	2.50	4.07	0.0	15.74	0.857
gvaosgovtccu	0	1	3	1	1	0	0	0	0.0426323	-6.04129	8.975	34.3	3.68	4.55	1.68	2.846	-0.55
gvaosprivcco	0	0	0	1	0	0	1	0	0.0087997	-9.29541	15.24	0.974	0.982	0.099	0.0	29.29	0.0
gvaosprivccu	0	1	0	1	0	0	1	1	0.0128826	-8.47706	17.88	1.82	1.34	-0.20	0.153	17.04	1.46
gvaosprivb-co	0	0	0	1	1	0	1	0	0.0241646	-7.16344	9.608	8.40	-2.38	1.65	0.0	10.13	-0.30
gvaosprivb-cu	0	0	0	1	1	0	1	0	0.0287373	-6.76171	9.491	7.92	-1.73	2.22	0.004	16.41	-0.89
gvaosprivb-o	0	1	1	0	0	0	1	0	0.0162872	-8.06622	13.68	2.15	-1.15	-0.91	5.48	16.99	0.286
gvaosprivb-u	0	1	0	1	1	0	1	0	0.0194082	-7.71346	20.70	5.86	-1.46	1.93	0.462	20.93	-0.29
gvaosprivh-co	0	1	1	0	0	0	1	0	0.0219912	-7.52147	14.56	1.43	-0.05	-1.19	0.0	26.89	-0.57
gvaosprivh-cu	0	1	1	0	0	0	1	0	0.0254614	-7.17265	14.29	2.35	-1.39	-0.65	0.0	13.72	-1.43
gvaosprivm-co	0	0	0	1	1	0	1	1	0.0192706	-7.67165	13.35	2.53	-1.47	0.598	0.335	14.47	-0.29
gvaosprivm-cu	0	1	3	1	0	0	1	1	0.0118475	-8.31858	22.01	0.141	0.092	-0.36	0.485	19.22	0.0
gvaosprivr-co	0	0	0	1	0	0	1	1	0.0247443	-7.11603	8.256	0.373	0.611	0.003	0.0	3.592	0.0
gvaosprivr-cu	0	0	0	1	0	0	1	0	0.0282637	-6.96169	18.71	12.7	2.71	2.32	0.0	8.765	0.584
gvaosprivp-co	0	0	0	1	1	0	1	0	0.0158156	-8.06682	14.30	1.81	1.10	0.772	0.462	7.546	0.292

Appendix B continued...

gvaoprivp~u	0	0	0	1	1	0	1	0	0	0.0242256	-7.32651	8.663	0.903	0.883	0.351	0.0	17.93	-1.71
gvaoprivo~o	0	0	0	1	1	0	1	0	0	0.0131259	-8.49568	11.91	1.74	1.20	-0.55	1.07	7.739	0.578
gvaoprivo~u	0	0	0	1	1	0	1	0	0	0.0199091	-7.66250	10.78	0.234	0.484	0.00	0.457	10.07	-0.58
gvaodreco	0	0	0	1	1	0	1	1	1	0.0144486	-8.30366	8.914	2.22	-1.49	-0.09	0.0	8.956	-1.14
gvaodrecu	0	0	0	1	0	0	1	1	1	0.0134819	-8.49863	4.990	1.26	-0.20	-1.10	0.0	7.540	1.14
gvaodrereco	0	0	0	1	0	1	0	0	0	0.0663300	-5.31755	11.13	3.32	-1.58	0.900	0.0	6.461	1.65
gvaodrerecu	0	0	0	1	0	0	1	1	1	0.0587173	-5.49938	13.64	0.513	-0.38	-0.61	0.0	8.193	0.289
gvaodreodco	1	0	0	1	1	0	1	1	1	20.53564	6.38173	21.41	12.9	-2.33	2.73	0.0	3.639	0.590
gvaodreodcu	1	0	3	1	1	0	1	0	0	327.8135	11.8672	4.110	2.30	1.52	0.000	0.0	14.36	1.14
gvatrc	0	0	2	0	0	0	1	0	0	0.0253849	-7.06837	9.155	57.4	-0.39	7.57	0.481	19.91	-0.87
gvatrcu	0	0	0	1	1	0	1	1	1	0.0168462	-7.88498	7.672	0.584	-0.63	0.436	0.0	8.932	1.17
gvatrvsco	0	0	0	1	1	0	1	0	0	0.0204871	-7.22323	10.45	0.935	-0.87	-0.43	0.0	12.04	0.312
gvatrvscu	0	0	0	1	0	0	1	1	1	0.0371251	-6.41627	17.15	0.433	-0.45	-0.48	0.0	7.997	0.578
gvatrrtco	0	1	1	0	0	0	1	0	0	0.0190292	-7.37729	10.37	4.37	1.08	1.79	2.05	15.25	-0.31
gvatrrtcu	0	0	0	1	1	0	1	0	0	0.0195051	-7.59187	12.65	3.12	-1.05	1.42	0.015	16.69	1.18
gvatcsc	0	0	0	1	1	0	1	0	0	0.0195062	-7.75986	13.37	0.393	0.165	-0.61	1.28	15.74	-0.86
gvatcscu	0	0	0	1	0	0	1	1	1	0.0287609	-6.98329	14.67	1.36	0.391	-1.10	0.030	22.33	-0.86
gvatcstsc	0	1	1	0	1	0	1	0	0	0.0165654	-7.97698	18.60	6.05	-1.72	1.76	0.115	21.87	0.857
gvatcstscu	0	0	0	1	0	0	1	1	1	0.0408137	-6.34018	18.21	15.5	2.33	3.17	0.620	11.00	1.42
gvatcscmco	0	0	0	1	1	0	1	0	0	0.0288476	-6.92080	11.91	0.270	0.400	-0.33	0.732	8.635	0.867
gvatcscmco	0	0	0	1	1	0	1	0	0	0.0297927	-6.85633	10.35	1.61	-0.51	-1.16	0.0	9.354	-0.29

Appendix C. SEATS Models Summary Results for Quarterly National Accounts Statistics

Time Series	Pre-adjusted	Model Changed	Approx. to NA	New Model						SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic				
				m	p	d	q	P	D					Q	TC	S	U	Trans
gnppceco	Y	N	N	0	3	1	0	0	1	0	.1272E-01	0	0	0	Y	N	Y	N
gnppcecu	Y	Y	Y	0	0	1	2	0	1	0	.1790E-01	0	0	0	Y	N	Y	N
gnpgceco	Y	N	N	1	0	0	1	0	1	0	.5721E-01	0	0	0	Y	N	N	N
gnpgcecu	Y	N	N	0	0	1	1	0	1	1	.4563E-01	0	0	0	Y	N	Y	N
gnpctco	Y	N	N	0	0	1	1	0	1	1	4881.	0	0	0	Y	N	N	N
gnpctcu	Y	N	N	0	0	1	1	1	1	1	.9961E-01	0	0	0	N	N	Y	N
gnpcffco	Y	Y	N	0	1	1	0	0	1	1	3876.	0	0	0	Y	Y	Y	N
gnpcffcu	Y	N	N	1	1	1	0	1	0	0	.9959E-01	0	0	0	N	N	N	N
gnpcffcon~o	Y	N	N	0	0	1	1	0	1	0	2681.	0	0	0	Y	N	Y	N
gnpcffcon~u	Y	N	N	0	0	1	1	0	1	1	.1183	0	0	0	N	Y	Y	N
gnpcffdeco	Y	N	N	0	0	1	1	0	1	1	1921.	0	0	0	Y	N	Y	N
gnpcffdecu	Y	Y	N	1	0	1	1	0	0	0	.1095	0	0	0	N	N	N	N
gnpcffcbso~o	Y	N	N	1	0	0	0	1	1	0	.3554E-01	0	0	0	Y	N	Y	N
gnpcffcbso~u	Y	Y	Y	0	0	1	1	0	1	1	.5454E-01	0	0	0	Y	N	Y	N
gnpcfisco	Y	N	N	0	0	0	1	0	1	1	2575.	0	0	0	N	N	Y	N
gnpcfiscu	Y	N	N	0	0	0	0	0	1	1	5944.	0	0	0	N	N	Y	N
gnpexco	Y	N	N	1	1	0	0	0	1	1	.7677E-01	0	0	0	Y	N	Y	N
gnpexcu	Y	N	N	0	0	1	0	0	1	1	.6759E-01	0	0	0	Y	N	Y	N
gnpextmeco	Y	Y	Y	1	0	0	0	0	1	0	.8926E-01	0	E	0	N	N	Y	N
gnpextmecu	Y	Y	N	1	1	0	0	0	1	1	.7215E-01	0	0	0	Y	N	N	N
gnpextfisco	Y	N	N	1	1	0	0	0	0	0	.8359E-01	0	0	0	Y	N	Y	N
gnpextfiscu	Y	N	N	1	0	1	0	0	0	0	.1095	0	0	0	Y	N	N	N
gnpmco	Y	N	N	0	1	1	0	0	1	1	.5826E-01	0	0	0	Y	Y	Y	N
gnpmcu	Y	N	N	1	0	1	1	0	0	0	.8870E-01	0	0	0	Y	N	N	N
gnpmtmco	Y	N	N	1	1	0	0	0	1	1	.7377E-01	0	0	0	N	N	Y	N
gnpmtmco	Y	N	N	1	2	1	0	0	0	0	.8714E-01	0	0	0	N	N	N	N
gnpmtfisco	Y	N	N	0	0	1	1	0	1	1	.1385	0	0	0	Y	N	Y	N
gnpmtfiscu	Y	N	N	1	1	0	0	1	0	0	.1208	0	0	0	N	N	Y	N
gnpsdco	Y	N	N	0	0	1	1	0	1	0	7962.	0	0	0	Y	N	Y	N

Appendix C continued...

Time Series	Pre-adjusted	Model Changed	Approx to NA	New model						SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic					
				m	p	d	q	P	D					Q	TC	S	U	Trans	
gnpsdco	Y	Y	Y	0	0	1	1	0	1	1	.1453E+05	0	E	0	0	Y	N	Y	N
gnpmittqci-o	Y	N	N	0	1	0	0	1	0	0	6827.	0	0	0	0	Y	N	Y	N
gnpmignico	Y	N	N	0	2	0	0	0	1	0	.3943E-01	0	0	0	0	Y	N	Y	N
gdpepxco	Y	N	N	0	1	1	1	0	1	0	.2719E-01	0	0	0	0	N	N	Y	N
gdpepxco	Y	N	N	0	0	1	0	0	1	1	.1764E-01	0	0	0	0	Y	N	Y	N
nfiiaexpcu	Y	N	N	0	1	1	0	0	1	1	1967.	0	0	0	0	N	N	Y	N
nfiiaexpcu	Y	N	N	0	1	1	0	0	1	0	5408.	0	0	0	0	Y	N	Y	N
gnpepxco	Y	N	N	0	1	1	0	0	1	0	.2515E-01	0	0	0	0	Y	Y	Y	N
gnpepxco	Y	N	N	0	0	1	0	0	1	1	.2152E-01	0	0	0	0	Y	N	Y	N
gnpaffco	Y	N	N	0	0	1	1	0	1	0	1348.	0	0	0	0	Y	N	Y	N
gnpaffco	Y	N	N	1	1	0	0	0	1	1	.5029E-01	0	0	0	0	Y	N	Y	N
gnpisco	Y	N	N	0	1	0	0	0	1	0	.3533E-01	0	0	0	0	N	Y	Y	N
gnpisco	Y	N	N	0	1	1	1	0	1	1	.3789E-01	0	0	0	0	Y	Y	Y	N
gnpssco	Y	Y	Y	1	0	1	1	0	1	1	.1301E-01	0	E	0	0	Y	N	Y	N
gnpssco	Y	N	N	0	1	1	0	0	1	0	.1200E-01	0	0	0	0	Y	N	Y	N
gnpindgdpcu	Y	N	N	1	1	0	0	0	1	0	.1507E-01	0	0	0	0	Y	Y	Y	N
gnpindgdpcu	Y	N	N	0	0	1	0	0	1	1	.1764E-01	0	0	0	0	Y	N	Y	N
gnpindnfiacu	Y	Y	Y	1	2	1	1	0	1	1	1696.	0	0	0	0	Y	N	Y	N
gnpindnfiacu	Y	N	N	0	1	1	0	0	1	0	5408.	0	0	0	0	Y	N	Y	N
gnpindco	Y	N	N	0	0	1	1	0	1	0	.2053E-01	0	0	0	0	Y	Y	Y	N
gnpindco	Y	N	N	0	0	1	0	0	1	1	.2152E-01	0	0	0	0	Y	N	Y	N
gdcdfemspico	Y	N	N	0	1	0	0	0	1	0	.7892E-01	0	0	0	0	Y	Y	Y	N
gdcdfemspico	Y	Y	N	1	1	0	0	0	1	1	.9577E-01	0	0	0	0	N	N	Y	N
gdcdfdegimeco	Y	N	N	1	1	0	0	1	0	0	.1241	0	0	0	0	N	N	Y	N
gdcdfdegimecu	Y	N	N	0	0	2	0	1	0	0	.1505	0	0	0	0	N	N	Y	N
gdcdfdeteco	Y	N	N	0	0	1	1	0	1	1	.2370	0	0	0	0	Y	N	N	N
gdcdfdeteco	Y	N	N	0	0	1	1	1	0	0	.2194	0	0	0	0	Y	N	Y	N
gdcdfdemeco	Y	N	N	1	3	0	1	0	1	1	.1040	0	0	0	0	Y	N	Y	N
gdcdfdemeco	Y	N	N	1	1	0	0	1	0	0	.1218	0	0	0	0	N	N	Y	N

Time Series	Pre-adjusted	Model Changed	Approx to NA	New Model						SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic					
				m	p	d	q	P	D					Q	TC	S	U	Trans	
pceco	Y	N	N	0	1	1	0	0	1	0	5437E-02	0	0	0	0	N	N	Y	N
pcecu	Y	N	N	0	1	1	0	0	1	0	.1288E-01	0	0	0	0	N	N	Y	N
pcefco	Y	N	N	1	0	0	0	0	1	0	2189E-01	0	0	0	0	Y	Y	Y	N
pcefco	Y	N	N	1	0	0	0	0	1	0	2353E-01	0	0	0	0	Y	Y	Y	N
pcebevcu	Y	Y	Y	0	0	1	1	0	1	1	.1599E-01	0	0	0	0	N	N	Y	N
pcebevcu	Y	N	N	0	0	1	1	0	1	0	2354E-01	0	0	0	0	N	N	Y	N
pcefco	Y	N	N	0	1	1	0	0	1	0	.7067E-02	0	0	0	0	N	N	Y	N
pcefco	Y	N	N	0	1	1	0	0	1	0	.1700E-01	0	0	0	0	N	N	Y	N
pceflwco	Y	N	N	0	0	1	1	0	1	0	2078E-01	0	0	0	0	Y	Y	Y	N
pceflwco	Y	N	N	0	1	1	0	0	1	1	2588E-01	0	0	0	0	Y	N	Y	N
pcehhfco	Y	Y	Y	0	0	1	1	0	1	1	3482E-01	0	E	0	0	Y	N	Y	N
pcehhfco	Y	Y	Y	0	0	1	1	0	1	1	5226E-01	0	0	0	0	Y	N	Y	N
pcehhoco	Y	N	N	0	2	1	0	0	1	0	74.44	0	0	0	0	N	N	Y	N
pcehhoco	Y	N	N	0	0	1	1	0	1	0	6431E-02	0	0	0	0	N	N	Y	N
pceobco	Y	Y	Y	1	0	0	1	0	1	0	4002E-01	0	0	0	0	Y	N	Y	N
pceobco	Y	N	N	1	0	0	0	0	1	0	3168E-01	0	0	0	0	N	N	Y	N
pceotco	Y	N	N	0	0	1	0	0	1	1	.1861E-01	0	0	0	0	N	Y	N	N
pceotco	Y	N	N	0	0	1	1	0	1	1	.3675E-01	0	0	0	0	N	N	Y	N
pceisccu	Y	N	N	0	0	1	0	0	1	1	.1302E-01	0	0	0	0	N	Y	N	N
pceisccu	Y	N	N	0	0	1	1	0	1	0	.1346E-01	0	0	0	0	Y	N	Y	N
gvaaffco	Y	N	N	1	1	0	0	0	1	1	1758.	0	0	0	0	N	N	Y	N
gvaaffco	Y	N	N	1	1	0	0	0	1	1	.3288E-01	0	0	0	0	Y	N	Y	N
gvaindaico	Y	N	N	1	0	0	2	0	1	0	2798E-01	0	0	0	0	N	N	Y	N
gvaindaico	Y	N	N	1	1	0	0	0	1	1	.3305E-01	0	0	0	0	Y	N	Y	N
gvaindaiaq-o	Y	N	N	1	0	0	0	0	1	1	1151.	0	0	0	0	N	N	Y	N
gvaindaiaq-u	Y	N	N	1	1	0	0	0	1	1	3626E-01	0	0	0	0	Y	N	Y	N
gvaindaiff-o	Y	N	N	0	0	1	1	0	1	0	.3565E-01	0	0	0	0	N	N	Y	N
gvaindaiff-u	Y	N	N	1	3	1	1	0	0	0	3730E-01	0	0	0	0	N	N	Y	N
gvaindfico	Y	N	N	1	0	0	0	1	0	0	.3619	0	0	0	0	N	N	Y	N

Appendix C continued...

