



途上国における貧困削減と制度・市場・政策
比較経済発展論の試み

Poverty Reduction, Institutions, Markets, and Policies
in Developing Countries:
Toward a Theory of Comparative Economic Development

PRIMCED Discussion Paper Series, No. 18

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Four Decades of Studies in a Filipino Village**

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January 2012



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THE EAST LAGUNA VILLAGE: FOUR DECADES OF STUDIES IN A FILIPINO VILLAGE¹

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1. Introduction

This paper provides an overview of a rich set of studies spanning the past four decades and focusing on East Laguna village in the Philippines, where recurrent surveys have been conducted by Yujiro Hayami, Masao Kikuchi, and their associates and successors.² The objectives of this paper are twofold: firstly, we introduce East Laguna village and list the past surveys conducted there. As Figure 1 shows, East Laguna village is located in the Pila municipality of the Laguna province, which is approximately 80 kilometers south of Metro Manila. Its proximity to the International Rice Research Institute (IRRI), which is located in Los Baños and 20 kilometers away from the village, has enabled researchers to conduct surveys in

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¹ We dedicate this paper to Professors Yujiro Hayami and Masao Kikuchi for their invaluable contribution of the village-level studies. We would like to thank the staff of the Social Sciences Division of the International Rice Research Institute (IRRI). This paper is prepared for the “Poverty Reduction, Institutions, Markets, and Policies in Developing Countries: Toward a Theory of Comparative Economic Development (PRIMCED)” project of Hitotsubashi University headed by Professor Takashi Kurosaki, whose comments are greatly appreciated. We acknowledge financial support from the PRIMCED project. Usual disclaimers apply.

² For the sake of anonymity, we call the village “East Laguna village.”

cooperation with IRRI.³ The earliest documented survey in the village dates back to 1966, when a Japanese geographer, Hiromitsu Umehara (1967), conducted and reported a total enumeration survey. After Umehara's very first survey, 17 rounds of surveys were conducted in this village. This paper discusses the history of four decades of surveys in this one agrarian village. Two monumental books about this village were published: 1) *Asian Village Economy at the Crossroads: An Economic Approach to Institutional Change* in 1981; and 2) *A Rice Village Saga: Three decades of Green Revolution in the Philippines* in 2000. Both books were co-authored by Hayami and Kikuchi who described the transition of East Laguna village and the corresponding changes in rural institutions in the village from the 1970s to the late 1990s based on a panel data set collected by and compiled at IRRI. This paper, largely based on these two books, updates the list of surveys conducted in the 2000s to include those conducted after the book was published in 2000.

Secondly, this paper describes the kind of information collected through successive surveys conducted in the village for the past four decades and summarizes what has been learned from those surveys. Estudillo et al. (2010), compiled in Hayami's book, reviews the research conducted in the village with a particular focus on community mechanisms and changes in household income sources. This paper discusses research work in the village, including the surveys discussed in Estudillo et al. (2010), and serves as a complement to it.

The rest of paper proceeds as follows. In Section 2, we briefly introduce the dynamism and historical transformation of the village and discuss why the four decades of surveys provide

³ IRRI is a nonprofit independent research and training organization and is a member of the Consultative Group on International Agriculture (CGIAR), a global partnership that unites organizations engaged in research for sustainable development. The mission of IRRI is to reduce poverty and hunger, improve the health of rice farmers and consumers, and ensure environmental sustainability through collaborative research, partnerships, and the strengthening of national agricultural research and extension systems (see <http://irri.org/>). Recurrent surveys in East Laguna village have been conducted in cooperation with Social Sciences Division (SSD) of IRRI, which was renamed from the Department of Agricultural Economics in 1990.

a valuable data source. In Section 3, we list all the surveys conducted in the village and discuss the kind of information collected through the surveys. In Section 4, we discuss what we have studied based on the data collected from those surveys. The concluding remarks and future research topics will be presented in the final section.

2. Dynamism and historical transformation of the village

East Laguna village used to be a typical agrarian village surrounded by rice paddies. Table 1 shows that the village comprised 66 households, of which 46 were run by farmers and 20 by agricultural laborers at the time of Umehara's survey in 1966.⁴ When Hayami chose East Laguna village as a survey target, he "wanted a 'typical rice village'—modest in size with about a hundred households, clearly demarcated from other villages, not exposed too much to urban activities..." (Hayami and Kikuchi, 2000: p.xvii).⁵ However, through the three decades of the surveys, he witnessed a dynamic transformation of the village away from a "typical rice village." First, the number of households in the village increased from 66 in 1966 to 109 in 1976, 158 in 1987, and 242 in 1995. The total population in the village was 393 in 1966, 639 in 1976, 871 in 1987, and 1185 in 1995, as shown in Table 1. During the three decades from 1966 to 1995, the number of households expanded by three times and the population tripled. The number of households increased further to 428 and the population had grown to 1953 by the time of the

⁴ Agricultural laborers here refer to households that do not own farms and thus work as agricultural workers under farmers who cultivate their own farms. In the Philippines or in Southern East Asian countries in general, employment of workers as part-time agricultural laborers is often practiced. Since agricultural laborers do not own their own farms, they are generally less wealthy than farmers.

⁵ He had difficulty finding a "typical" village that was also within commuting distance from IRRI so that he could frequently visit and constantly check the data collected by his cooperators. After exploring several villages, he came across East Laguna village. He talked with a village head, whose competence and offer of assistance influenced him to decide to conduct the survey in this village. When he chose the village, however, he did not know that Umehara had conducted a survey in this same village eight years before him (Hayami and Kikuchi, 2000).

latest survey conducted in 2007. This recent expansion of the village has partly been accelerated by the transformation of coconut fields into a residential area that occurred around 2000. This newly exploited area is described as “urban,” as houses, most of them humble, are densely clustered there. The residents of the “urban” area include people who have newly migrated to the village. These changes are evidence that indicate the strong pressure for closed frontier land. This phenomenon is akin to what is happening in many rural villages in Asia and has implication for poverty and income inequality within the community.