Time Series	Pre-adjusted	Model Changed	Approx- to NA	New Model							SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic			
				m	p	d	q	P	D	Q					TC	S	U	Trans
gvaindfcu	Y	N	N	0	1	0	0	0	1	0	.3957	0	0	0	N	N	Y	N
gvconscu	Y	N	N	0	1	0	0	0	1	1	.7126E-01	0	0	0	Y	N	Y	N
gvconscu	Y	N	N	1	1	0	0	0	1	1	.7002E-01	0	0	0	Y	N	Y	N
gvconsgv-bcu	Y	N	N	0	1	0	0	0	1	0	.1650	0	0	0	N	N	Y	N
gvconsgv-bcu	Y	N	N	0	0	1	1	0	1	1	.1855	0	0	0	N	N	Y	N
gvconsgv-vcu	Y	N	N	1	0	1	1	0	1	1	.8220E-01	0	0	0	N	N	N	N
gvconsgv-vcu	Y	N	N	1	0	1	1	0	1	1	.7757E-01	0	0	0	N	N	N	N
gvaconscu	Y	N	N	0	1	0	0	0	1	0	.8430E-01	0	0	0	Y	N	Y	N
gvaconscu	Y	N	N	1	1	0	0	0	1	1	.7218E-01	0	0	0	Y	N	Y	N
gvamfgcu	Y	Y	Y	0	0	1	1	0	1	1	.1903E-01	0	0	0	N	N	Y	N
gvamfgcu	Y	N	N	1	2	0	0	0	1	0	.2830E-01	0	0	0	Y	N	Y	N
gvamfgmco	Y	N	N	1	0	0	1	0	1	0	.2990E-01	0	0	0	N	N	Y	N
gvamfgmco	Y	Y	Y	1	1	0	1	0	1	0	.3441E-01	0	0	0	Y	N	Y	N
gvamfgbco	Y	N	N	1	1	0	0	0	1	1	.6153E-01	0	0	0	N	N	Y	N
gvamfgbco	Y	N	N	1	1	0	0	0	1	1	.6833E-01	0	0	0	N	N	N	N
gvamfgtomco	Y	N	N	0	1	0	0	0	1	0	.1048	0	0	0	Y	N	Y	N
gvamfgtomcu	Y	N	N	0	1	0	0	0	1	0	.1097	0	0	0	Y	N	Y	N
gvamfgtemco	Y	N	N	0	1	0	0	0	1	0	.1007	0	0	0	N	N	N	N
gvamfgtemcu	Y	N	N	0	1	0	0	0	1	0	.9475E-01	0	0	0	N	N	N	N
gvamfgtwaco	Y	N	N	0	1	0	0	0	1	0	.1096	0	0	0	N	Y	N	N
gvamfgtwaco	Y	N	N	0	1	0	0	0	1	0	.1052	0	0	0	N	N	Y	N
gvamfgwcpco	Y	N	N	0	1	0	0	0	1	0	.1360	0	0	0	N	N	N	N
gvamfgwcpco	Y	N	N	0	1	0	0	0	1	0	.1048	0	0	0	N	N	Y	N
gvamfgwcpco	Y	N	N	1	1	0	0	0	1	0	.9185E-01	0	0	0	Y	N	Y	N
gvamfgwcpco	Y	N	N	0	0	1	1	0	1	1	.1114	0	0	0	N	N	N	N
gvamfgppco	Y	N	N	0	1	0	0	0	1	1	.7721E-01	0	0	0	N	N	N	N
gvamfgppco	Y	N	N	1	1	0	0	0	1	1	.8121E-01	0	0	0	N	N	N	N
gvamfgppco	Y	N	N	0	1	0	0	0	1	0	.6719E-01	0	0	0	N	N	Y	N
gvamfgppco	Y	N	N	1	1	0	0	0	1	0	.7421E-01	0	0	0	N	N	Y	N

Time Series	Pre-adjusted	Model Changed	Approx- to NA	New Model							SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic			
				m	p	d	q	P	D	Q					TC	S	U	Trans
gvamfgllpco	Y	N	N	0	0	0	1	0	1	0	.2678	0	0	0	Y	N	Y	N
gvamfgllpco	Y	N	N	0	2	0	1	0	1	0	.2084	0	0	0	Y	N	Y	N
gvamfgrrpco	Y	N	N	0	1	0	0	0	1	1	.7267E-01	0	0	0	Y	N	Y	N
gvamfgrrpco	Y	Y	Y	1	1	0	1	0	1	0	.1045	0	0	0	Y	N	N	N
gvamfgccpco	Y	N	N	0	0	1	1	0	1	1	.6321E-01	0	0	0	N	N	N	N
gvamfgccpco	Y	N	N	1	1	0	0	0	1	1	.5789E-01	0	0	0	N	N	Y	N
gvamfgppcco	Y	Y	N	1	0	0	1	0	1	1	.7384	0	0	0	Y	N	Y	N
gvamfgppcco	Y	Y	N	1	1	0	1	0	1	1	.1241	0	0	0	N	N	Y	N
gvamfgnmpcco	Y	N	N	1	0	1	1	0	1	1	.9915E-01	0	0	0	N	N	N	N
gvamfgnmpcco	Y	N	N	1	1	0	0	0	1	0	.7534	0	0	0	N	N	N	N
gvamfgbmico	Y	N	N	0	1	0	0	0	1	0	.1406	0	0	0	Y	N	N	N
gvamfgbmico	Y	N	N	1	1	0	0	0	1	0	.1532	0	0	0	Y	N	N	N
gvamfgmico	Y	N	N	1	0	0	2	0	1	0	.7436E-01	0	0	0	Y	N	Y	N
gvamfgmico	Y	N	N	0	0	1	1	0	1	0	.6133E-01	0	0	0	Y	N	N	N
gvamfgmeeco	Y	Y	N	1	2	0	0	0	0	0	.1421	0	0	0	N	N	N	N
gvamfgmeeco	Y	Y	N	0	0	1	1	0	0	0	.1495	0	0	0	N	N	N	N
gvamfgemco	Y	N	N	0	0	1	1	0	1	1	.1055	0	0	0	Y	N	N	N
gvamfgemco	Y	N	N	1	1	0	0	1	0	0	.1175	0	0	0	N	N	N	N
gvamfgteco	Y	N	N	0	1	0	0	0	1	1	.1333	0	0	0	N	N	N	N
gvamfgteco	Y	N	N	1	1	0	0	0	1	1	.1136	0	0	0	N	N	N	N
gvamfgmmco	Y	N	N	1	0	0	2	0	1	0	.6662E-01	0	0	0	N	N	N	N
gvamfgmmcu	Y	N	N	1	1	0	0	1	0	0	.6713E-01	0	0	0	Y	N	N	N
gvamqco	Y	N	N	0	0	1	1	0	1	1	.1258	0	0	0	Y	N	N	N
gvamqcu	Y	N	N	1	3	1	0	0	0	0	.7773E-01	0	0	0	Y	N	Y	N
gvamqcmco	Y	N	N	0	1	0	0	0	1	0	.2052	0	0	0	Y	N	Y	N
gvamqcmco	Y	Y	N	0	0	1	1	0	0	0	.3656	0	0	0	N	Y	N	N
gvamqgmco	Y	N	N	0	0	1	1	0	1	1	.1672	0	0	0	N	N	N	N
gvamqgmco	Y	N	N	0	0	1	1	0	1	1	.1666	0	0	0	N	N	N	N
gvamqgmco	Y	N	N	1	1	0	0	1	0	0	.3074	0	0	0	N	Y	Y	N

Appendix C continued...

Time Series	Pre-adjusted	Model Changed	Approx: to NA	New Model						SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic				
				<i>m</i>	<i>p</i>	<i>d</i>	<i>q</i>	<i>P</i>	<i>D</i>					<i>Q</i>	TC	S	U	Trans
gvamqchmcu	Y	N	N	0	0	1	1	0	1	1	7.006	0	0	0	N	Y	N	N
gvamqnmco	Y	N	N	0	1	0	0	0	1	1	.4644	0	0	0	N	Y	Y	N
gvamqnmcu	Y	N	N	0	1	0	0	0	1	1	.7069	0	0	0	N	N	N	N
gvamqommcu	Y	Y	N	1	2	0	0	0	1	1	.4466	0	0	0	N	Y	N	N
gvamqommcu	Y	N	N	0	0	1	1	0	0	0	.3817	0	0	0	N	N	N	N
gvamqococo	Y	N	N	0	0	1	1	0	1	1	.2845	0	0	0	Y	N	N	N
gvamqococu	Y	N	N	1	1	0	0	0	0	0	.2673	0	0	0	Y	N	Y	N
gvamqscscu	Y	N	N	0	0	1	1	0	1	0	62.49	0	0	0	Y	N	Y	N
gvamqsgscu	Y	N	N	0	1	0	0	0	1	0	182.26	0	0	0	N	N	Y	N
gvamqonmco	Y	N	N	1	0	0	0	0	1	1	.1874	0	0	0	N	N	Y	N
gvamqonmco	Y	Y	N	1	0	1	1	0	1	1	.1828	0	0	0	Y	N	Y	N
gvaoscu	Y	Y	Y	1	0	1	1	0	1	1	.1036E-01	0	0	0	Y	N	N	N
gvaoscu	Y	Y	Y	1	0	1	1	0	1	1	.1495E-01	0	0	0	N	Y	N	N
gvaosgvtco	Y	N	N	0	0	1	1	0	1	0	2229E-01	0	0	0	Y	N	N	N
gvaosgvtcu	Y	N	N	1	3	1	1	0	0	0	.3743E-01	0	E	0	N	N	N	N
gvaosprvco	Y	N	N	0	0	1	0	0	1	0	.8537E-02	0	0	0	Y	N	Y	N
gvaosprvco	Y	N	N	1	0	1	0	0	1	1	.1262E-01	0	0	0	Y	N	Y	N
gvaosprvb~o	Y	N	N	0	0	1	1	0	1	0	.2318E-01	0	0	0	Y	N	Y	N
gvaosprvb~u	Y	N	N	0	0	1	1	0	1	0	.2726E-01	0	0	0	Y	N	Y	N
gvaosprvbe~o	Y	N	N	1	1	0	0	0	1	0	.1565E-01	0	0	0	N	N	Y	N
gvaosprvbe~u	Y	N	N	1	0	1	1	0	1	0	.1921E-01	0	0	0	N	Y	N	N
gvaosprvhe~o	Y	N	N	1	1	0	0	0	1	0	.2221E-01	0	0	0	N	N	N	N
gvaosprvhe~u	Y	N	N	1	1	0	0	0	1	0	.2546E-01	0	0	0	N	Y	N	N
gvaosprvme~o	Y	N	N	0	0	1	1	0	1	1	.1887E-01	0	0	0	Y	N	Y	N
gvaosprvme~u	Y	N	N	1	3	1	0	0	1	1	.1114E-01	0	0	0	Y	N	Y	N
gvaosprvle~o	Y	N	N	0	0	1	0	0	1	1	.2373E-01	0	0	0	Y	N	Y	N
gvaosprvle~u	Y	N	N	0	0	1	0	0	1	0	.2742E-01	0	0	0	Y	N	Y	N
gvaosprvpe~o	Y	N	N	0	0	1	1	0	1	0	.1533E-01	0	0	0	Y	N	Y	N
gvaosprvpe~u	Y	N	N	0	0	1	1	0	1	0	.2398E-01	0	0	0	N	N	Y	N

Time Series	Pre-adjusted	Model Changed	Approx: to NA	New Model						SD(a)	Spectrum Factor	Check on ACF	Check on CCF	Deterministic				
				<i>m</i>	<i>p</i>	<i>d</i>	<i>q</i>	<i>P</i>	<i>D</i>					<i>Q</i>	TC	S	U	Trans
gvaosprivo~o	Y	N	N	0	0	1	1	0	1	0	.1286E-01	0	0	0	Y	N	Y	N
gvaosprivo~u	Y	N	N	0	0	1	1	0	1	0	.1951E-01	0	0	0	Y	N	Y	N
gvaodreco	Y	N	N	0	0	1	1	0	1	1	.1430E-01	0	0	0	Y	N	N	N
gvaodreco	Y	N	N	0	0	1	0	0	1	1	.1335E-01	0	0	0	Y	N	N	N
gvaodreco	Y	N	N	0	0	1	0	1	0	0	.6793E-01	0	0	0	N	Y	N	N
gvaodreco	Y	N	N	0	0	1	0	0	1	1	.5753E-01	0	0	0	Y	Y	N	N
gvaodreodco	Y	Y	Y	1	0	1	1	0	1	1	27.41	0	0	0	Y	N	Y	N
gvaodreodcu	Y	Y	Y	1	1	1	2	0	1	0	369.7	0	0	0	Y	N	N	N
gvatrcu	Y	N	N	0	2	0	0	0	1	0	.2495E-01	0	0	0	N	N	Y	N
gvatrcu	Y	N	N	0	0	1	1	0	1	1	.1632E-01	0	0	0	Y	N	Y	N
gvatrwscu	Y	N	N	0	0	1	1	0	1	0	.1855E-01	0	0	0	Y	N	Y	N
gvatrwscu	Y	N	N	0	0	1	0	0	1	1	.3637E-01	0	0	0	Y	N	Y	N
gvatrrtco	Y	N	N	1	1	0	0	0	1	0	.1765E-01	0	0	0	Y	N	Y	N
gvatrrtco	Y	N	N	0	0	1	1	0	1	0	.1871E-01	0	0	0	Y	N	Y	N
gvatcscu	Y	N	N	0	0	1	1	0	1	0	.1931E-01	0	0	0	N	Y	N	N
gvatcscu	Y	N	N	0	0	1	0	0	1	1	.2847E-01	0	0	0	N	Y	N	N
gvatcstscu	Y	N	N	1	1	0	1	0	1	0	.1655E-01	0	0	0	N	N	Y	N
gvatcstscu	Y	N	N	0	0	1	0	0	1	1	.4081E-01	0	0	0	N	N	N	N
gvatcscocomco	Y	N	N	0	0	1	1	0	1	0	.2826E-01	0	0	0	Y	Y	N	N
gvatcscocomcu	Y	N	N	0	0	1	1	0	1	0	.2919E-01	0	0	0	Y	Y	N	N

Entitlement Mentality: Undertones in Unproductive Conflict in Family Businesses

Andrea L. Santiago

“It is not for me. It is for my children. I do not want to deprive them of their right.” Elsa, a second-generation family member, shared why she was continually wrestling with her brother about the proceeds of the sale of their father’s business. Her father did not feel that either could lead the business, and so, it was sold while it had good market value. Unfortunately, Elsa’s father became incapacitated, and her brother assumed responsibility over the wealth generated by the family enterprise. He felt that he deserved more because he worked in the business, while Elsa did not contribute at all.

Studies show that only a third of family businesses are managed by members of the family beyond the third generation. Although many researchers attribute this to the failure in succession (Sharma, Chrisman, & Gersick, 2012), this study contends that it is unresolved family conflict that leads to the inability of the next generation to sustain business operations. Family members are unable to successfully settle disagreements when they do not find justice from perceived inequities. Inequities result from the belief that one does not receive what one deserves and to which one has a right. When individuals believe that privileges are rights, then they are said to possess an entitlement mentality. Huseman, Hatfield, and Miles (1987) disclosed that the outward manifestation of excessive entitlement is dysfunctional.

Family members with excessive entitlement attitudes take an offensive stance in advancing their privileged status, whereas family members who realistically earned their entitlements defend them from those who try to take them away. Business families that are unable to work through their entitlement attitudes are likely to experience continued, persistent, and possibly escalating conflict that may harm both family harmony and business performance. Conversely, business families that are able to resolve their entitlement mentality are able to focus family efforts on addressing business issues and increase the chance of business sustainability.

While the area of entitlement has been the subject of a growing number of researches, studies have been limited to the disciplines of psychology and law. Discussions on the effect of entitlement mentality on family businesses are found mostly in nonacademic literature. This paper, thus, takes a more structured approach to establish a link between entitlement mentality and unproductive family business conflict. The paper presents a new perspective and practical insights that would hopefully spur more inquiries on the effect of entitlement mentality on family business longevity. Moreover, this study bridges the social sciences with management sciences and merges theories on conflict management with family business.

This study maintains that family conflict is likely to bear down on how family businesses are managed, which, if left unattended, can damage family relationships and business operations.

Literature Review

Ma, Lee, and Yu (2008) reported that, for a 10-year period, the central themes of 556 articles on conflict management zeroed in on “workplace conflict and conflict management styles, cultural differences in conflict management, conflict in child and adolescent development, and group conflict and work performance” (p. 234). Furthermore, while conflict management research and family business studies have coexisted for decades, there is a dearth of published academic research on conflict management in family businesses. Over a 20-year period, Frank, Kessler, Nosé, and Suchy (2011) determined that there were only 10 relevant articles merging the two disciplines.

Pondy (as cited in Speakman & Ryals, 2010) presented that rather than regarding it as an exception, conflict should be considered as the norm. Speakman and Ryals (2010) contended that following development in complexity theory, conflict is not unidimensional nor does it occur sporadically. At any one time, multiple conflict situations can crop up with different levels of intensity—spanning over different time periods and eliciting different responses from the individuals involved.

Frank et al. (2011) posited that family businesses are more susceptible—relative to a typical organization—to conflict precisely because of the added dimension of family involvement. Left unresolved, discords can bring about poorer business performance, if not weaker family relations. Whether conflict itself leads to poor performance or poor performance leads to conflict is something worth exploring. For instance, Danes, Leichtentritt, Metz, and Huddleston-Casas (2000) forwarded the view that economic crisis can actually exacerbate family disagreements.

Realistically, not all conflict is bad given that the right amount of discord may provide the necessary tension to arrive at better outcomes (Fitzpatrick, 2007; Kellermanns & Eddleston, 2004, 2007; Speakman & Ryals, 2010) and that the resolution of which may involve a fair process that is essential in building trust and commitment (Van de Heyden, Blondel, & Carlock, 2005).

Early research on family business centered on the causes of conflict. Levinson (1971) attributed disputes to rivalries, particularly between fathers and sons. Meanwhile, Davis and Harveston (2001) claimed that conflict between generations become more pronounced as one moves away from the founding generation. They also noted that greater social interaction in business families creates a fertile environment for tension. However, Fitzpatrick (2007) contended that the alignment of value systems is a good response to conflict and is a prerequisite to effective collaboration. Nonetheless, despite having the same background, not all business families respond well to conflict.

Literature confirms that business families are interested in finding solutions to persistent themes (Sharma, Chrisman, & Gersick, 2012). Succession is the most widely investigated topic as family business owners are interested in bequeathing the business to a relative who can grow the enterprise. How families are governed and its effect on business performance and professionalization are topics that have likewise piqued the interest of researchers. On the more practical side, families are interested in the employment conditions, including the compensation, of family members and when children should be exposed to the business—in their early or late years.

Underlying the concern of many business families is maintaining family harmony while growing the business into a state that would sustain future generations. From the viewpoint of the founding owner, there is a strong urge to be fair. However, what is fair (Feng et al., 2013)? Although equality is the norm for most families, there are those who claim that to be just, one must be equitable. Still others believe that fairness is receiving something in proportion to what one has contributed. Since equity and proportionality bring with it subjective perceptions, fairness is only achieved when family members believe that personal expectations are met. If not, there is inequity.

The concept of entitlement made its way in the study of organizational behavior when Huseman, Hatfield, and Miles (1987) developed the Equity Sensitivity Instrument (ESI) that measured the perception of employees on job equity. On opposite sides of the spectrum, they identified employees willing to give more than they receive as “benevolents,” while those who wanted to receive more than what they bring in are referred to as “entitleds.” Davison and Bing (2008) introduced a multidimensional spin by recognizing the two aspects of equity: inputs and outputs. In either case, Naumann, Minsky, and Sturman (2002) realized that, in studying entitlement in the workplace, it was necessary to determine the employees’ entitlement perceptions and the reciprocity in the employee–employer relationship.

While individuals may be born to wealth and feel privileged, Hughes (2008) posited that the feeling of entitlement is not something with which an individual is born. Rather, it is transferred and grows in a symbiotic environment (Cooper, 2012). This suggests that parents, especially those who own businesses, may unwittingly encourage such behavior in their children. They may project an entitled mentality, for instance, by granting themselves certain privileges because they own the business or even by expecting that their children work in the family firm for little or no pay (Eddy, 2006; Frowine, 2003). They may also be overprotecting or overparenting their children and/or using family wealth as a carrot and stick. These examples may nurture a feeling among the next generation that they are extraspecial, which fosters a dependency attitude and strengthens the notion that they are entitled to special treatment because of “who they are” instead of “what they have accomplished” (Brown & Jaffe, 2011; Givertz & Segrin, 2012; Segrin, Wozidlo, Givertz, Bauer, & Murphy, 2012).

In the family business, the perception of entitlement is evident in the expectations of unconditional employment, distinct treatment compared to those who are not part of the family, and assurance that the family wealth will be inherited (Eddy, 2006; Johnson, 2006). Therefore, a family member may feel cheated if expected benefits are not received—which results in anger, frustration, and socially dysfunctional behavior (Cooper, 2012).

Access to sufficient wealth when the family business is performing well tempers feelings of injustice. As the business prospers and the family grows, there is, however, a tendency for the younger generation to expect their lifestyle to be maintained. Some may work in the family business while others may not. Yet, each may feel entitled to the business proceeds by virtue of their family name (Frankenberg, 2008; Furnari, 2006). Nonetheless, if the firm wealth grows faster than the family size, then the feeling of fairness may be maintained. However, if business wealth tapers—or the economy experiences a downturn—the feeling of inequity is exacerbated

(Brown & Jaffe, 2011). Consequently, business decisions made under these circumstances may be stymied until the perceived injustices are addressed.

The literature suggests that there are levels of entitlement—from low to high or from deserved to undeserved. Clearly, business families should guard against what Fisk (2010) termed as excessive entitlement, which is found in narcissistic individuals whose distorted sense of self may lead to aggressive behavior (Moeller, Crocker, & Bushman, 2009; Reidy, Zeichner, Foster, & Martinez, 2008). Instead, business families should nurture “equity sensitive” members who are able to ground their expectations on what is real and true (Huseman, Hatfield, & Miles, 1987).

Jaffe and Lane (2004) emphasized that, if the sense of entitlement is an acquired trait, then there is a lot that business families can do to ensure that family members are raised with the view of “earning their keep” and minimize expectations of “getting something for nothing” (Johnson, 2006). Jaffe and Brown (2009) opined that family members can be taught to become stewards of the family wealth, which, in the end, may be the true equitable solution.

Studies on conflict management suggested that discords can be resolved if family members communicate with one another and work towards more collaborative solutions to problems (Sorenson, 1999). There is no doubt that communication in an environment of trust is helpful in preserving family harmony. However, if family members do not address the root of the conflict, then problems will resurface. In all likelihood, repetitive disagreements stem from feelings of inequity.

Methodology

The case method was used to understand the relationship of entitlement mentality and conflict in family business. The researcher utilized an in-depth qualitative approach that draws on the accounts and experiences of family members to arrive at a theory. Close to 40 family members, aged 16 to 84, working in 10 family businesses were interviewed. The researcher relied on old contacts to provide leads for potential case participants. Two families did not feel comfortable sharing their conflict issues in public even under assurances of anonymity. Thus, their stories were excluded from the study. One family described an intergenerational conflict, which was also stricken from the paper, because it was not comparable with the rest of the cases.

Three families that were interviewed for an earlier study on conflict were contacted to determine whether their previous conflict situations were resolved and to gain more information and insight on the current research theme of entitlement. In addition, for one of these three family businesses, transcripts of a previous study were used for three family members who had passed away. The case was still used after new information was gathered from other family members. Due to the nature of the study, all case participants preferred to remain anonymous.

A semi-structured interview guide was used to elicit the perceptions of family members on entitlement and conflict. It should be pointed out that the objective of the research is not to generalize among all family businesses but to derive insights that would serve as bases for a possible measurement instrument. Thus, the analytic strategy was to examine each transcript and find common trends and themes based on the case participants' perceptions as the underlying source of their conflict. The researcher avoided using the word *entitled* and, instead, allowed the respondents to describe in their own words their sentiments about conflict situations. These descriptions were compared to published definitions of entitlement.

The findings presented herein draw from the themes that emerged from the transcripts. Direct quotations are used to provide flavor and allow readers to form their own conclusions. By the process of induction, experientially derived data is expected to result in a new theory that other researchers may test.

Results and Analyses

Lewis and Smithson (2001) presented that people's perception of fairness influences their sense of entitlement. They likewise asserted that fairness is assessed by comparing one's circumstances with another who is similarly situated. A sense of entitlement is also developed when one assumes that another will look after his needs and wants, such as the expectation that parents will provide for their children. Thus, children feel entitled to their parents' wealth. These presumptions have driven conflict situations in family businesses.

Appendix A presents a short profile of the case participants, while Table 1 compares their profile.

Table 1. Case Participant Profiles

Case	Business	Current Generation	No. of Family Branches	Manila-based?	Ethnic Origin	Business Outcome	Family Outcome
1	Hospital, college	2nd	6	Yes	Filipino	Ongoing	Strained
2	Department store	3rd	6	No	Filipino	Reduced to property rental	Vocal dissent
3	Mall	2nd	6	No	Chinese	Ongoing	Quiet dissent
4	Jewelry retail	2nd	5	Yes	Filipino	Ongoing	Polite
5	Restaurant	3rd	12	Yes	Filipino	Disbanded	Antagonistic
6	Real estate	2nd	5	Yes	Filipino	Disbanded	Antagonistic
7	Leather retail	1st	4	Yes	Filipino	Ongoing	Tentative

Three of the seven family business participants had conflicts that resulted in a downturn or the creation of separate businesses per family branch, whereas the others have functioning businesses, although family relationships are strained.

Appendix B captures the conflict situations and resolutions of the seven cases. The stories are likewise included in the emerging theme as subsequently described.

Fair is Equal

The natural default of offspring is to assume that fairness is equality. When a sibling is given more attention or privileges than others, there are complaints of favoritism. Parents, therefore, try to give the same things to all their children, even if sometimes they secretly give more to others.

Bob (in Case 5) is the subject of envy because his siblings feel that he is too attached to their mother. He bore the brunt of that jealousy when his mother passed away and there was no one to defend him against his siblings. Thus, even when he worked in and contributed to the family business's growth while his mother was still alive, his leadership was questioned after her death. He was given one restaurant branch to manage. When his branch's profitability made it possible to open a second one, his siblings protested. They believed that Bob having another restaurant would only be fair if all the others had two branches each.

Proportionally, Equally, Equitably

Is equal fair? Stone and Stone-Romero (cited in Miller, 2009) forwarded that individuals can think of fairness as equal, whereby each receives exactly the same share regardless of circumstance. It can also mean proportionate—someone who contributes more should be given more. Fairness can likewise be defined as equity or distribution according to need, wherein a person who needs more gets more. If family members agree on what is fair, then there will be no conflict. Huseman, Hatfield, and Miles (1987) asserted that, following Adam's equity theory, most family members believe that fairness depends on personal circumstances. Hence, a family member who feels highly entitled would ignore the input-output formula and insist that privileges are determined by birthright that transcends generations.

Each of the seven cases applies these varying definitions of "fairness." Clearly, family members who worked in the family business and who put in long hours such as Ben (Case 2) and Bob (Case 5) believe that they deserve a bigger share of the family wealth. In contrast, the eldest sibling in Case 1, through the prodding of his wife and daughter, feels that even if he does not manage the family business, he is still entitled to the business proceeds. Similarly, his female siblings feel that they should be allowed to make money off the business by establishing their own canteen operations within its premises.

The Cruz family (Case 3) is also at the crossroads. Each family member appears to have special circumstances, and the old formula of equality no longer appeals to everyone. The eldest is incapacitated due to a stroke. The second, with seven children, is the president of the business. The third, a female, and the youngest, a male, are both single—although the youngest has a partner. The president wonders why he should receive the same salary as the youngest given that he is the head of the company and that he has had 20 years more work experience than his brother. "*I am also the child of our mother,*" was the response of the youngest.

Equality of Opportunity Versus Equality of Results

Case 6 exemplifies the difference between equality of opportunity and equality of results. It was Ester's idea to start a real estate development business that targets low-income households. However, she received financial support from her parents, which allowed her mother to have a say on Ester's choice of a partner. Ester's mother insisted that the brother living in the United States be allowed to join the family business. Grateful for the funding, Ester

acceded. Ester also did not protest when her mother funded a rival real estate firm managed by Ester's two other siblings. Her mother's reasoning was that all her children should enjoy the same lifestyle. This is equality of results.

Equality of opportunity refers to leveling the playing field by giving each child the same chances to succeed. What happens next, as a result of effort, becomes the responsibility of the individual (Ooghe, Schokkaert, & Van de gaer, 2007). In many family businesses, parents, in an attempt to be fair, provide their children the same educational and career opportunities.

Exploitative Versus Nonexploitative Entitlement

Lessard, Greenberger, Chen, and Farruggia (2011) dichotomized the type of entitlement into belief and outward behavior of individuals. Individuals who believe that they deserve more than another and openly flaunt their privileged position in a disruptive manner—narcissists—exercise exploitative entitlement. Moeller, Crocker, and Bushman (2009) concluded that narcissists tend to destroy relationships. On the other hand, confident individuals, who believe in their self-worth and expect positive outcomes without taking advantage of others, exercise nonexploitative entitlement. In a fair exchange, nonexploitative individuals expect more because they give more.

The youngest Abad (Case 1) believes that he was responsible for the growth of the family business. He used to run his own firm, providing outpatient diagnostic facilities outside Metro Manila, but decided to give up the company to help in the family business. Initially, it was his elder sister who held the title of "president"—although he felt that he did all the work as operations manager. When his sister decided to migrate, he was finally given the title but not the commensurate salary. As the youngest, he hoped that his elder siblings would acknowledge his work and, eventually, approve an increase in his salary. When this did not happen, he authorized it himself. The decision was questioned by the daughter of the eldest Abad sibling. However, in a board meeting, his other siblings ratified the increase he gave himself, which angered his niece more than his eldest brother.

In Case 2, it was evident that Ben put in the work and deserved to receive more than his siblings, who did not contribute as much. However, his siblings felt that it was unfair. Thus, Ben conceded to give his siblings an equal monthly allowance. However, he did not share with them the proceeds of an enterprise that he put up with his own equity when the family business collapsed. Ben's siblings protested. They contended that the new firm was a related undertaking of the family business, thus they were entitled to some

of its profits. Factions formed among the six siblings, each trying to protect his claim to the remaining business assets and the new company. Up to his deathbed, Ben refused to share any proceeds with his siblings.

Family Wealth Is Business Wealth

When families have businesses, family members expect that the wealth the firms generate becomes part of the family wealth and, thus, their inheritance. Drake and Lawrence (2000) maintained that in many instances, even when an individual has a choice, inheritance is distributed equally. They attributed equality's popularity to the ease of implementation and likened it to the equal allocation of love, as supported by the studies of Simon et al. (as cited in Drake & Lawrence, 2000).

Equality in the allocation of wealth is supported by the family members in the seven cases. In the Garcia family (Case 4), for instance, the eldest believes that the sibling who lives in the ancestral home has actually received more than the rest. Similarly, Mon and Luz Perez (Case 7) are still alive, but they foresee that their children expect the business wealth to be distributed equally. They are considering selling the business and dividing the proceeds among their offspring, including their adopted child, before anything happens to them. They fear that their adopted child will be bullied by their natural children should they delay the decision.

Strong Parental Influence

The overinvolvement of a parent in a child's life reinforces a child's dependence on the parent and encourages self-entitlement (Givertz & Segrin, 2012). Baumrind (as cited in Givertz & Segrin, 2012) described this type of parent as authoritarian. An authoritarian is highly controlling and expects blind obedience. Campbell, Bonacci, Shelton, Exline, & Bushman (as cited in Givertz & Segrin, 2012) concluded that children raised by highly controlling parents tend to grow up narcissistic, believing that they deserve more than the rest. While this is may not be the intention of parents, this type of parenting style may very well explain a false sense of entitlement (Segrin et al., 2012).

“What can I do?” asked Ester (Case 6). “My mom keeps interfering and comparing us against each other. That is why my siblings butter up to her. If they can't get their way with me, they go to her. Then, I have to give-in. Is that fair?”

In almost all of the seven cases, the parent responsible for making decisions in the family business was the mother. It is possible that the fathers had steady paying jobs, but this may be cultural as well given that women are the managers of wealth among Filipino families. Regardless, the presence of the dominant parent appeared to control the behavior of their children—perhaps through fear or respect. Thus, even if the children felt that there were some inequities (such as favoritism in Case 5), they did not complain.

In the absence of the dominant parent, the family harmony is threatened. This is true for the first five cases. The youngest Abad (Case 1) had this to say: *“Our family friends admired us. They always remarked how well our parents raised us. That is why I cannot believe what is happening. My brother stood as our father after my father died. We looked up to him. Now, he is making it difficult for us to move the business forward. I don’t know. Maybe it is his wife or daughter. He was not that way before. My mom is probably turning in her grave.”*

For the five cases, even the decisions regarding the granting of positions, compensation, benefits, and allocation of wealth are questioned. The Cruz family members still talk to each other, but the situation is becoming tense. They have never declared any dividends, but all family expenses are charged to the family business. The youngest Cruz questioned why the education expenses of two of his nephews abroad are paid by the family firm. He also wants to know why the business funds the education of the seven children of the eldest sibling and why the company has to buy new houses for each of his married nephews and nieces. The firm also bears the cost of airline tickets of siblings, spouses, and their children. At the moment, he is unmarried and has no children of his own. His sister explains that the youngest receives the same monthly salary as everyone else, and since he has no family, he can use the entire amount on himself. The rest of them have to live on the same salary even if they have children. *“Are you questioning the wisdom of our mother?”* she asks.

Discussion and Emerging Theory

Except for a few instances where the words *entitled* and *entitlement* were actually uttered by the interviewees, it would appear that conflicts arose from the need to correct the perceived inequity in the distribution of family wealth. Conflicts surfaced because the previously accepted norm of equality no longer resonated among all siblings. One explanation for this is that members have more needs owing to, perhaps, a growing family of their own for whom they would like to provide a standard of living to which

they themselves have grown accustomed. Also, in the absence of a dominant figure who they can trust to take care of their needs, there appears to be a struggle to protect the interest of “my” family branch.

Drawing from the relevant literature and the findings of this research, it would seem that the sense of entitlement among children is reinforced in a family business where parents remind their children that the company is for the family and it is meant to support their lifestyle. While the parent is alive, fair is equal and equal is fair. The concept of fairness begins to change as children grow older and find expression when a dominant parent dies. At this point, both the family wealth and the needs and wants of children may have increased disproportionately. Without an authority figure to arbitrate, children want more and, thus, justify their perceptions of entitlement through need (equity) or merit (proportionate to input). If siblings agree that there should be a change, then there is no problem. If they do not, conflict will emerge.

Conclusion, Practical, and Policy Implications

“Someday, my son, this will all be yours.” Constantly reminded that the family business was established for the family and founders have intentions of entrusting the enterprise to family members, the next generation naturally expects that the business will eventually be theirs to administer and control. While some heirs may choose not to work in the business, they may insist on being members of the board of directors and, certainly, demand their share of the business wealth. Often they claim that it is not their personal interest that they are protecting but the interest of their respective families.

Entitlement becomes a problem when family members take more than what they contribute and when they expect to receive equal to, or more than, another by virtue of their family name. Consequently, instead of growing the family enterprise to provide for future generations, the jockeying for perceived entitlements may divert attention away from the business.

The research confirms the *a priori* that the feeling of entitlement stems from concepts of fairness. In a culture such as the Philippines, where the distribution of inheritance favors equality among equals, siblings expect that each will receive the same proportion of the family wealth. Where the wealth is generated by a family business, it follows that each expects to share equally in the proceeds regardless of circumstance or inputs.

Conflict erupts when there are family members who challenge the notion of equality as the basis of fairness. Some argue that equity is a better yardstick or that those who need more should get more. Yet, this too encourages unproductive behavior.

There is also confusion when applying equality. Does this refer to equality of opportunity or equality of results? The former means that family members are given equal chances to succeed, with parents giving each family member the same inputs. The latter means that family members should have similar results. Thus, if one family member is more progressive, assistance is given to those who lag behind so that the same results can be achieved. This implies that family members who are not as fortunate due to circumstance or their own personal decisions are provided differently. When the basis for equality is not clear to all, this also leads to conflict.

Regardless of how fairness is defined, the contention is that one is entitled to a stream of benefits by virtue of filial relations with the founder. In good times, when wealth is abundant, some may fight to get a larger share. In bad times, when debts are mounting, the same individuals may prefer a formula that reduces their exposure.

It is also interesting to observe that conflict surfaces when the founder has passed, specifically the dominant parent. It appears that the behavior of the next generation is controlled by respect or fear of the elder, usually the mother in the Philippines, and is let loose when there is no one to arbitrate. "If our mother was alive, this would not have happened" is normally expressed by a sibling or two who are currently in a tussle with another family member about how to manage the family business and wealth.

However, not all family members grow up believing that they have the right to work in the family business or that they are entitled to automatically enjoy its fruits, at least not at the same level as other family members. For instance, in many traditional Chinese family businesses, the founders stress that only male heirs are entitled to own and manage the business, with preference and greater perquisites accorded to the eldest male heir. As such, it is their natural expectation that they be accorded the same treatment and privileges as their parents when they eventually assume business leadership. Under Chinese customs, females are expected to marry and support their husband's enterprises. Thus, daughters do not expect to share in the family business wealth. However, they do receive special gifts from their parents. Chinese family businesses avoid future conflict with their children for as long as they uphold Chinese tradition.

For Philippine family businesses, the entitlement attitude can be held in check when children are brought up "to work for their keep." However, the extreme of not sharing wealth with children may also lead to resentment and detachment, which, in turn, awakens the need to scramble for a "fair" share of the wealth when the parent dies.

According to Huseman, Hatfield, and Miles (1987), the sense of entitlement has several levels that can be measured by the ESI. In family

businesses, no instrument exists to determine the perceptions of fairness and entitlement. This research proposes the “What is fair in family business” instrument in Appendix C. The questions emanated from the interviews with family members and explore how the sense of entitlement evolves from parenting through later years.

As family members answer the instrument, they may begin to understand what is troubling them the most and, thus, spend time to discuss with their family members what fairness means to them. The resolution may then help them find collaborative solutions to the other problems that beset them.

Understanding the effect of entitlement mentality in the family business is important because the behavior results in conflict, which in turn, affects business longevity. Families who are used to a standard of living provided by the family firm expect the business to provide for their needs and wants continually. Anything that threatens this notion, including actions taken by siblings and other family members, becomes a source of conflict. If not addressed to the satisfaction of all, unresolved discord can hinder business growth.

The growth of the economy is the sum of the growth of all businesses. In the Philippines as in many parts of the world, family businesses comprise anywhere from 80%–90% of all establishments and are part of the top 10 firms that contribute to the gross domestic product (GDP) (Cruz, 2015). The failure of family enterprises, therefore, can contribute to economic slowdowns.

Nevertheless, despite the relevance of family businesses to economic growth, there is little attention given to the influence of family attitudes, beliefs, and values on Philippine family businesses. Instead, focus is given on their managerial and strategic functions, as if these are the only determinants to family business success. Even among small- and medium-sized businesses, advice is limited to financial and business solutions. Nevertheless, in developed countries, family business centers and educational programs have grown exponentially in the past 20 years. Academics and consultants recognize that helping families deal with their relationship problems is a battle half won.

In the Philippines, it is difficult to convince policy makers and even financial advisors about the merits of paying attention to family business issues due to the lack of local researches that link the impact of family business activity on GDP. Yet, a closer look at the wealthiest individuals in the country shows that family firms dominate Philippine businesses. Even if many of the larger family enterprises are professionally managed, a former president of a noted family business (Rowell Recinto, personal communication, May 19, 2014) stated that “at the end of the day, it is the family name that matters.”

Limitations

This study relied on the accounts of family members about the conflicts they face in the family. There are families who deny that conflict exists even if others witness their squabbling. There are others so affected by the family conflict that their self-account may be tarnished by their emotions. To guard against this, the researcher corroborated conflict situations with as many family members who are willing to discuss them. In a few instances, nonfamily members were asked to provide insight.

Acknowledgment

This research was wholly funded by the DLSU–Angelo King Institute as part of the entrepreneurship and family business program. The content is solely the responsibility of the authors and does not necessarily represent the official views of the institute.

References

- Brown, F., & Jaffe, D. (2011). Overcoming entitlement and raising responsible next generation family members. *The Journal of Wealth Management*, 13(4), 28–33.
- Cooper, O. (2012). *Entitlement mentality: What created it?* Retrieved from <http://ezinearticles.com/?Entitlement-Mentality:-What-Created-It?&id=6979443>
- Cruz, E. (2015, May 14). Family business: Force for good. *The Philippine Star*. Retrieved from <http://www.philstar.com/opinion/2015/05/14/1454535/family-business-force-good>
- Danes, S., Leichtentritt, R., Metz, M., & Huddleston-Casas, C. (2000). Effects of conflict styles and conflict severity on quality of life of men and women in family businesses. *Journal of Family and Economic Issues*, 21(3), 259–285.
- Davis, P., & Harveston, P. (2001). The phenomenon of substantive conflict in the family firm: A cross-generational study. *Journal of Small Business Management*, 39(1), 14–30.
- Davison, H., & Bing, M. (2008). The multidimensionality of the equity sensitivity construct: Integrating separate benevolence and entitlement dimensions for an enhanced construct measurement. *Journal of Managerial Issues*, 20(1), 131–150.
- Drake, D., & Lawrence, J. (2000). Equality and distributions of inheritance in families. *Social Justice Research*, 13(3), 271–290.
- Eddy, P. (2006). *A different perspective on combating entitlement mentality*. Retrieved from http://www.sddt.com/Commentary/article.cfm?Commentary_

ID=85&SourceCode=20061213tbi#.U5WUxvmSySo

- Feng, C., Luo, Y., Gu, R., Broster, L., Shen, X., Tian, T., Luo, Y. J., & Krueger F. (2013). The flexible fairness: Equality, earned entitlement, and self-interest. *Plos One*, 8(9).
- Fisk, G. (2010). "I want it all and I want it now!" An examination of the etiology, expression, and escalation of excessive employee entitlement. *Human Resource Management Review*, 20, 102–114.
- Fitzpatrick, R. (2007). A literature review exploring values alignment as a proactive approach to conflict management. *International Journal of Conflict Management*, 18(3), 280–305.
- Frank, H., Kessler, A., Nosé, L., & Suchy, D. (2011). Conflicts in family firms: State of the art and perspectives for future research. *Journal of Family Business Management*, 1(2), 130–153.
- Frankenberg, E. (2008). Business owners' motivation: Entitlement or stewardship? *Family Business Magazine*, pp. 30–33.
- Frowine, S. (2003). *Is entitlement mentality threatening your company?* Retrieved from <http://www.bizjournals.com/charlotte/stories/2003/07/07/smallb5.html>
- Furnari, P. (2006). *Beating the entitlement factor in family businesses*. Retrieved from <http://www.bizjournals.com/boston/stories/2006/01/30/focus2.html>
- Givertz, M., & Segrin, C. (2012). The association between overinvolved parenting and young adults' self-efficacy, psychological entitlement, and family communication. *Communication Research*, pp. 1–24.
- Hughes, J. (2008). The path of altruism: A reflection on the nature of a gift and its consequences in leading to entitlement or enhancement. *The Journal of Wealth Management*, 11(3), 14–20.
- Huseman, R., Hatfield, J., & Miles, W. (1987). A new perspective on equity theory: The equity sensitivity construct. *Academy of Management Review*, 12(2), 222–234.
- Jaffe, D., & Brown, F. (2009). From entitlement to stewardship: How a prosperous family can prepare the next generation. *The Journal of Wealth Management*, 11(4), 11–28.
- Jaffe, D., & Lane, S. (2004). Sustaining a family dynasty: Key issues facing complex multigenerational business- and investment-owning families. *Family Business Review*, 17(1), 81–98.
- Johnson, R. (2006). *The attitude of entitlement in the family business*. Retrieved from <http://ezinearticles.com/?The-Attitude-of-Entitlement-in-the-Family-Business&tid=126046>
- Kellermanns, F., & Eddleston, K. (2004). Feuding families: When conflict does a family firm good. *Entrepreneurship Theory and Practice*, pp. 209–228.
- Kellermanns, F., & Eddleston, K. (2007). A family perspective on when conflict benefits family firm performance. *Journal of Business Research*, 60, 1048–1057.

- Lessard, J., Greenberger, E., Chen, C., & Farruggia, S. (2011). Are youths' feelings of entitlement always "bad"? Evidence for a distinction between exploitive and non-exploitive dimensions of entitlement. *Journal of Adolescence*, *34*, 521–529.
- Levinson, H. (1971, March–April). Conflicts that plague family businesses. *Harvard Business Review*, pp. 90–98.
- Lewis, S., & Smithson, J. (2001). Sense of entitlement to support for the reconciliation of employment and family life. *Human Relations*, *54*(11), 1455–1481.
- Ma, Z., Lee, Y., & Yu, K. H. (2008). Ten years of conflict management studies: Themes, concepts and relationships. *International Journal of Conflict Management*, *19*(3), 234–248.
- Miller, B. K. (2009). Confirmatory factor analysis of the equity preference questionnaire. *Journal of Managerial Psychology*, *24*(4), 328–347.
- Moeller, S., Crocker, J., & Bushman, B. (2009). Creating hostility and conflict: Effects of entitlement and self-image goals. *Journal of Experimental Social Psychology*, *45*, 448–452.
- Naumann, S., Minsky, B., & Sturman, M. (2002). The use of the concept "entitlement" in management literature: A historical review, synthesis, and discussion of compensation policy implications. *Human Resource Management Review*, *12*, 145–166.
- Ooghe, E., Schokkaert, E., & Van de gaer, D. (2007). Equality of opportunity versus equality of opportunity sets. *Social Choice Welfare*, *28*, 209–230.
- Reidy, D., Zeichner, D., Foster, J., & Martinez, M. (2008). Effects of narcissistic entitlement and exploitativeness on human physical aggression. *Personality and Individual Differences* *44*, 865–875.
- Segrin, C., Woszidlo, A., Givertz, M., Bauer, A., & Murphy, M. (2012). The association between overparenting, parent-child communication, and entitlement and adaptive traits in adult children. *Family Relations*, *61*(2), 237–252.
- Sharma, P., Chrisman, J., & Gersick, K. (2012). 25 years of *Family Business Review*: Reflections on the past and perspectives for the future. *Family Business Review*, *25*(5), 5–15.
- Sorenson, R. (1999). Conflict management strategies used by successful family businesses. *Family Business Review*, *12*(4), 325–339.
- Speakman, J., & Ryals, L. (2010). A re-evaluation of conflict theory for the management of multiple, simultaneous conflict episodes. *International Journal of Conflict Management*, *21*(2), 186–201.
- Van de Heyden, L., Blondel, C., & Carlock, R. (2005). Fair process: Striving for justice in family business. *Family Business Review*, *18*(1), 1–21.

Appendices

Appendix A. Glimpse of the Family Participants and their Business

Case 1—Abad Hospital and College

The Abad couple always wanted to establish a hospital, and they realized this dream when their eldest son became a doctor. Together with their son, they established their first hospital in a major city outside Metro Manila. This soon gave rise to two other hospitals in adjacent cities and eventually a school of nursing.

As the two other children became medical doctors, the couple decided to open a hospital in Metro Manila, which was then transferred to another city, also in the metropolis. It is this hospital—the Abad Hospital and the Abad College—that the couple bequeathed to their six children. The college also offers courses besides nursing.

Third-generation family members, most of whom are medical doctors, are beginning to work in the hospital or college but hold no managerial position.

Case 2—Reyes Department Store

Ana Reyes used the proceeds of her trading activities to establish a department store in the 1950s so that her children could eventually manage the business together. The eldest son, Ben, worked with his mother to grow the department store operations. When Ana passed away, he took the cudgels of running the business and training his five younger siblings. It was under Ben's supervision that the department store gained a good reputation. However, it was also under his stewardship that the business began to collapse. His siblings believe that it was Ben's reluctance to respond to the changing environment and his autocratic management style that led to the business downfall.

Third-generation family members participated in the store operations when the department store was still profitable. The second- and third-generation family members are between 70 and 85 years old and between 30 and 60 years old, respectively. Three of the second-generation family members have passed away.

Case 3—Cruz Mall Operation

The Cruz couple started a supermarket operation in a province south of Metro Manila in 1945. The business began to expand to include apparel. By 1970, there were two stores. The first turning point of the business was when the matriarch handed over the business to her children in 1980 after suffering from a stroke. It was then that the children decided to incorporate. From then on, the second-generation owners began to diversify the subsequently established mall operations.

Third-generation family members are exposed to the family business. The older ones hold managerial positions, while the younger ones hold odd jobs during summer breaks.

Case 4—Garcia Gemology

May Garcia started her business as a hobby, but when sales started to pick up, her husband decided to help her full-time. The jewelry business grew steadily, and some of the proceeds were used to finance other types of unrelated businesses. All went well until her husband passed away, and their only son, the middle child, took over the leadership of the family enterprise. The five siblings subsequently decided that the second sister should take over the jewelry firm, while the other siblings handle the remaining businesses. The former remains the flagship company, and the siblings meet weekly to discuss strategies. The second sister grew the retail outlets until she had to let it go due to her second bout with cancer. The youngest sister is now in charge of the business. The business, however, has stagnated.

Only one third-generation family member worked in the jewelry business. She resigned when her mother, the eldest of the five siblings, decided to enter the real estate business to wean dependence on the jewelry company.

Case 5—Hizon Restaurant

Rita Hizon started her restaurant business in the 1940s. Her restaurant was regarded as one of the restaurants to be seen in as Americans and government officials often frequented the place. Her 12 children worked in the restaurant. Among all of them, Bob, the middle child, was always around and, thus, learned all aspects of the business. The number of restaurant branches increased over time. When Rita passed away, each of the 12 children were given one branch to manage. However, not all branches performed well.

The entry of third- and fourth-generation family members diluted the main business. Each branch now operates their own food business leaving only two restaurants with the Hizon Restaurant trademark.

Case 6—Lim Real Estate

Ester Lim, the youngest of five siblings, started a real estate development company specializing in low-cost housing together with her husband and her older brother with his spouse. She invited a second brother, who was then based in the United States, to join them, but he declined at first. After several years, when the business was making money, he returned to the Philippines with his family. All of them worked in the real estate business established by Ester. The three couples expanded the business, and seeing how profitable it was, Ester's mother encouraged the remaining siblings to also enter the industry. However, the siblings' firms did not succeed. Meanwhile, Ester's company was affected by the downturn in the market, as her siblings continued to milk the business, driving it to bankruptcy.

Case 7—Perez Leather Store

Mon and Luz started a leather shoe manufacturing business 50 years ago. They began selling their shoes and other leather products in a small outlet until they became mall based. Riding on the franchise wave, they decided to expand their business through franchised operations. Seeing its potential, they decided, years before retirement age, to transfer the business to their children. They have three offspring and one adopted daughter. At that point, none of the children seemed to possess the traits that Mon wanted for a successor. Hence, to date, the company is still being managed by the couple.

The four children continue to work in the family business. The third-generation family members are still in their teens.

Appendix B. Conflict Situations, Resolutions, and Impasse

Case 1—Abad Hospital and College

The Abad children did not foresee that they would encounter any major conflict since they had always enjoyed each other's company. Their parents raised them to be respectful and accommodating. When their mother died five years ago (their father having died much earlier), they continued to maintain warm relations with each other. Two years ago, at the time when the college was generating good revenues under the stewardship of the youngest Abad,

a doctor trained in hospital management, trouble began. All of a sudden, the eldest brother, who owned and managed the three hospitals and the college in the province, felt that he needed to be more involved in the Manila-based family business and to stake his claim on part of the proceeds of the business. While he had been chairman of the board for a long time, he had always been solicitous. Now, he has become difficult to work with, opposing all ideas and delaying resolutions. He brings to board meetings his eldest daughter, who is a lawyer and who speaks for her father. His siblings question the daughter's intervention and insist that she can attend the meeting but cannot speak unless prompted. The eldest sibling refuses. Meanwhile, the siblings meet secretly and are ready to boot him out as chairman. They collectively feel that their eldest brother is probably getting senile and that his wife and daughter are the ones encouraging him to "protect" his interests. The siblings are not aware of the financial stability of the hospitals that the eldest exclusively owns and manages. (The eldest was not interviewed.)

Case 2—Reyes Department Store

As the eldest and having been personally trained by his mother, Ben felt very responsible for the growth of the department store. He managed the business as if it was his own and made all major decisions. His siblings were assigned to different aspects of the business, but since their initiatives were always questioned by Ben, they focused only on the tasks assigned to them. Nonetheless, they expected their monthly allowance. Conflict erupted after the matriarch passed away and the company began to lose money. Consequently, the business could no longer afford the family members' allowances. Ben, on the other hand, was able to find a way to generate new money as an offshoot of the department store operations. Since he claimed the idea as his, he retained all the new income.

The six siblings have been very respectful during the board meetings, but after each meeting, there was always a second meeting, sans the eldest, where the siblings air out their misgivings. The misgivings are also shared with third-generation family members, who egg their parents to protect their interests for the benefit of their children. The cousins have also grown suspicious of each other.

Ben and two of his sisters recently passed away. Ben's remaining sister has assumed the role of the eldest and, with it, the ire of her two brothers and the children of the deceased siblings.

Case 3—Cruz Mall Operation

The Cruz siblings do not openly confront one another when there are differences of opinion on how the business should be run. However, since the matriarch passed, there have been issues on compensation and benefits. Some have raised the need to revisit the manner by which they are distributed to each member of the family. Despite meetings with a professional advisor, the siblings have not implemented the proposed scheme that ties compensation with responsibilities. The females contend that the traditional manner of equally distributing the proceeds should be retained. However, the eldest, who serves as the president, insists that he should receive more since he takes full responsibility of the business. The youngest brother agrees, provided that the eldest is held accountable for the losses the firm suffered in the past due to an error in the president's judgment. The youngest also contests funding the third generation's education and travel benefits as these increase the share of the siblings who have children. He has none.

The siblings foresee that there may be a problem soon since the third generation is becoming involved with the business on a full-time basis. There are those who feel that only qualified third-generation family members should be allowed to join the family enterprise, while others insist that the business should provide jobs for all family members.

Case 4—Garcia Gemology

The founders of Garcia Gemology were autocratic, and so the children were used to doing what they were told to do. Of five siblings, the first two were heavily involved in the jewelry business. The only male handled the investment company, while a younger sibling dabbled with cinema and art production. The youngest sibling later became the general manager of the jewelry business.

The trouble started when an in-law helped in the investment company and incurred considerable losses after years of good profits. The Garcia siblings took this against the in-law. From then on, relations were strained. Another bone of contention is the in-law and his spouse taking residence in the ancestral home. As the house is a symbol of family unity, there is a hesitation to sell the home and distribute the proceeds equally.

Likewise, the siblings are hanging on to the family business to force them to see each other weekly and to fulfill the legacy of their parents. However, since the siblings were used to being told what to do, they had a difficult time running their various businesses without their parents. The eldest tried to introduce innovative strategies, but the rest of the siblings preferred to be

conservative. Thus, the eldest started a real estate business with her husband although she still attends the Garcia Gemology board meetings.

Case 5—Hizon Restaurant

Each of the 12 children of Rita Hizon felt they played a critical role in the success of Hizon Restaurant. Thus, when Rita appeared to favor Bob, there was a lot of animosity. These emotions were unleashed when Rita passed away. The siblings were very vocal about the perceived injustices as each wanted a bigger share in the company profits and the use of the brand name. The third-generation family members were just as vocal, and they fueled the conflict of the Hizon siblings by encouraging their parents to fight for their “rights.” The fourth-generation family members are not as affected as their parents since they grew up exposed to the business of their family branch only.

Case 6—Lim Real Estate

The first sign of trouble for the Lim family was when the siblings began to treat the company funds as their personal kitty. Each of the three couples was living luxurious lives even when the business was not doing well. There were also accusations of theft.

The couples did not want their children to be involved in the business, but their children saw the fortune to be gained from the real estate firm. Thus, they all wanted to participate. To avoid conflict, the three couples decided that, at some point, each of the couples would start their own real estate company. When Ester’s husband died of a heart attack, her siblings wanted her to use the insurance money to help the floundering business, but she refused. Instead, she set up her own. This angered her siblings, who felt that she had an obligation to help the family enterprise. Consequently, her siblings decided to also start their own real estate businesses and began to engage in unethical competition.

Case 7—Perez Leather Store

Mon and Luz are frustrated because none of the children appear to be competent and serious enough to take over the family business. The eldest son has no interest in the family firm. The second child works in the business but does not put in enough hours for the employees to respect him. The third child, a daughter, is busy raising her family. While she reports to work, she is easily distracted by her daughter, whom she brings to work. Her husband,

whom she met in the business, worked in the leather store for some time but decided to find another job to prove himself. The fourth child, who is still in college, is adopted.

The natural children of Mon and Luz are questioning whether their adopted sibling should be entitled to any part of the family wealth. Among themselves, they are also arguing whether the second sibling, who is working in the business, should be paid more since he is not always present in the company.

Appendix C. What is Fair in Family Business

1. Family members who work in the family business should be compensated as follows:
 - equally among the members of the same generation
 - depending on position, the higher the position the higher the compensation
 - males should be given higher salaries than females
 - depends on the parent

2. Since we have a family business, I expect to be given
 - a position with salary, personal benefits and monthly allowances, benefits that extend to my family, shares of stock
 - a position with salary, personal benefits and monthly allowances, benefits that extend to my family
 - a position with salary, personal benefits and monthly allowances, shares of stock
 - personal benefits and monthly allowances, benefits that extend to my family, shares of stock

3. Family wealth should be distributed as follows:
 - equally among siblings
 - equitably depending on the need of each sibling
 - proportionately depending on the contribution of each sibling to the family
 - depends on the parent

4. So far, I believe that I
 - have gotten a fair share of the family business wealth
 - may have received a little more than the rest and I have no complaints

- may have received a little less than the rest and I have no complaints
 - have not gotten my fair share and I feel cheated
5. If there is injustice, I will
- accept it as the will of the elders
 - complain about it
 - fight for it but will stop if it will mean destroying family harmony
 - fight for it even if it means destroying family harmony
6. In the present situation, I feel that
- my siblings and I are content with how the family business wealth has been distributed
 - my siblings are not content with the distribution and are resentful
 - I am not content with the distribution and I am resentful
 - my siblings and I are not content with how the family business wealth has been distributed, and we are all resentful
7. In the present situation, I feel
- there is no struggle to change how family business wealth is shared
 - there is a silent struggle to equalize perceived inequities in wealth distribution
 - there is a vocal struggle to equalize
 - it is a hopeless case
8. Currently,
- the family is as close as when my parents were around
 - the family is close but not as close
 - there are family factions
 - the family has drifted apart
9. I can describe family meetings as
- relaxed and fun
 - cautious and uncomfortable
 - very tense and controlled
 - adversarial

10. When we were growing up, my parents emphasized that
 - all of us had to work in the family business, regardless of qualification
 - anyone of us could work for the family business
 - we had to be qualified to work in the family business
 - only selected family members could work in the family business

11. I grew up in an environment where
 - my parents were like friends
 - my parents were more, lenient but strict
 - my parents were more strict but lenient
 - my parents were very strict and controlling

12. While growing up, if I were in trouble, my parents would normally
 - solve the problem for me
 - help me solve the problem
 - listen to me and allow me to solve it on my own
 - leave me alone

13. When my siblings and I were growing up,
 - each of us received the same allowance
 - each of us received allowances depending on our age
 - each of us had to do family chores to earn our allowance
 - we received no allowance

14. When I was growing up, my parents would
 - applaud me for a task because I was good at it
 - applaud me for a task even if I was not good at it
 - not applaud me even if I was good at it
 - not applaud me because I was bad at it

15. I believe that
 - I was the favorite child
 - I was one of the favorite children
 - My sibling was the favorite child
 - I was the black sheep

16. I want my children to
 - work in the family business
 - work elsewhere and then the family business

- work in my business
- do what they want

17. When I am at that point where I have to distribute my wealth, I will do so
- equally
 - equitably
 - proportionally
 - whatever way I want

How strongly do you agree or disagree with the following statements?
5—very strongly agree, 1—very strongly disagree

1. A sibling who works in the family business should get more than a sibling who does not work in the business.
2. A sibling who is the president/general manager of the family business should receive a higher salary than a sibling holding a different position.
3. A sibling who is mentally or physically incapacitated should be given the same amount as a sibling who is not incapacitated.
4. A sibling who takes care of a parent should get more than a sibling who does not take care of a parent.
5. A sibling with more children should get more than a sibling who is single or has no children.

Community-Based Entrepreneurship: An Alternative Social Enterprise Model for Small Communities in Poor Municipalities

Emilina R. Sarreal

Rural communities in poor countries all over the world are experiencing poverty due to scarcity of resources, overpopulation, and environmental degradation—which result in migration to more affluent urban areas. As a consequence of this, people from these rural communities, who moved to urban areas, subsist in squalor (Abrahams & Peredo, 1996, as cited in Peredo & Chrisman, 2006). Hence, in the next few decades, the United Nations (2001) and World Bank (2001) reports warned that a greater poverty rate is expected if migration to urban areas due to the lack of sources of livelihood in rural communities is not tackled immediately.

This research assumes that poverty can be significantly reduced through broad-based, locally focused solutions—specifically community-based entrepreneurs (CBEs) to generate jobs, income, and economic value added for the municipality, city, or province. Thus, this study addresses the suitability of CBEs to bring down poverty given certain socioeconomic stressors experienced in the municipality, city, or provincial level. Additionally, it analyzes entrepreneurship theory in communities assumed to be composed of enterprises and entrepreneurs. Lastly, because

the theoretical model of CBE of Peredo and Chrisman (2006) is based on observed community efforts to address the needs of impoverished areas, the research findings should be helpful to policy makers and practitioners in developing programs that support entrepreneurship as a tool for local development.

The Community-Based Entrepreneurship Model of Peredo and Chrisman

The community-based entrepreneurship (CBE) model of Peredo and Chrisman (2006) was proposed to realize the social and economic goals of communities. The authors define CBE as

a community acting corporately as both entrepreneur and enterprise in pursuit of the common good. Furthermore, this community behaves as an entrepreneur when its members collaborate in creating or identifying market opportunities and eventually organize themselves to exploit them. In addition, the community has to operate as an enterprise as its members work together in the production and exchange goods and/or services using the existing social structure of the community as a means of organizing those activities. (p. 315).

Using the collective skills and resources of a community, CBEs, according to Peredo and Chrisman (2006), are built to satisfy both the social and economic goals of the community. Social goals are emphasized over economic goals with governance structures being collective and management structures democratic (Peredo & Chrisman, 2006). *Community*, per Peredo and Chrisman (2006), refers to “an aggregation of people in a common geographic location and not solely defined by the sharing of goals or the productive activities of the enterprise” (p. 315).

Furthermore, Peredo and Chrisman (2006) concluded that profit will not be the main “purpose of the enterprise, although some return is necessary to make the operation sustainable” (Peredo & Chrisman, 2006, p. 316). In their parlance, the return can be used in achieving some other community purpose, which makes the “lower rate of return acceptable in exchange for the achievement of other community goals” (Peredo & Chrisman, 2006, p. 316).

Conditions That Influence the Emergence of CBEs

The conditions that influence the emergence of CBEs—identified by Peredo and Chrisman (2006)—are enumerated and discussed below.

Triggered by socioeconomic stress. CBEs, according to Peredo and Chrisman (2006), “are formed as a result of the combination of the following: 1) economic crisis and lack of individual opportunity; 2) processes of social disintegration; 3) social alienation of a community from mainstream society; 4) environmental degradation; 5) postwar reconstruction; and 6) volatility of large businesses” (p. 316).

Product of incremental learning. Communities that previously perform collective political actions are known to produce CBEs (Peredo, 2005, as cited in Peredo & Chrisman, 2006), which may “result in the development of tacit knowledge with regard to organizing to achieve goals” (Spender, 1994, as cited in Peredo & Chrisman, 2006). Furthermore, Peredo and Chrisman (2006) concluded that tacit knowledge benefits the communities that seek to put up CBEs.

Dependent on social capital. CBEs emerge from communities that lack significant material resources like land and access to capital markets. In these communities, members “depend on social relations or social capital to address their needs” (Peredo & Chrisman, 2006, p. 317). Hence, “CBEs are created according to collectively owned cultural, social, and ethnic endowments” (Peredo & Chrisman, 2006, p. 317). Community networks enable the 1) pooling of resources, 2) coordination of actions, and 3) creation of safety nets that reduce risks for community members.

Community size. As with any entrepreneurial venture, the startup and success of a CBE require that the community possesses sufficient resources to launch the enterprise. Peredo and Chrisman (2006) found that poor communities are at a disadvantage when it comes to forming CBEs since they have limited resources on a per capita basis. Thus, the larger communities possess an advantage in the creation of CBEs relative to smaller communities.

Community skills and experience. The skills and experiences of the members of the community influence the type of economic activity that CBEs adopt.

Advantages and Disadvantages of CBEs

Torri (2009) emphasized that sustainable local development can be attained using CBEs as a strategy. First, the conventional processes of entrepreneurship and economic development do not seem to attract investments in depressed areas. Thus, CBE—as an approach to entrepreneurship that takes into account the disparities in resources, infrastructure, culture, and values—

could be considered by policymakers and practitioners as tools for local development and sustainability (Gui, 2000, as cited in Torri, 2009).

Secondly, the importance of community exercising entrepreneurship has been widely discussed in the literature (Walzer, 2004; Wilson, Fesenmaier, Fesenmaier, & Van Es, 2001; Henton, Melville, & Wallesh, 1997; Johannisson & Nilsson, 1989). Entrepreneurs are known to significantly impact local economies through the creation of jobs and linkages to the global economy (Henderson, 2002).

Lastly, Torri (2009) cited Dasgupta (2000) in her findings that “community-based organizations that adopt multilayered network structure produces a diversity of stakeholders result in comparative advantage as it enhances the capacity of grassroots organizations for collective action, as well as the sustainability and ability to grow through local development efforts” (p. 426).

Conceptual Framework

This research is an exploratory study which tested Peredo and Chrisman’s community-based entrepreneurship (CBE) model. This research applied the following conditions for community-based entrepreneurs to emerge: 1) socioeconomic stressors, 2) a community size that complements the amount of its physical and financial resources, 3) skills and experience of its members, 4) availability of social capital or community participation in solving community issues through membership in organizations, and 5) participation in programs that generate incremental learning (refer to Fig. 1).

In this research, mean scores were computed for all conditions for community-based entrepreneurs to exist to yield the CBE index. The higher the CBE index, the higher the ability to form CBEs in the chosen municipality, city, and province. Furthermore, the conditions for CBEs to exist in each municipality, city, and province were grouped according to the ability to form CBEs in terms of socioeconomic stressors experienced, available skills, experience of community members, availability of social capital, and incremental learning. The resulting cluster characteristics for each municipality, city, and province were labeled to describe their present conditions. These characteristics helped determine whether communities have the ability and propensity to form CBEs.

As regards the effects of CBEs, the relationship between CBE and the behavior of individuals and other communities were tested using causal research design. Greater levels of CBE were assumed to positively influence individual perceptions of feasibility and social desirability of starting a

business. Thus, the relationship between individual entrepreneurship and community entrepreneurship was established as discussed below.

The effects of CBEs, as emphasized in Peredo and Chrisman (2006), are manifested through individual entrepreneurship and transmissibility of CBEs to other communities. The CBE model works “when a community takes a collective initiative to create new business ventures that will result in achieving or regaining an acceptable equilibrium living conditions” (Peredo & Chrisman, 2006, p. 322). “CBEs also work if local natural resources, cultural, and social assets are harnessed to improve the living conditions of the community” (Peredo & Chrisman, 2006, p. 322).

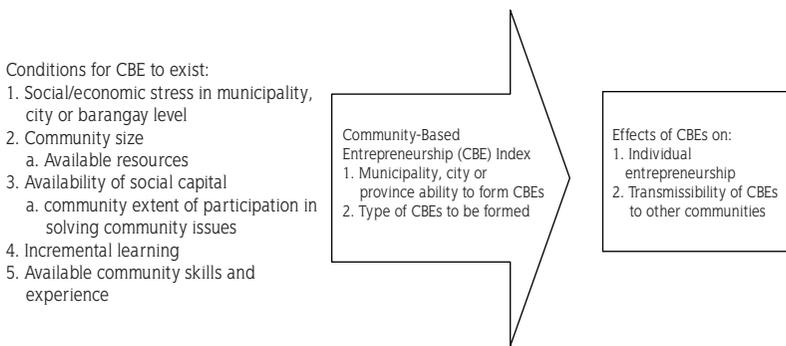


Figure 1. CBE as catalyst to individual entrepreneurship as adapted from Peredo and Chrisman (2006).

Operational Definition of Terms and CBMS Data Source per Variable

Peredo and Chrisman’s (2006) CBE model is tested using CBMS data on conditions for CBEs to exist in communities.

Social/Economic Stress

CBEs attempt to solve the socioeconomic problems of communities. CBMS data were used to determine the social and economic stress level of a specific municipality, city, and province—which may encourage the formation of CBEs.

Section G, *Katangiang Pangkabuhayan* (source of livelihood)—questions 23, 26, and 27—pertained to the respondent and his relatives’ employment status, condition of employment, and type of work. Questions 28 to 33 provided information on unemployment, length of unemployment, and measures taken to find a job.

Section J, *Mga Kasambahay na Nag-Iisang Magulang* (single parenthood)—questions 45 to 48—gave information on single parenthood.

Section I, *Mga Kasambahay na May Kapansanan* (relatives with disability)—questions 48 to 53—provided data on physically challenged household members who cannot contribute to livelihood.

Community Size

According to Peredo and Chrisman (2006), community size is significant in creating CBEs. Section B, *Demograpiya* (demographics), questions supplied information on household size in a community. Population sizes by municipality, city, and province were obtained from the Office of the President Philippines National Anti-Poverty Commission (n.d.).

Availability of Resources

CBMS questionnaire sections H, I, and J gave information on respondents with OFW relatives, single parents, handicapped relatives, and senior citizens to determine income sources and the number of dependents. Questions 75 to 85 supplied data on living conditions and available space and amenities for potential livelihood projects. Section P of the questionnaire presented information on household income sources to determine capacity to sustain livelihood projects.

Availability of Social Capital

This information, according to Peredo and Chrisman (2006), pertained to the respondents' social relations among community members, cohesiveness, and receptiveness to collective action. Section E, *Samahang Kinaaaniban* (community organization membership)—questions 18 to 19—offered data on community organizations, associations, or clubs.

Incremental Learning

Availment of and attendance in programs and trainings of community members “result in the development of tacit knowledge in developing organizing skills to achieve community goals” (Peredo & Chrisman, 2006, p. 317). Questions 140 to 143 determined the type, source, and effects of livelihood, credit, and other programs.

Available Community Skills and Experiences

The skills and experiences of the members of the community influence

the type of economic activity adopted by CBEs. These skills are based on collective ancestral knowledge; “some are developed through the experiences of individuals [working] outside the community” (Peredo & Chrisman, 2006, p. 319). Questions 23 to 33 gathered information on employment experience and technical skills, while question 134 gathered the income status of skilled but poor community members.

Community-Based Entrepreneurship Index

The ability of the municipality, city, or province to form CBEs is based on the mean scores computed for all conditions for CBEs to exist divided by the total number of variables/conditions for CBEs to exist—the higher the score, the higher the ability to form CBEs. In addition, mean scores of CBE conditions possessed by each municipality, city, and province were correlated with the type of entrepreneurial activity to determine the entrepreneurial activity that exhibits significant association with CBE conditions.

Methodology

Research Design

CBMS data was used for this exploratory research. CBMS is “one of the tools developed in the early 1990s to provide policymakers and program implementers with a [database] for tracking the impacts of macroeconomic reforms” (Office of the President Philippines National Anti-Poverty Commission, n.d.). Collected at the local level, the information is helpful to all levels of government units and various types of domestic and foreign nongovernment organizations as inputs to planning, program implementation, and monitoring.

Sampling and Respondents

Included in this study are the first-class province of Batangas (Region 4), first-class city of Pasay (National Capital Region), first-class municipality of Carmona (Region 3), and fifth-class municipality of Malimono (Region 13). They were selected based on their income classification as province, city, and municipality, respectively. Their profiles were gathered from their respective websites.

Municipality of Carmona. Carmona is located on the southeastern part of the province of Cavite with a total land area of 30.92 km². Carmona, with

14 barangays, represented 2.17% of the total land area of the province (“The Official Website of Carmona, Cavite, Philippines,” 2009).

Carmona had a total population of 78,852 or 14,885 households in 2010 (“The Official Website of Carmona, Cavite, Philippines,” 2009). Most population catalysts—such as banks, town centers, and commercial establishments—were found in the Poblacion area.

Municipality of Malimono. According to “Wow Surigao Philippines” (2015), “the municipality is located in the southwest part of the province of Surigao del Norte and 32 kilometers from Surigao City.” Malimono has a total land area of 8,120 hectares, a population of 14,597 people in 2,817 households, and 14 barangays.

Pasay City. In terms of area, “Pasay City is the third smallest political subdivision in the National Capital Region. Pasay City has a total land area of 18.50 square kilometers of which 5.5050 square kilometer is the City proper. Among the local governments in the National Capital Region, Pasay has the largest area devoted to utilities covering 51.35% of its total land area. Pasay is composed of seven districts, divided into 20 zones, with a total of 200 barangays” (“City of Pasay,” 2010–2015).

Batangas Province. Batangas “is located on the southwestern part of Luzon in the CALABARZON region. Batangas is a combination of plains and mountains, including the world’s smallest volcano, Mt. Taal, with an elevation of 600 meters. Batangas also has many islands, including Tingloy, Verde Island (Isla Verde), and Fortune Island of Nasugbu” (“Batangas All Here. So Near,” 2015).

Data Analysis

The CBMS data were employed for descriptive analysis, cross-tabulation correlation analysis. Descriptive statistics through the skewness index was used to test for the normality of respondent distribution in terms of their demographic profile. The skewness index range of -3 to $+3$ was used to establish the normality of distribution of the respondents’ age, gender, civil status, and religion.

Descriptive Analysis

Two survey data sets were provided by the CBMS office, which included each household member’s profile. The second data set included information on residence or location, available resources, information on relatives abroad, and total household income. Please refer to the tables in the Appendix for the quantitative analysis results.

Both the Carmona and Malimono municipalities' data sets are normally distributed in terms of gender, age, and civil status. Likewise, except for religion, the household members' figures are normally distributed for all the sample areas. As most of the Carmona and Pasay City household members were Catholic, religion is positively skewed (refer to Table 1).

Descriptive analysis was also done for the conditions for CBE to exist to provide a general picture of each of the sample area's situation.

Socioeconomic stress. CBEs emerge as a means by which communities can solve socioeconomic problems such as unemployment, single parenthood, physically challenged community members, and senior citizens or elderly members.

Batangas, Carmona, Malimono, and Pasay City have mean and mode scores of 2 indicating that, on the average, households had a single parent at home. In terms of household members with physical disability/handicap or elderly, respondents in all sample areas 1) did not indicate the presence of disabled members, 2) at most had one household member who is handicapped, and 3) on average had zero to one member who is more than 60 years old.

For household members seeking medical attention, 1) Carmona, on average, had one household member; 2) Malimono's and Batangas's household members, on average, had none; and 3) Pasay had no data. As regards to death in the family, all areas under study—except for Batangas (indicated at least one death in the family)—reported no deaths during the survey period (refer to Table 2).

Unemployment was the main household economic stressor in Pasay and Batangas with the highest rates at 23.5% and 28%, respectively. Pasay household members were mostly employed as permanent workers (90.4%). Malimono, Batangas, and Carmona reported that more than 20% of their employed workers were on short-term contract (refer to Table 3).

Roughly 90% of all unemployed household members did not look for work. When asked if they are willing to work, majority did not express interest since they had to take care of children, the elderly, or attend school (refer to Table 4).

Community size and availability of resources. Population levels for the areas under study are indicated in Table 5. Survey results revealed that all the areas covered by this study had, on average, three members per household ("Philippine Statistics Authority," 2012).

Availability of physical and financial resources is relevant in forming CBEs (refer to Table 6). Survey results indicated that both Malimono and Pasay had community-shared and owned water facilities. Carmona had a deep well shared with the community, and Batangas had deep wells owned

by the households. Toilet facilities used for all areas were water-sealed septic tanks.

In terms of physical resources, all areas under study had 1) an average tenure of three to four years in their residences with walls and roofs made from strong materials with the exception of Malimono, where households were using light materials for their houses, 2) electricity connected to electric companies or cooperatives, and 3) majority of households in Malimono and Pasay did not own appliances nor communication gadgets. Carmona households were equipped with basic appliances and cellular phones. Batangas had no data on household equipment and appliances.

The entrepreneurial activity that provided income for Malimono households was crop farming. Carmona, Pasay, and Batangas households derived income from wholesale and retail trade activities. Pasay City had the highest average salaries, followed by Carmona and Batangas. Malimono had the lowest wage at PHP 10,853 per month (refer to Table 7).

Availability of social capital. CBE is rooted in networking with people through organizations to form social enterprises. Survey results indicated that 1) on average, household members for all areas in this study did not join organizations; 2) a few belonged to civic organizations in Malimono; 3) Carmona residents mostly joined women's organizations; and 4) senior citizen organizations were preferred in Pasay City and Batangas (refer to Table 8).

Incremental learning. Household members in all the areas under study, on average, did not take advantage of programs implemented by the government and private organizations. The frequently availed programs for those who did were 1) credit programs in Malimono and Carmona, 2) credit and health assistance programs in Pasay, and 3) health assistance and supplemental feeding programs in Batangas. Skills and livelihood programs were seldom attended by the household members (refer to Table 9).

Availability of community skills and experience. Majority of those surveyed in Malimono, Carmona, and Pasay did not attend school. School attendees at the time of the survey were enrolled in the 4th grade, 3rd grade, and preparatory or kindergarten, respectively. Most of them attended private schools. The highest educational attainment for Malimono respondents was grade 6. Carmona and Pasay City respondents were predominantly high school graduates (refer to Table 10).

On average, respondents from Malimono and Batangas were farmers, forestry workers, and fisherfolk. Carmona respondents were mostly traders. Pasay City workers were generally employed as service, shop, and market workers. Except for Malimono, respondents from Carmona, Pasay, and Batangas were employed in private establishments. Malimono's respondents mostly worked for households (refer to Table 11).

Malimono's respondents had the highest share in engagement in all entrepreneurial activities—except for community, social and personal services, and transportation, storage, and communication where Carmona got the greatest share to total (refer to Table 11).

Correlational Analysis of Demographic Variables by Program Type Availment

Using Pearson correlation, the demographic variables' association with program type, availment, and effect ratings were obtained to determine the type of programs that would be beneficial and significant to various demographics. Cross-tabulation by type, impact, and sources of livelihood, training, and credit programs by demographic variables was undertaken to determine the direction and significant relationships that occur between the demographic variables and the conditions for CBEs to exist. The significant results are discussed below.

Results for Malimono indicate that 1) male respondents signed up for housing and credit programs, 2) female respondents joined health assistance and supplementary feeding programs, and 3) older respondents did not participate in programs initiated by the government or private sector.

For Carmona respondents, 1) unmarried respondents did not participate in programs sponsored by the government or private organizations, and 2) married, widow/er, divorced, and live-in partners availed of these programs.

For all areas under study, religion and educational attainment had no significant association with program type, availment, and effects (refer to Table 12).

Correlational Analysis for CBEs to Exist

Using Pearson correlation, the association between conditions for CBEs to exist and entrepreneurial activities was obtained to determine the type of entrepreneurial activities that are significant for various conditions for CBEs to exist. The correlation between these variables was undertaken to determine the direction and significant relationships that occur between the entrepreneurial activities and the conditions for CBEs to exist. Selected results are discussed in the subsequent section.

Carmona. Gender is significantly and positively associated with engagement in transportation, storage, and communication (TSC), construction (CON), crop farming and gardening (CFG), and forestry (FOR). Males were, thus, engaged in these activities more than females. Female respondents were more involved in community, social, and personal services (CSPS) relative to males.

In terms of age, civil status, and religion, 1) older respondents were engaged in manufacturing (MFG), CSPS, TSC, CON, CFG, livestock and poultry (LP), FOR, and wholesale and retail (WR); 2) single or unmarried respondents were engaged in CSPS and LP but not in MFG and CON; 3) Catholics were engaged in construction; and 4) non-Catholics were into WR activities.

For educational attainment, 1) respondents in MFG, TSC, CON, CFG, LP, FOR, and WR had less education; 2) noneducated respondents were in CFG, LP, and fishery (FSH); 3) board passers were in CSPS; and 4) non-board passers were into MFG, TSC, and CON.

Employed respondents were engaged in entrepreneurial activities belonging to TSC, CON, CFG, FOR, and WR. Seasonal employees were engaged in MFG, CON, and CFG, while permanent workers were in TSC, FOR, and WR. Those who did not look for work in the past three months did not find opportunity to work since they believed that no work was available and they were not willing to work in TSC activities (refer to Table 13).

Malimono. Table 14 shows that a significant and positive correlation exists between gender and entrepreneurial activities for Malimono respondents who were engaged in CFG, LP, FSH, FOR, TSC, mining and quarrying (MQ), and CON—indicating that male respondents were engaged in these activities, while females were engaged in WR and MFG. Older respondents were engaged in CFG and MFG, whereas younger respondents were into FSH, TSC, MQ, and CON. Married respondents were in MQ, while those who were single took on CFG and WR. Catholic respondents were in FSH, while non-Catholics were in CSPS and MQ.

Malimono respondents engaged in any entrepreneurial activities were not members of any indigenous people (IP) group or any community organizations. Malimono respondents who had higher educational attainments were engaged in WR and TSC, whereas those undertaking CFG, LP, FSH, FOR, and MQ had less education. Respondents in CFG, FSH, FOR, MQ, and CON were not board passers, while WR and TSC workers were board passers.

Respondents engaged in CSPS, MQ, and CON activities were seasonal or temporary workers. Results also indicated that respondents involved in FSH and TSC activities were looking for and willing to work in these sectors.

Pasay. Table 15 indicates that females were engaged in fishery, while older respondents were engaged in maintenance services. Married respondents were involved in TSC activities. Those engaged in LP were members of religious groups, whereas those in entertainment services (ES) and CSPS were members of indigenous people groups.

Pasay respondents 1) were engaged in WR and not willing to work; 2) had single parents, disabled members, and death in the family; and 3)

experienced food shortage in the last three months. Those engaged in MS and CON were not looking for jobs, but those engaged in ES were willing to work.

All entrepreneurial activities have significant positive relationships with the number of household members receiving wages, indicating that income did not only come from the entrepreneurial activities but also from employment.

Batangas. Batangas respondents engaged in FSH were older and married household members, while younger respondents were undertaking LP, MFG, and services (SV) activities.

Respondents who were board passers are engaged in FSH and FOR, whereas non-board passers were in LP, MFG, and SVS. Respondents engaged in LP, FSH, and FOR were not employed. The occupation of those engaged in CFG, FSH, SVS, and TSC were nonmanagerial in nature, while those engaged in MQ were government officials and managers. Employed respondents engaged in CFG, LP, and FSH generally worked for agriculture, forestry, and fishery sectors.

Unemployed Batangas respondents engaged in FSH were looking for jobs through registration with public and private employment agencies. Those engaged in construction did not look for jobs since they believed that there was no job opportunity and they were not willing to work in the future (refer to Table 16).

Correlational Analysis by Program Type and Availment

Participation in programs is significantly associated with cash and in kind incomes generated from entrepreneurial activities for Malimono and Batangas. The results indicate that 1) for Malimono, participation in programs would increase income from crop farming. Popular programs for Malimono were housing and credit programs. And 2) for Batangas, income from activities performed to earn a living is lower with participation in programs (refer to Table 17).

Conclusions

This study considered whether individual entrepreneurship should be encouraged over CBEs to generate jobs, income, and economic value added. It assessed the suitability of community-based entrepreneurship for specific communities to reduce poverty given the socioeconomic stress experienced in the areas under study.

Based on the weighted average scores of the conditions for CBE to exist, unemployment and lack of opportunity to work are the major stressors for the sample areas. Overall, the results of the research revealed that Batangas and Carmona are more predisposed to be engaged in entrepreneurial activities.

In relation to community size, Carmona had the largest number of members per household but had the lowest income from entrepreneurial activities. Pasay had the highest monthly income from wages per household and the greatest income earned from entrepreneurial activities.

With respect to social capital, all areas under this study revealed little to no membership in organizations. Neither did respondents take advantage of programs implemented by the government and private organizations. Concerning the availability of skills and experience, all respondents were literate, with Carmona and Pasay having the highest educational attainment (refer to Table 18).

The municipalities, city, and province under study had little to no available social capital and incremental learning from programs implemented by either the government or private sector. Nevertheless, all areas under study had 1) adequate literacy and educational attainment and work experience and 2) little to no engagement in entrepreneurial activities, except for Malimono, which had engagement in crop farming, fishery, and forestry.

Finally, the overall ranking of conditions for CBE to exist in Table 19 shows that Carmona has the most suitable conditions for CBE to exist with the 1) largest community size and available financial resources from wages and 2) least available financial resource from entrepreneurial activities.

Pasay has the least suitable conditions for CBE to exist with the lowest community size and largest availability of social capital and incremental learning. Pasay is the least qualified for CBE to exist since it has the highest available financial resources from entrepreneurial activities and work experience.

Policy Implications

North and Smallbone (2006) emphasized that local government units or levels should formulate policies needed to develop the regional entrepreneurial capacity either through community-based entrepreneurship or individual entrepreneurship. However, according to the authors, these policies are meant to improve the “competitiveness of existing enterprises,” rather than developing the “entrepreneurial capacity of rural regions in starting businesses” (North & Smallbone, 2006, p. 59). Thus, this research looked into the possible avenues for entrepreneurship in impoverished localities.

Promoting a Holistic Approach to Entrepreneurial Activity

According to Solow (2000) and Dia (1996) (as cited in Torri, 2009), the variations in the needs of local businesses should be the focus of CBEs to harness the potential for constructive local development to induce exchanges of resources among members. Thus, capacity building efforts that aim to promote local enterprises must focus on strengthening the existing capabilities of communities that are beset with social stressors.

Developing Infrastructure to Support CBEs

Policy making at the regional level is vital in developing regional infrastructures (North & Smallbone, 2006). As a critical support system for rural entrepreneurial activities, however, they must be complemented with private-sector business services that can fulfill the requirements of rural-sector entrepreneurs.

Investment in education and training systems is a “prerequisite to increase the number of people receiving secondary and tertiary level education as well as to encourage more business owners to serve as trainers is crucial” (North & Smallbone, 2006, p. 56). Business owners, as recommended by North and Smallbone (2006), should act as “trainors to focus on raising marketing skills, the ability to prepare business plans, financial management, and the quality of innovation management” (p. 56). Skills development should focus on (North & Smallbone, 2006) 1) the introduction of entrepreneurship modules in professional training courses, 2) increased entrepreneurship promotion and training in communities with “low population density and weak entrepreneurial culture” or spirit (p. 57), 3) “greater flexibility in the eligibility criteria for training [programs] orientated towards self-employment” (p. 57), and 4) the development of regional and subregional coordination mechanisms of training supply to prevent duplication (p. 57).

Available and sustainable physical and social infrastructure. Physical and social infrastructure improvements (i.e., market institutions, banking systems, etc.)—complemented with enhanced self-governance—are essential to successfully build entrepreneurial capacity in rural areas (North & Smallbone, 2006).

Moreover, the formation of medium-size urban centers with the necessary physical and social infrastructure (i.e., roads, health facilities, etc.) is assumed to reduce internal migration rates, with the young people leaving the community for better work opportunities (North & Smallbone, 2006). These young people are expected “to contribute to developing the entrepreneurial capacity of these peripheral rural regions” (North & Smallbone, 2006, p. 57).

Overcoming innovation and enterprise development barriers.

Businesses in the rural areas encounter factors that hinder innovation, which they attribute to inherent rural business environment characteristics. Hence, North and Smallbone (2006) suggested that “initiatives that help firms enter nonlocal markets (i.e., external assistance with market, adoption of new marketing techniques, etc.) are key to overcoming these constraints” (pp. 57–58).

North and Smallbone (2006) also mentioned other relevant policies should be formulated to encourage “rural entrepreneurs to participate in information and knowledge networks” (p. 58). According to OECD website (2003) (as cited in North & Smallbone, 2006), “those entrepreneurs who engage in networks to gain venue for exchanging knowledge, ideas, etc. with other entrepreneurs outperform those who do not, particularly for those originating from rural areas that did not have a strong entrepreneurial tradition” (p. 58).

In summary, this research, similar with North and Smallbone (2006), is advocating for a more strategic and coordinated approach in building the entrepreneurial capacity of rural areas—through CBEs—as well as the implementation of the courses of action required to achieve this goal.

References

- Batangas All Here. So Near.* (2015). Retrieved from www.batangasallheresonear.com/about-batangas/batangas-province/
- City of Pasay. (2010–2015). *Barangay*. Retrieved from <http://pasay.gov.ph/index.html>
- Henderson, J. (2002). Building the rural economy with high growth entrepreneurs. *Economic Review*, 87(3), 45–71.
- Henton, D., Melville, J. G., & Walleh, K. (1997). *Grassroots leaders for a new economy: How civic entrepreneurs are building prosperous communities*. San Francisco, CA: Jossey-Bass.
- Johannisson, B., & Nilsson, A. (1989). Community entrepreneurs: Networking for local development. *Entrepreneurship & Regional Development*, 1(1), 1–19.
- North, D., & Smallbone, D. (2006). Developing entrepreneurship and enterprise in Europe’s peripheral rural areas: Some issues facing policy-makers. *European Planning Studies*, 14(1), 41–60.
- Office of the President Philippines National Anti-Poverty Commission. (n.d.) *Barangay Bayan Database*. Retrieved from <http://maps.napc.gov.ph/downloads/index.php/downloads/cbms-data>
- The Official Website of Carmona, Cavite, Philippines. (2009). *About Carmona*. Retrieved from <http://carmonagov.net/home/>

- Peredo, A., & Chrisman, J. (2006). Toward a theory of community-based enterprise. *Academy of Management Review*, 31(2), 309–328.
- Philippine Statistics Authority. (2012). *The 2010 Census of Population and Housing Reveals the Philippine Population at 92.34 million*. Retrieved from <http://www.census.gov.ph/content/2010-census-population-and-housing-reveals-philippine-population-9234-million>
- Torri, M. C. (2009). Community entrepreneurship among lower castes in India: A grassroots contribution towards poverty alleviation and rural development under conditions of adversity and environmental uncertainty. *Journal of Developmental Entrepreneurship*, 14(4), 413–432.
- United Nations. (2001). *UNDP poverty report: Overcoming human poverty*. New York: Author.
- Walzer, N. (2004). Entrepreneurship in community development. *Journal of the Community Development Society*, 35(1).
- Wilson, S. D., Fesenmaier, D. R., Fesenmaier, J., & Van Es, J. C. (2001). Factors for success in rural tourism development. *Journal of Travel Research*, 40(2), 132–138.
- World Bank. (2001). *World development report*. Washington, DC: Author.
- Wow Surigao Philippines. (2015). *About Surigao*. Retrieved from www.wowsurigao.com

Appendix: Tables

Table 1. Household Members' Profiles

	Sex	Age	Civil Status	Religion
Carmona				
<i>N</i>	64,508	64,508	64,508	64,508
Mean	1.5055	25.1373	1.7201	1.2979
Skewness	-0.0222	0.6605	1.94	3.825
Malimono				
<i>N</i>	15,791	15,791	15,790	15,790
Mean	1.4818	27.1962	1.7011	2.3538
Skewness	0.0729	0.6612	1.9913	0.9881
Pasay				
<i>N</i>	266,197	266,192	266,197	266,196
Mean	1.51	26.66	1.73	1.3
Skewness	-0.0288	0.6035	1.8769	3.9711
Batangas				
<i>N</i>	1,570,674	1,570,300	1,570,486	n.a.
Mean	1.5011	26.8543	1.6127	n.a.
Skewness	-0.0011	0.7255	2.1446	n.a.

Table 2. Household Socioeconomic Stress

	Carmona			Malimono			Pasay			Batangas		
	<i>N</i>	Mean	Mode									
Single parents	4,475	1.91	2	577	1.95	2	70,350	1.90	2	3,479	1.94	2
No. of single parents	924	1.07	1	158	1.03	1	6,798	1.07	1	1,568	1.05	1
Disabled	4,475	1.97	2	577	1.94	2	70,350	1.99	2	3,479	1.97	2
No. of disabled members	346	1.05	1	174	1.03	1	918	1.03	1	1,245	1.06	1
No. of elderly members	4,475	0.16	0	577	0.39	0	70,353	0.21	0	3,480	0.27	0
Sought medical help	4,475	1.79	1	577	1.75	2	n.a.	n.a.	n.a.	3,479	1.82	2

Table 2 continued...

Death in the family	4,475	1.99	2		1.97	2	70,351	1.99	2	1,003	1.03	1
Job indicator	4,475	1.56	2	577	1.65	1	70,355	1.53	2	3,483	1.63	1
Job status	4,403	1.32	1	570	1.28	1	63,534	1.12	1	3,385	1.32	1
Job search	4,403	7.81	4	570	4.04	1	63,534	9.93	7	3,385	7.09	2

Table 3. Household Socioeconomic Stress (Job Indicator)

	Job/Work Indicator		Total	Job Status			Total
	Yes	No		Permanent	Short-Term, Seasonal, or Casual	Worked in Different Jobs	
Malimono	81.1%	18.9%	100.0%	68.1%	23.1%	8.6%	100.0%
Carmona	81.5%	18.5%	100.0%	74.9%	21.5%	3.5%	100.0%
Pasay	76.5%	23.5%	100.0%	90.4%	8.1%	1.6%	100.0%
Batangas	72.0%	28.0%	100.0%	71.0%	22.7%	6.3%	100.0%

Table 4. Household Socioeconomic Stress (Job Indicator)

	Find Job		Total	Work Opportunity		Total	Willing to Work?		Total
	Yes	No		Yes	No		Yes	No	
Malimono	3.9%	96.1%	100.0%	11.7%	88.3%	100.0%	12.4%	87.6%	100.0%
Carmona	7.9%	92.1%	100.0%	5.9%	94.1%	100.0%	6.1%	93.9%	100.0%
Pasay	11.7%	88.3%	100.0%	3.0%	97.0%	100.0%	2.9%	97.1%	100.0%
Batangas	7.7%	92.3%	100.0%	9.3%	90.7%	100.0%	9.6%	90.4%	100.0%

Table 5. Population and Number of Households

	Malimono	Carmona	Pasay	Batangas
Population (NSO, 2007)	16,883	68,135	403,064	2,245,869
No. of respondents (survey)	3,485	4,475	70,355	577
Average number of household members (survey)	3.05	2.92	2.41	2.94

Source: NSO website, 2007. Retrieved from <http://www.census.gov.ph/content/2010-census-population-and-housing-reveals-philippine-population-9234-million>

Table 6. Available Physical Resources

	Malimono			Carmona			Pasay			Batangas		
	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode
Water facility	577	1.65	1	4,475	4.20	4	70,353	4.01	1	3,479	3.39	3
Water source	577	1.28	1	4,229	1.67	1	49,181	1.37	1	3,372	1.45	1
Toilet type	577	2.04	1	4,475	1.22	1	70,351	1.49	1	3,479	1.49	1
Tenure in residence	577	2.82	4	4,475	2.44	2	70,352	2.63	2	3,479	2.29	1
Wall_1	577	2.75	2	4,475	1.39	1	70,352	1.84	1	3,479	1.67	1
Roof_1	577	2.39	2	4,475	1.67	1	70,352	2.33	1	3,479	1.48	1
Electricity indicator	577	1.16	1	4,475	1.10	1	70,353	1.02	1	n.a.	n.a.	n.a.

Table 7. Income Sources

	Malimono		Carmona		Pasay		Batangas	
	N	Mean	N	Mean	N	Mean	N	Mean
Total entrepreneurial activities (cash)	577	30,054	4,475	27,203	70,350	40,266	n.a.	32,302
Total entrepreneurial activities (kind)	577	10,114	4,475	61	70,350	39	n.a.	2,331
No. of waged members	577	0	4,475	1	70,353	1	n.a.	n.a.
Wages (cash)	577	10,853	4,475	105,097	70,350	131,422	3,483	73,979
Wages (kind)	577	508	4,475	111	70,350	25	n.a.	n.a.

Table 8. Organization Memberships

	Malimono			Carmona			Pasay			Batangas		
	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode
Organization membership individual	577	1.87	2	4,475	1.92	2	70,350	1.98	2	3,483	1.96	2
Organizational type	324	5.05	8	2,107	7.10	5	3,458	8.53	10	1,729	7.06	10

Table 9. Program Types, Effects, and Implementors

	Malimono			Carmona			Pasay			Batangas		
	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode
Program type	6,309	4.94	7	4,475	6.92	7	70,353	4.06	4	3,479	4.00	4
Program indicator	6,303	1.56	2	4,475	1.91	2	70,353	1.98	2	3,479	1.96	2
Implementor	2,762	1.59	1	1,025	3.10	3	198	3.67	3	2,310	3.23	3
Effect rating	2,762	1.01	1	1,025	1.09	1	198	1.27	1	2,310		1

Table 10. Education, Job, and Literacy

	Malimono			Carmona			Pasay			Batangas		
	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode	N	Mean	Mode
Education indicator	577	1.72	2	4,475	1.77	2	70,355	1.79	2	n.a.	n.a.	n.a.
Grade level	493	15.74	14	3,364	16.13	13	35,443	17.31	2	n.a.	n.a.	n.a.
School type	493	1.02	1	3,364	1.16	1	35,443	1.18	1	n.a.	n.a.	n.a.
Education attainment	577	18.37	16	4,475	20.02	25	70,355	23.64	25	n.a.	n.a.	n.a.
literi_1	577	1.03	1	4,475	1.02	1	70,350	1.00	1	n.a.	n.a.	n.a.
General occupation	570	6.38	6	4,403	6.60	7	63,534	5.84	5	3,385	6.35	6
Work class	570	1.57	1	4,403	2.48	2	63,534	2.45	2	3,385	2.56	2
Board passers	577	1.97	2	4,475	1.98	2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
No. of board passers	121	1.21	1	397	1.18	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table 11. Engagement in Entrepreneurial Activities by Sex

		Malimono			Carmona			Pasay		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Engaged in crop farming and gardening	Count	1,661	284	1,945	236	35	271	61	23	84
	% Within total	57.80	50.00	56.50	1.90	1.30	1.80	0.10	0.10	0.10
Engaged in livestock/poultry	Count	564	55	619	66	14	80	40	16	56
	% Within total	19.60	9.70	18.00	0.50	0.50	0.50	0.10	0.10	0.10

Table 11 continued...

Engaged in fishing	Count	1,246	85	1,331	3	1	4	24	14	38
	% Within total	43.40	15.00	38.70	0.00	0.00	0.00	0.00	0.10	0.10
Engaged in forestry	Count	140	13	153	69	2	71	37	5	42
	% Within total	n.a.	n.a.	4.90	2.30	4.40	0.60	0.10	0.50	0.10
Engaged in wholesale/retail	Count	421	108	529	1,587	374	1,961	8,210	2,576	10,786
	% Within total	14.60	19.00	15.40	13.10	13.60	13.20	15.20	15.60	15.30
Engaged in manufacturing	Count	102	31	133	266	64	330	315	86	401
	% Within total	3.50	5.50	3.90	2.20	2.30	2.20	0.60	0.50	0.60
Engaged in community, social, and personal services	Count	42	10	52	311	93	404	384	130	514
	% Within total	1.50	1.80	1.50	2.60	3.40	2.70	0.70	0.80	0.70
Engaged in transportation, storage, and communication	Count	161	14	175	1,527	220	1,747	3,374	971	4,345
	% Within total	5.60	2.50	5.10	12.60	8.00	11.70	6.20	5.90	6.20
Engaged in mining and quarrying	Count	266	19	285	38	9	47	71	22	93
	% Within total	9.30	3.30	8.30	0.30	0.30	0.30	0.10	0.10	0.10
Engaged in construction	Count	275	24	299	571	89	660	792	224	1,016
	% Within total	9.60	4.20	8.70	4.70	3.20	4.40	1.50	1.40	1.40
Other activities NEC	Count	241	33	274	151	33	184	316	88	404
	% Within total	8.40	5.80	8.00	1.20	1.20	1.20	0.60	0.50	0.60

Table 12. Cross-Tabulation of Demographic Variables With Program Type and Availment

	Malimono		Carmona		Pasay		Batangas	
	Value	Approx. Sig.	Value	Approx. Sig.	Value	Approx. Sig.	Value	Approx. Sig.
Gender × program type	-0.041	0.015**	0.001	0.932	-0.005	0.203	-0.005	0.203
Gender × program availment	0.001	0.945	0.012	0.146	0.005	0.148	0.005	0.148
Gender × effect rating	-0.155	0.200	0.032	0.281	n.a.	n.a.	n.a.	n.a.
Age × program type	0.004	0.793	0.008	0.323	-0.003	0.447	-0.003	0.447
Age × program availment	0.066	0.000**	-0.006	0.491	-0.001	0.850	-0.001	0.850
Age × effect rating	-0.123	0.309	0.020	0.506	n.a.	n.a.	n.a.	n.a.
Civil status × program type	-0.009	0.578	-0.012	0.128	0.005	0.230	0.005	0.230
Civil status × program availment	-0.008	0.637	-.023	0.006**	-0.007	0.081	-0.007	0.081
Civil status × effect rating	0.166	0.170	-0.005	0.874	n.a.	n.a.	n.a.	n.a.
Religion × program type	0.016	0.336	0.016	0.058	0.006	0.129	0.006	0.129
Religion × program availment	0.011	0.520	0.005	0.527	0.006	0.088	0.006	0.088
Religion × effect rating	0.089	0.462	-0.005	0.865	n.a.	n.a.	n.a.	n.a.
Educational attainment × program type	-0.009	0.609	n.a.	n.a.	0.001	0.706	0.001	0.706
Educational attainment × program availment	-0.005	0.787	n.a.	n.a.	0.003	0.473	0.003	0.473
Educational attainment × effect rating	-0.139	0.251	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 13. Conditions for CBEs to Exist (Carmona)

	Engaged in										
	Manufacturing	Services	Transportation	Mining/Quarrying	Construction	Crop Farming/Gardening	Livestock/Poultry	Fishing	Forestry	Wholesale/Retail	Other Activities NEC
Sex	0.00	-0.019	0.055	0.00	0.028	0.020	0.00	0.00	0.028	-0.01	0.00
Age in years	-0.018	-0.046	-0.046	0.00	-0.019	-0.062	-0.036	-0.01	-0.022	-0.081	-0.01
Civil status	-0.019	0.025	0.01	0.00	-0.023	-0.01	0.018	-0.01	-0.02	0.00	-0.025
Religion	0.00	0.01	0.01	-0.01	0.018	-0.01	0.00	-0.02	0.01	-0.025	-0.023
IP indicator	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
Educational attainment code	0.039	0.00	0.065	0.01	0.103	0.112	0.048	0.01	0.074	0.020	0.01
Literacy indicator	-0.01	0.01	0.00	0.01	0.01	-0.027	-0.021	-0.040	0.00	0.00	-0.01
Member of any community organization	0.01	0.040	0.049	0.00	-0.01	0.01	0.01	-0.01	-0.02	0.030	-0.01
Type of community organization	0.067	0.055	-0.094	0.00	0.00	-0.03	0.02	n.a.	0.01	0.01	0.03
Job/work indicator	0.00	0.00	0.037	0.01	0.033	0.029	0.00	0.00	0.023	0.026	0.01
Occupation general code	-0.01	0.024	-0.103	-0.02	-0.090	0.00	0.00	0.01	-0.01	0.00	0.00
Sector code	0.00	-0.049	-0.086	-0.01	0.025	0.109	-0.01	0.00	0.040	-0.030	-0.01
Job status	-0.036	0.00	0.046	0.00	-0.088	-0.032	0.01	0.01	0.022	0.035	-0.02
Class of worker	-0.02	-0.037	-0.148	-0.01	0.041	-0.082	-0.026	-0.02	-0.075	-0.145	-0.01
Find job	-0.02	-0.02	-0.01	-0.01	-0.03	0.00	-0.02	-0.01	-0.01	0.01	0.00
Job search method	-0.07	0.02	-0.10	n.a.	-0.10	0.00	n.a.	n.a.	n.a.	-0.10	0.08

Table 13 continued...

Reasons for not looking for work	-0.02	0.02	0.00	-0.02	0.03	-0.02	0.00	0.00	-0.02	0.056	-0.01
Last time they looked for work	-0.02	0.01	-0.044	-0.02	0.01	0.00	0.00	-0.01	-0.01	0.04	0.00
Had opportunity for work?	-0.02	0.00	-0.046	-0.01	-0.01	-0.01	0.00	0.00	-0.01	0.02	-0.01
Willing to take up work?	-0.02	0.00	-0.048	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	0.02	-0.01
With expected family members	-0.01	0.00	-0.01	0.00	0.00	0.019	0.00	0.00	0.00	0.01	0.00
Board passer indicator	-0.018	0.054	-0.020	-0.01	-0.024	-0.01	0.020	0.00	-0.01	-0.02	-0.01
Number of board passers	-0.03	-0.05	0.05	n.a.	-0.07	-0.01	0.01	n.a.	n.a.	0.05	0.03
Received treatment/cure for sickness	0.019	0.00	0.01	0.02	0.00	0.00	0.01	0.01	-0.047	0.01	0.01
How many couples?	-0.01	-0.01	-0.128	-0.016	-0.075	-0.029	-0.01	-0.01	-0.022	-0.043	-0.01
Any member who died?	0.038	0.01	0.01	-0.01	0.00	0.01	0.01	0.00	-0.01	0.018	-0.01
How many deaths?	0.03	0.02	-0.11	n.a.	0.03	0.02	0.01	n.a.	n.a.	0.06	0.01
Type of water facility	0.00	-0.018	0.02	0.00	0.01	0.037	0.01	0.00	-0.02	0.00	0.00
Type of toilet facility	-0.01	-0.01	0.037	0.01	-0.100	-0.059	0.01	0.00	-0.102	0.028	-0.018
Tenure status of house/lot	-0.041	0.01	0.00	-0.01	-0.040	-0.017	-0.020	-0.01	-0.125	0.032	0.00
Electricity indicator	-0.059	0.00	0.025	0.00	-0.056	-0.081	0.00	-0.01	-0.081	0.01	0.00

Table 13 continued...

Own radio/cassette	-0.041	0.018	0.00	-0.01	-0.043	-0.02	0.021	0.00	0.00	0.025	0.01
Number of expected family members	0.00	0.06	-0.01	0.02	-0.03	-0.162	0.03	n.a.	0.02	0.04	0.04
OFW indicator	-0.024	0.00	-0.040	-0.01	-0.042	-0.018	0.01	0.00	-0.018	-0.01	-0.01
Number of OFWs	0.03	-0.06	-0.01	0.01	-0.02	0.00	0.03	n.a.	n.a.	-0.02	0.00
Single-parent indicator	0.022	0.01	-0.022	0.00	-0.02	0.00	0.00	0.01	-0.01	0.055	0.00
Number of single parent	-0.03	0.05	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.05	-0.03
With members with disability	0.01	0.01	0.00	0.030	0.02	0.020	-0.01	0.00	0.00	0.030	0.01
Number of members with disability	-0.02	-0.02	0.04	0.02	0.01	-0.02	0.01	n.a.	0.01	-0.01	0.03
Number of members 60 years old and above	-0.018	-0.020	0.00	0.00	0.022	-0.072	-0.028	0.01	0.00	-0.075	-0.01
Own electric fan	-0.061	0.018	0.038	0.01	-0.064	-0.076	0.00	-0.01	-0.065	0.031	0.00
Own TV	-0.043	0.01	0.046	0.01	-0.060	-0.057	0.018	0.00	-0.062	0.043	0.01
Own VHS/VCD/DVD player	-0.034	0.01	0.026	-0.02	-0.076	-0.049	0.02	0.01	-0.035	0.045	0.00
Own stereo/component	-0.019	0.032	0.00	-0.01	-0.074	-0.043	0.01	0.00	-0.034	0.058	0.00
Own karaoke	-0.01	0.047	0.024	0.01	-0.01	-0.01	0.035	-0.01	-0.01	0.058	0.00
Own refrigerator	-0.040	0.024	0.025	0.01	-0.094	-0.046	0.01	0.00	-0.046	0.136	0.01

Table 13 continued...

Own electric iron	-0.045	0.016	0.057	-0.01	-0.087	-0.048	0.01	0.00	-0.037	0.040	0.01
Own LPG/gas stove/range	-0.057	0.01	0.040	-0.01	-0.100	-0.055	0.00	0.00	-0.056	0.053	-0.01
Own washing machine	-0.036	0.01	0.042	0.00	-0.074	-0.036	0.02	0.00	-0.045	0.092	0.00
Own microwave oven	-0.025	0.031	-0.023	0.00	-0.044	-0.021	0.01	-0.01	-0.023	0.055	0.01
Own computer	-0.030	0.028	-0.030	-0.01	-0.060	-0.029	0.01	0.00	-0.030	0.030	0.00
Own cellphone	-0.040	0.00	0.01	-0.01	-0.088	-0.054	-0.01	0.00	-0.066	0.022	0.00
Own Telephone	-0.01	0.042	0.00	0.00	-0.024	-0.01	0.01	0.00	-0.02	0.035	0.01
Own air conditioner	-0.021	0.029	-0.036	-0.01	-0.044	-0.028	0.00	0.00	-0.021	0.037	0.01
Own sewing machine	0.076	0.047	0.01	0.00	-0.020	0.01	0.035	0.02	-0.01	0.040	0.020
Own vehicles	-0.028	0.026	0.309	0.023	-0.064	-0.020	0.030	0.01	-0.024	0.086	0.00
Materials of walls	-0.079	-0.024	0.01	-0.01	-0.077	-0.024	0.00	-0.01	-0.01	0.00	-0.02
Materials of roof	-0.01	0.01	0.00	-0.021	-0.036	0.00	0.00	-0.01	-0.01	0.00	0.01

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 14. Conditions for CBEs to Exist (Malimono)

	Engaged in Crop Farming and Gardening	Engaged in Livestock/Poultry	Engaged in Fishing	Engaged in Forestry	Engaged in Wholesale/Retail	Engaged in Manufacturing	Engaged in Community, Social, and Personal Services	Engaged in Transportation, Storage, and Communication	Engaged in Mining and Quarrying	Engaged in Construction	Other Activities NEC
Sex	0.058-	0.096	0.216	0.047-	-0.045	-0.037	-0.01	0.053-	0.080	0.070-	0.035
Age	-0.178	0.02	0.178-	-0.01	-0.01	-0.063-	-0.01	0.100	0.112-	0.111-	0.085-
Civil status	0.042-	0.02	0.00	-0.02	0.062-	0.00	0.00	0.00	-0.051-	-0.01	-0.074-
Religion	0.02	-0.03	0.064-	0.02	-0.01	0.01	-0.042	0.02	-0.121-	0.02	0.00
IP group	0.14	n.a.	-0.821-	n.a.	n.a.	-0.01	0.02	0.01	-0.054-	-0.034	-0.083-
Member community organization	0.01	0.01	-0.109	0.02	0.01	0.02	0.00	-0.081-	0.054	0.01	0.055-
Educational attainment	0.159-	0.043	0.126	0.065-	-0.095	-0.01	0.00	0.02	-0.01	0.00	-0.049
Literacy	0.01	0.02	0.02	0.02	0.042	-0.01	0.00	0.066	-0.044-	-0.061-	-0.03
Board passer	-0.091-	-0.02	-0.124	-0.046	0.034	0.03	0.02	0.041	0.071-	0.066	0.02
Job/work	0.070-	0.104-	0.218	0.065-	0.03	-0.02	-0.02	-0.03	-0.155-	-0.052-	0.01
Occupation	0.042-	-0.01	-0.02	0.01	-0.01	-0.044	-0.093	-0.241-	0.081-	-0.01	0.074-
Sector code	0.273-	0.063	0.246	0.072-	-0.123	0.02	-0.051-	0.02	-0.070-	-0.148	0.037-
Worker class	0.01	-0.01	0.085-	-0.038	-0.113	-0.03	-0.03	-0.01	0.089	0.01	0.051-
Had opportunity for work?	-0.05	0.00	0.183-	0.06	-0.02	0.04	-0.02	0.098	0.05	0.04	0.02
Willing to work?	-0.03	0.04	0.158-	0.06	0.00	-0.06	-0.04	0.04	0.00	-0.04	-0.080
With expected family members	0.047-	0.01	-0.055	0.00	0.047-	0.00	0.00	-0.047-	-0.01	-0.03	-0.042

Table 14 continued...

Number of expected family members	-0.02	-0.106	0.00	0.01	-0.04	0.053	0.00	-0.02	-0.03	-0.02	-0.03	-0.02	0.00
Single parent	0.02	0.00	-0.068	0.036	0.03	-0.048	0.01	0.080	0.086	0.105	0.086	0.105	0.046
Members with disability	0.02	-0.01	-0.051	0.03	-0.03	0.03	0.00	0.01	0.01	-0.01	0.01	-0.01	0.061
Number of members 60 years old and above	-0.138	0.03	0.161	0.00	0.035	-0.01	0.00	-0.01	0.03	0.00	0.03	0.00	-0.037
Received treatment/cure for sickness	0.02	0.01	0.00	0.048	0.01	0.01	-0.02	-0.03	0.01	0.036	0.01	0.036	0.02
Experienced man-made disasters/natural calamity?	0.00	0.086	0.046	0.03	0.02	0.01	-0.01	-0.02	-0.01	-0.02	-0.01	-0.02	-0.041
Experienced food shortage	0.00	0.01	0.03	0.060	-0.043	0.06	-0.367	-0.18	-0.08	-0.08	-0.08	-0.08	0.04
Tenure status of house/lot	0.02	0.00	-0.105	0.00	0.054	0.00	0.00	0.01	-0.040	-0.077	-0.040	-0.077	-0.070
Construction materials of walls	-0.083	-0.038	-0.057	-0.02	0.065	-0.03	-0.051	0.01	-0.03	-0.03	-0.03	-0.03	-0.01
Construction materials of roof	-0.044	-0.02	-0.03	-0.047	0.054	0.04	n.a.	0.04	-0.238	0.14	-0.238	0.14	0.09
Type of toilet facility	0.071	0.049	-0.072	-0.02	0.087	0.02	0.02	0.045	-0.01	-0.057	-0.01	-0.057	-0.089
Electricity indicator	0.03	0.073	0.01	-0.035	0.126	0.01	0.00	0.03	-0.01	-0.03	-0.01	-0.03	-0.073
Own radio/cassette	0.01	0.079	-0.01	0.00	0.112	0.00	0.00	0.03	-0.01	-0.040	-0.01	-0.040	-0.061
Own TV	0.00	0.063	-0.061	-0.01	0.178	0.01	0.02	0.077	-0.01	0.00	-0.01	0.00	-0.086
Own VHS/VCD/DVD player	-0.02	0.059	-0.03	-0.01	0.200	0.03	0.02	0.069	-0.01	-0.02	-0.01	-0.02	-0.068
Own stereo/component	-0.062	0.02	-0.056	-0.043	0.145	-0.02	0.03	0.048	-0.03	-0.049	-0.03	-0.049	-0.072
Own karaoke	0.01	0.034	-0.061	-0.01	0.153	0.00	0.02	0.044	-0.053	-0.037	-0.053	-0.037	-0.03

Table 14 continued...

Own refrigerator	-0.069	0.040	-0.110	-0.01	0.292	-0.02	-0.02	0.03	-0.082	-0.082	-0.091
Own electric fan	-0.078	0.02	-0.099	-0.02	0.160	-0.01	0.01	0.065	-0.073	-0.067	-0.089
Own electric iron	-0.046	0.02	-0.128	-0.01	0.162	-0.01	0.02	0.071	-0.072	-0.075	-0.095
Own LPG/gas stove/range	-0.077	-0.02	-0.134	-0.03	0.140	0.00	0.00	0.067	-0.078	-0.082	-0.071
Own washing machine	-0.072	-0.03	-0.133	-0.02	0.100	-0.01	0.01	0.054	-0.070	-0.069	-0.060
Own microwave oven	-0.042	-0.01	-0.085	-0.03	0.073	-0.03	-0.02	0.02	-0.03	-0.034	-0.037
Own computer	-0.03	0.00	-0.074	0.01	0.059	0.01	0.03	0.03	-0.03	-0.03	-0.02
Own cellphone	-0.065	0.039	-0.071	0.00	0.165	-0.01	0.041	0.085	-0.03	-0.02	-0.059
Own air conditioner	-0.02	-0.035	-0.082	0.01	0.058	-0.01	-0.01	0.01	-0.039	-0.040	-0.037
Own sewing machine	0.01	-0.01	-0.069	0.01	0.101	0.066	0.01	0.040	-0.03	-0.03	-0.039
Own vehicles	-0.088	0.01	-0.055	-0.034	0.089	0.01	-0.01	0.257	-0.037	-0.065	-0.060
Program indicator	-0.01	0.044	0.03	-0.01	-0.02	0.058	0.00	-0.01	-0.01	-0.01	-0.01
Received Philhealth for indigents?	0.067	0.134	0.050	0.03	0.03	0.01	0.02	0.00	0.119	0.055	-0.03
Household size	-0.090	-0.089	-0.123	-0.060	0.01	0.00	-0.03	-0.03	-0.051	-0.080	-0.048
How many couples?	-0.038	-0.084	-0.201	-0.03	-0.03	0.038	0.01	-0.082	-0.048	-0.082	-0.03
Number of waged household members	0.130	0.01	0.144	0.03	-0.048	0.02	-0.02	-0.043	0.079	0.078	0.075

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 15A. Conditions for CBEs to Exist (Pasay)

	Engaged in Crop Farming and Gardening	Engaged in Livestock/Poultry	Engaged in Fishing	Engaged in Forestry	Engaged in Wholesale/Retail	Engaged in Publishing	Engaged in Manufacturing	Engaged in Maintenance Services
Sex	-0.003	-0.003	-0.007	0.007	-0.005	-0.002	0.003	0.003
Age in years	0.000	0.002	0.001	0.005	0.001	0.002	0.004	-0.009
Civil status	-0.002	-0.004	0.004	0.005	-0.004	-0.004	-0.002	-0.004
Religion	-0.001	0.001	0.005	-0.004	0.001	-0.003	0.001	-0.003
IP indicator	-0.001	-0.001	-0.001	-0.001	0.000	-0.001	-0.002	-0.002
IP group	n.a.	n.a.	n.a.	n.a.	0.091	n.a.	n.a.	n.a.
Educational attainment code	0.002	0.000	-0.005	-0.001	0.006	-0.001	0.004	0.006
Literacy indicator	0.001	0.001	0.001	0.001	0.003	0.002	0.003	0.004
Member of any community organization	-0.005	0.002	0.002	-0.002	-0.006	0.003	-0.001	0.002
Type of community organization	-0.001	0.071	-0.002	-0.009	-0.014	0.017	-0.023	-0.002
Skills indicator	0.001	0.001	0.006	-0.004	-0.001	-0.003	0.004	-0.002
Skills	0.015	0.005	-0.013	n.a.	-0.009	-0.013	0.008	0.009
Job/work indicator	0.001	0.001	-0.002	0.009	0.005	0.003	0.009	-0.002
Occupation general code	0.004	-0.005	0.008	-0.001	-0.003	0.003	-0.005	0.006
Sector code	0.001	0.000	0.000	0.007	0.004	-0.003	0.003	-0.002
Job status	0.003	0.000	-0.006	0.006	-0.007	0.005	-0.002	-0.002
Class of worker	-0.002	-0.008	-0.008	-0.001	-0.004	-0.002	-0.004	-0.002
Find job	0.004	0.011	-0.009	-0.005	0.014	0.009	-0.004	-0.016
Job search method	0.043	-0.027	n.a.	n.a.	-0.003	-0.021	0.030	-0.013

Table 15A continued...

Reasons for not looking for work	0.003	-0.006	-0.002	-0.013	0.009	-0.009	-0.003	0.004
Last time they looked for work	0.012	-0.008	0.013	-0.005	0.000	-0.009	-0.002	0.014
Had opportunity for work?	0.006	-0.004	0.011	-0.003	-0.015	-0.008	-0.006	0.004
Willing to take up work?	0.007	-0.004	0.011	-0.002	-0.019	-0.007	-0.012	0.005
Program type	-0.001	-0.008	0.002	0.005	-0.001	-0.001	-0.001	-0.002
Program indicator	0.011	-0.003	-0.003	-0.003	0.000	0.003	0.000	0.000
Kind of housing	-0.007	-0.002	-0.018	0.010	0.015	-0.005	0.001	-0.009
With expected family members	0.001	0.003	-0.002	-0.002	-0.002	0.002	0.001	-0.005
Number of expected family members	0.014	-0.198	n.a.	n.a.	0.013	-0.055	0.029	-0.036
OFW indicator	0.008	0.010	-0.002	-0.002	-0.033	-0.004	-0.008	-0.013
Number of OFW	0.001	0.012	-0.022	0.006	-0.012	-0.003	0.017	-0.016
Single-parent indicator	0.000	0.001	-0.001	0.002	0.055	0.006	0.005	-0.008
Number of single parents	0.009	0.008	0.005	0.007	-0.031	0.015	-0.013	0.010
With members with disability	0.003	0.001	-0.003	-0.003	0.017	0.003	0.001	0.008
Number of members with disability	0.008	0.006	n.a.	n.a.	-0.030	0.010	-0.069	-0.080
Number of members 60 years old and above	-0.005	-0.014	-0.003	-0.004	-0.052	-0.005	-0.024	-0.009

Table 15A continued...

How many couples?	0.002	-0.008	-0.008	-0.004	-0.053	-0.009	-0.004	-0.036
Any member who died?	-0.004	-0.003	-0.002	-0.003	0.016	0.007	0.005	0.000
Type of water facility	-0.004	-0.006	0.003	0.003	0.012	-0.004	0.003	-0.008
Type of toilet facility	0.012	0.005	-0.024	0.006	-0.002	0.005	0.003	0.014
Tenure status of house/lot	-0.003	-0.001	-0.025	0.002	0.013	0.006	0.005	0.000
Electricity indicator	0.004	0.000	-0.061	-0.002	-0.012	0.001	0.004	0.000
Own other	-0.003	-0.003	-0.002	-0.002	-0.001	0.015	0.001	0.005
Construction materials of walls	0.000	0.002	-0.016	0.006	-0.026	0.006	0.009	-0.002
Construction materials of roof	0.010	0.008	-0.018	0.003	-0.007	0.015	0.011	0.001
Number of waged household members	0.011	0.015	0.023	0.014	0.245	0.019	0.033	0.058
Experienced food shortage	-0.002	-0.002	0.008	0.007	0.008	0.001	-0.002	0.002
Housing loan	-0.002	-0.002	-0.001	-0.001	-0.008	-0.007	0.004	0.004
Investment loan	0.008	0.010	0.012	0.000	0.009	0.005	0.002	0.001
Received Philhealth for indigents?	-0.004	-0.006	-0.008	-0.002	-0.052	-0.001	-0.011	-0.007

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 15B Conditions for CBEs to exist (Pasay cont.)

	Engaged in Food Services	Engaged in Entertainment Services	Engaged in Community, Social, and Personal Services	Engaged in Computer Communication	Engaged in Transportation, Storage, and Communication	Engaged in Mining and Quarrying	Engaged in Construction	Other Activities NEC
Sex	-0.007	0.001	-0.004	0.002	0.006	0.000	0.004	0.003
Age in years	0.000	0.003	-0.001	0.001	-0.002	-0.002	0.003	0.000
Civil status	-0.005	0.003	-0.002	-0.002	-0.009*	-0.002	0.000	0.002
Religion	0.000	-0.006	-0.003	0.005	0.002	-0.002	0.001	-0.003
IP indicator	-0.003	0.024**	0.012**	0.006	-0.001	-0.001	-0.003	-0.002
IP group	n.a.	0.221	-0.149	-0.048	-0.375*	n.a.	n.a.	n.a.
Educational attainment code	0.001	0.001	0.001	-0.003	0.002	-0.002	0.006	0.004
Literacy Indicator	-0.011**	0.002	0.000	-0.001	0.003	0.002	0.002	-0.001
Member of any community organization	-0.002	0.003	-0.002	0.004	-0.001	-0.001	-0.001	-0.004
Type of community organization	-0.007	-0.029	0.017	-0.004	-0.006	-0.015	0.015	0.019
Skills indicator	-0.004	-0.001	0.002	0.000	0.002	-0.002	0.011**	-0.001
Skills	-0.001	-0.020	0.012	-0.018	0.025	0.009	0.042*	0.029
Job/work indicator	-0.005	-0.002	0.006	-0.003	-0.002	0.002	0.007	0.003
Occupation general code	0.000	0.003	-0.004	-0.002	0.004	0.006	-0.003	-0.006
Sector code	-0.001	-0.002	-0.001	0.006	0.006	-0.003	0.001	0.007
Job status	-0.003	-0.002	0.000	0.000	0.003	-0.008	-0.005	0.001
Class of worker	0.000	-0.010*	-0.005	0.004	-0.005	0.003	0.002	0.006

Table 15B continued...

Find job	-0.006	-0.010	-0.001	0.012	-0.001	-0.002	-0.022**	-0.009
Job search method	0.017	0.002	0.005	0.021	0.001	0.002	-0.013	-0.015
Reasons for not looking for work	-0.011	0.003	-0.001	-0.002	-0.006	0.009	-0.018*	-0.005
Last time they looked for work	0.011	0.018*	0.002	-0.003	0.002	0.005	0.004	0.021*
Had opportunity for work?	0.001	0.016	0.016	-0.002	-0.001	0.005	0.010	-0.002
Willing to take up work?	0.002	0.016*	0.007	-0.002	-0.002	0.006	0.008	-0.002
Program type	0.003	0.003	0.000	0.000	-0.001	0.000	-0.008*	0.000
Program indicator	0.002	0.000	-0.001	0.005	-0.003	0.003	-0.005	0.000
Kind of housing	-0.001	0.003	-0.010*	0.007	0.030**	0.004	-0.013**	-0.006
With expected family members	0.005	0.012**	0.003	0.006	-0.006	0.005	-0.002	-0.003
Number of expected family members	-0.016	0.032	-0.008	-0.008	0.016	0.020	-0.123**	0.020
OFW indicator	-0.005	-0.002	-0.007*	-0.001	-0.035**	-0.004	-0.019**	0.005
Number of OFWs	-0.026	0.012	-0.018	-0.003	-0.005	0.008	0.009	-0.054**
Single-parent indicator	0.006	0.008*	0.021**	0.000	-0.017**	0.001	0.000	0.006
Number of single parents	0.016	-0.015	-0.006	0.019	-0.005	0.010	-0.017	0.008
With members with disability	-0.002	-0.003	0.006	-0.007	-0.003	-0.001	0.010**	0.000
Number of members with disability	0.017	0.006	0.018	0.006	0.011	0.006	-0.059	0.012

Table 15B continued...

Number of members 60 years old and above	-0.010**	-0.005	-0.016**	-0.001	0.018**	-0.001	-0.004	-0.012**
How many couples?	-0.025**	-0.003	0.003	-0.011**	-0.113**	-0.010*	-0.052**	-0.007
Any member who died?	0.001	-0.005	0.010**	0.003	0.001	0.000	0.011**	-0.001
Type of water facility	0.000	-0.004	-0.002	-0.012**	0.024**	0.005	0.018**	-0.013**
Type of toilet facility	0.020**	0.006	0.016**	0.018**	0.003	0.002	-0.019**	0.015**
Tenure status of house/lot	0.014**	0.008*	0.010*	0.011**	-0.022**	-0.004	-0.036**	0.015**
Electricity indicator	0.006	-0.001	-0.004	0.008*	-0.013**	-0.008*	-0.023**	-0.001
Own other	0.010*	0.009*	0.005	0.014**	0.006	0.009*	0.003	0.005
Construction materials of walls	0.019**	0.006	0.004	0.016**	-0.028**	-0.015**	-0.052**	0.002
Construction materials of roof	0.020**	0.007	0.009*	0.011**	-0.024**	-0.015**	-0.011**	-0.002
Number of waged household members	0.050**	0.025**	0.046**	0.031**	0.185**	0.024**	0.085**	0.048**
Experienced food shortage	0.003	0.006	0.007	-0.005	0.004	-0.002	0.012**	-0.002
Housing loan	-0.008*	-0.002	0.002	0.004	-0.006	-0.002	0.000	-0.002
Investment loan	0.003	0.005	-0.002	0.002	0.001	0.007	-0.002	0.006
Received Philhealth for indigents?	-0.005	0.000	-0.007	0.006	-0.031**	-0.010*	-0.016**	-0.001

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 16. Conditions for CBEs to Exist (Batangas)

Batangas	Income From Entrepreneurial Activities										
	Crop Farming	Poultry	Fishing	Forestry	Wholesale and Retail	Manufacturing	Services	Transportation	Mining	Construction	Others
Age in years	0.00	0.005	-0.019	0.00	0.00	0.003	0.005	0.00	0.00	0.00	0.00
Civil status	0.00	-0.005	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Member of any community organization	-0.005	-0.006	0.016	0.00	-0.005	0.00	-0.006	-0.005	0.00	-0.004	0.00
Type of community organization	0.00	0.010	0.00	0.010	-0.01	0.00	0.00	-0.010	0.01	0.00	0.00
Job/work indicator	0.00	-0.008	-0.017	-0.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Occupation general code	-0.017	0.00	-0.018	0.00	0.00	0.00	-0.015	-0.005	0.006	0.00	-0.006
Sector code	-0.071	-0.018	-0.050	-0.012	0.004	0.007	0.018	0.00	0.00	0.00	0.010
Job status	-0.011	-0.005	0.009	0.00	0.00	-0.004	-0.006	0.00	0.007	0.00	0.00
Class of worker	0.022	0.008	0.018	0.00	0.00	0.004	0.006	0.00	0.00	0.00	0.00
Find job	0.00	0.01	0.008	0.00	0.00	0.00	0.00	0.00	0.00	-0.020	0.00
Job search method	0.02	0.01	0.023	0.01	-0.01	0.01	-0.027	0.01	0.01	0.02	0.01
Had opportunity for work?	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	-0.011	0.00
Willing to take up work?	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	-0.011	0.00
With expected family members	0.00	-0.009	0.007	0.00	0.00	0.00	0.00	-0.005	0.00	0.00	0.00
Number of expected family members	0.033	0.01	-0.01	0.012	-0.01	0.01	0.01	0.015	0.00	0.00	0.012
OFW indicator	-0.004	0.00	0.026	0.009	0.004	0.004	0.00	0.00	0.004	0.006	0.00
Number of single parents	0.00	-0.01	-0.01	0.00	0.014	0.01	0.024	0.00	0.01	-0.01	0.01
With members with disability	0.00	-0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of members with disability	0.00	0.019	0.00	0.00	0.00	0.00	0.020	0.01	0.00	0.00	-0.01
Number of members 60 years old and above	0.00	0.011	-0.024	-0.006	0.007	0.004	0.00	0.00	0.00	-0.005	0.00
Board passer indicator	0.00	-0.012	0.016	0.005	0.00	-0.009	-0.036	0.00	0.00	0.00	-0.015
Number of board passers	0.00	0.00	-0.01	-0.01	0.01	0.00	0.040	-0.020	-0.01	0.020	0.01
Received treatment/cure for sickness?	0.00	-0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
How many couples?	0.00	0.018	0.034	0.008	0.010	0.011	0.00	0.00	0.009	0.008	0.007
Any member who died?	0.00	0.00	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Type of water facility	0.00	0.006	0.038	0.016	0.00	-0.005	0.008	0.004	0.00	0.00	0.00
Type of toilet facility	0.00	-0.010	0.052	0.022	-0.008	-0.010	-0.010	0.00	0.00	0.00	-0.011
Tenure status of house/lot	0.00	-0.014	0.029	0.007	-0.008	-0.011	-0.010	0.00	0.00	0.00	-0.011
Received Philhealth for indigents?	0.00	0.00	-0.007	0.00	0.004	0.00	0.00	0.00	0.00	0.00	0.004

*Significant at the 0.05 level.

**Significant at the 0.01 level.

Table 17. Tabulation of Entrepreneurial Activity Income with Program Type and Availment

	Mallimono		Carmona		Pasay		Batangas	
	Value	Approx. Sig.	Value	Approx. Sig.	Value	Approx. Sig.	Value	Approx. Sig.
Entrepreneurial cash income × program type	0.000	0.689	-0.008	0.334	-0.003	0.380	0.000	0.974
Entrepreneurial cash income × program availment	-0.003	0.000**	-0.011	0.176	0.002	0.663	0.007	0.000**
Entrepreneurial cash income × effect rating	-0.003	0.397	0.003	0.926	n.a.	n.a.	0.007	0.402
Entrepreneurial cash income × CARP	0.009	0.587	-0.006	0.477	n.a.	n.a.	n.a.	n.a.
Entrepreneurial in-kind income × program type	0.000	0.577	0.004	0.621	-0.002	0.509	-0.003	0.046**
Entrepreneurial in-kind income × program availment	-0.002	0.019**	-0.007	0.395	0.005	0.167	0.004	0.015**
Entrepreneurial in-kind income × effect rating	-0.001	0.769	-0.086	0.004**	n.a.	n.a.	-0.002	0.833
Entrepreneurial in-kind income × CARP	0.021	0.218	0.000	0.965	n.a.	n.a.	n.a.	n.a.

Table 18. Summary of Conditions for CBEs to Exist

Conditions for CBE to Exist	Carmona Weighted Score		Mallimono Weighted Score		Pasay Weighted Score		Batangas Weighted Score	
	Mean	Mode	Mean	Mode	Mean	Mode	Mean	mode
Social economic stress	1.76	1.58	2.83	1.75	1.71	1.70	1.62	1.61
Community size (average number of household members)	3.05	n.a.	2.92	n.a.	2.41	n.a.	2.94	n.a.
Available resources (physical resources)	1.74	1.37	1.94	1.73	1.92	1.07	1.68	1.10
Available financial resources (income)	27,203		30,054		40,266		32,302	
—From entrepreneurial activities	105,097		10,853		131,422		73,979	
—From wages								
Availability of social capital	1.92	2.00	1.87	2.00	1.98	2.00	1.96	2.00
Incremental learning	1.46	1.50	1.29	1.50	1.63	1.50	1.53	1.50
Available community skills and experience								
—Literacy	1.59	1.67	1.57	1.67	0.93	1.00		
—Educational attainment	18.08	19.00	17.06	15.00	20.48	13.50		
—Work experience	1.32	1.00	1.28	1.00	2.45	2.00	2.56	2.00
—Engagement in entrepreneurial activities	1.96	2.00	1.84	1.91	1.98	2.00		

Table 19. Overall Ranking of Conditions for CBE to Exist per City/Municipality/Province

Conditions for CBE to Exist	Carmona		Mallimono		Pasay		Batangas	
	Mean Score	Rank						
Social economic stress↓	1.76	3	2.83	4	1.71	2	1.62	1
Community size (average number of household members)†	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Available resources (physical resources) ↓	1.74	2	1.94	4	1.92	3	1.68	1
Available financial resources (Income) †	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
—From entrepreneurial activities	27,203	4	30,054	3	40,266	1	32,302	2
—From wages	105,097	1	10,853	4	131,422	2	73,979	3
Availability of social capital↓	1.92	2	1.87	1	1.98	4	1.96	3
Incremental learning↓	1.46	2	1.29	1	1.63	4	1.53	3
Available community skills and experience	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
—Literacy↓	1.59	3	1.57	2	0.93	1	n.a.	n.a.
—Educational attainment†	18.08	2	17.06	3	20.48	1	n.a.	n.a.
—Work experience↓	1.32	2	1.28	1	2.45	3	2.56	4
—Engagement in entrepreneurial activities↓	1.96	2	1.84	1	1.98	3	n.a.	n.a.
Overall ranking	n.a.	2.18	n.a.	2.45	n.a.	2.55	n.a.	2.38

Contributors

PAULYNNE J. CASTILLO has been a faculty member of the De La Salle University School of Economics since 1998. She earned her undergraduate degree, BS Economics, at the University of the Philippines and Masters degree in Economics at the California State University Long Beach. Her research interests include, but are not limited to, international trade and foreign direct investments and income distribution and poverty. She has also written a number of papers on the economic, political, and social factors that influence the development of Philippine industries. (e-mail: paulynne.castillo@dlsu.edu.ph)

ROBERTO B. RAYMUNDO is an Associate Professor of the Economics Department and Graduate Studies Coordinator for the School of Economics. He has a Bachelor of Science in Applied Economics degree from De La Salle University completed in 1984, a Master of Science in Economics degree from De La Salle University, completed in 1991, and a Doctorate in Business Administration from the Graduate School of Business, De La Salle University completed in 2003. He has been teaching and doing research with the DLSU Economics Department for the past 27 years. Most of the research papers and commissioned work he has completed and published are in the areas of Money and Banking, International Economics, Economic Integration, Industrial Economics, Economic Development, Public Finance, Macroeconomics and Macroeconomic Modelling.

HAZEL C. PARCON-SANTOS was an Associate Professor at the School of Economics of the De La Salle University. She earned her Ph.D in Economics from the University of Hawaii and was a Post-Doctoral Research Fellow at the College of Tropical Agriculture and Human Resources in the same university. She is currently Bank Officer V (Senior Bank Economist) at the

Center for Monetary and Financial Policy at the Bangko Sentral ng Pilipinas. She has written papers on international trade, globalization, foreign direct investments, financial spillovers and financial stability.

ANGELO B. TANINGCO was an Assistant Professor at the Economics Department of De La Salle University (DLSU) for 13 years. He served as consultant to various organizations, including the Asian Development Bank (ADB), ASEAN Secretariat, Government Service Insurance System (GSIS), and Nomura Research Institute, among others. He has a masteral degree in economics and bachelors degree in development studies, both from DLSU, and did doctoral work in economics at Ateneo de Manila University.

TERESO S. TULLAO, JR. is a University Fellow, Professor of Economics, and the Director of the Angelo King Institute for Economic and Business Studies. He is also the Editor-in-Chief of the DLSU Business and Economics Review. He was former Dean of the College of Business and Economics (CBE) at De La Salle University (DLSU). He has been teaching for almost four decades at DLSU. He was visiting professor and scholar at various institutions in Japan, USA, China, Thailand, France, and Laos. As a researcher he has published several articles, monographs and books in Filipino and English in the fields of economics of education, trade in services, movement of natural persons, migration and remittances.

CHRISTOPHER JAMES R. CABUAY is currently a Project Coordinator and Databank Administrator at DLSU-Angelo King Institute for Economic and Business Studies, and an Assistant Professorial Lecturer at DLSU-School of Economics. He obtained his Master of Science in Economics degree from DLSU, Philippines. His research has been on human capital accumulation and human resource development, labor markets, economic development, international finance in the ASEAN, and international migration and remittances with Dr. Tereso S. Tullao, Jr., who is his mentor.

CESAR C. RUFINO is the current holder of the Don Santiago Syjuco Distinguished Professorial Chair in Economics of the School of Economics, DLSU-Manila. He is a recipient of the 2014 Outstanding Scientific Paper Award by the National Institute of Science and Technology (NIST). He has been a member of the Econometric Society, East Asia Economic Association, Philippine Economic Society, International Association of Survey Statisticians and the Western Economic Association International. He is the School of Economics nominee to the 2015 St. Miguel Febres de Cordero Pillar of Lasallian Excellence Award in Research.

ANDREA L. SANTIAGO is a Full Professor at the Strategic Management Department of the Asian Institute of Management. She holds the Basant and Sarala Birla Professorial Chair in Asian Family Corporations. Prior to joining AIM, she was a Full Professor at the Management and Organization Department of De La Salle University.

EMILINA R. SARREAL is Associate Professor of the Decision Sciences and Innovation Department of De La Salle University. She teaches entrepreneurship research, environmental scanning, and management science and entrepreneurial policy in both the undergraduate and graduate programs. She obtained her Doctor of Business Administration (with high distinction) and Master of Business Administration degrees from De La Salle University. Prior to teaching, she worked as a research analyst in nongovernment organizations and financial institutions.