In addition to the population increase, the village has undergone a shift from a traditional agricultural village to a non-agricultural village, and its interactions with other villages have increased along with its exposure to urban economic activities. As Table 1 shows, the members of all households were engaged in agriculture as either farmers or agricultural workers prior to the survey in 1976. In the 1987 survey, however, seven households were, for the first time, recorded as non-agricultural households, which are defined as consisting of members solely employed in the non-agricultural sector. The number of non-agricultural households started to increase significantly in the 1990s. Observing this transformation, Hayami and Kikuchi expanded their data collection to include the non-agricultural sector of the village. The number of non-agricultural households had increased to 41 by the time of their 1995 survey, accounting for 17% of the total households. Although, in the 1970s, their initial interest had been the agricultural aspect of the village, they posed a question in the epilogue of their book: “How long will this [village] remain a rural village?” (Hayami and Kikuchi, 2000: p.244).⁶ As if in reply to this question, the village further transformed itself into a non-agricultural village. In 2007, the number of non-agricultural households increased to 254, a share of 59% of the total households. As shown in Table 2, the share of income from non-agricultural sources increased from 13% in 1976 to 38% in 1983, 64% in 1996, and 68% in 2007. This provides additional

⁶ Parenthesis inserted by authors

evidence of the village's economic transition from an agricultural economy to a non-agricultural one. The question of what is propelling this transformation inspired Hayami, Kikuchi, and their successors to look closely at the panel data collected in this village.

The village has experienced significant qualitative and quantitative changes since Umehara's first survey in the 1960s. To our knowledge, in no other village in the Philippines have surveys been so intensively conducted over a span of four decades (18 rounds of surveys from 1966 to 2007). Although we should always be aware of the issues of representativeness and external validity when interpreting case studies based on a single village, the data from East Laguna village provides valuable, detailed insight into the long-term dynamics of an agrarian village. In the next section, we give an overview about the type of data collected in the successive rounds of surveys conducted.

3. List of surveys conducted in East Laguna village

Table 3 lists all the surveys conducted in this village to date. Eleven rounds of surveys were conducted by Hayami and Kikuchi, starting in 1974. Hayami conducted the baseline complete enumeration survey for the Anatomy of Peasant Economy Phase I project in 1974. By this time, the number of households in the village had increased to 95, an increase of almost 50% from the 66 recorded in the 1966 survey. Twelve out of these 95 households were selected as his survey respondents for the 1975-1976 record-keeping study.⁷ In order to understand the peasant economy comprehensively, he asked the selected households to keep daily records in the following seven areas: (1) current rice production, (2) current non-rice agricultural

⁷ Hayami et al. (1978) noted that the selection of target households was not random but based on their judgment of ability and willingness of households to participate in the project. They argue that the use of this purposive sampling was necessary to make the record-keeping project that lasts over a year feasible.

production, (3) current non-agricultural production, (4) income-expenditure, (5) fixed capital production, (6) capital finance, and (7) transactions (Hayami et al., 1978: p.2-6). The enumerators checked these records twice every week. Using this very intensive and unique data set, the first journal paper (Hayami and Kikuchi, 1978) and a book about the East Laguna village titled *Anatomy of a Peasant Economy: A Rice Village in the Philippines* (Hayami et al., 1978) were published. This book, based on detailed data on production, consumption, investment, and transaction activities, analyzes the patterns of household labor utilization, household income flow, and household assets, among other things. Because the number of households included in the record keeping study was small, the researchers extended their exploration of the socio-economic changes to the entire village, arguing that the village governs the decisions of individuals and households in the peasant community. Thus, a complete enumeration survey focusing on land tenure and labor relation was conducted in 1976 as a part of the Anatomy of Peasant Economy Phase I project, and a second book about the village that used the data from this survey, *Asian Village Economy at the Crossroads: An Economic Approach to Institutional Change*, was published in 1981 (Hayami and Kikuchi, 1981). While the focus of Hayami and Kikuchi's 1978 paper and book was farmers' economic activities at the household-level, this subsequent book focuses on the organization and institution of the agrarian society within the rural community. In order to ascertain how unique or representative East Laguna village was, other villages in the Philippines as well as several Indonesian villages were surveyed and compared with this village. Amazingly, several study sites revealed that farmers are responsive to economic incentives and that rural institutions change dynamically in response to profitable opportunities made possible by new technology.

After the three rounds of surveys in the Anatomy of Peasant Economy Phase I project, another round of diary surveys was administered in 1980–1982, accompanied by three rounds of complete enumeration surveys in 1980, 1983, and 1987. In this second trial, the diary record-keeping surveying was extended to two years. Based on the resulting dataset, a series of eight

IRRI working papers, among other publications, were written covering a wide range of topics, from social mobility and demography to labor utilization (see Table 5, which will be discussed later in this paper). The 1980 and 1983 complete enumeration surveys aimed at extending the analysis of labor relations involving labor migrants from outside the village, and the 1987 survey aimed at identifying the impact of land reform in the Philippines. Land reform in the Philippines had been successfully implemented in areas with irrigation facilities and the high adoption of modern rice varieties (Otsuka, 1991) typified by East Laguna Village. Needless to say, the land reform program catalyzed the transformation of East Laguna village. A paper by Hayami et al. (1990), titled “Transformation of a Laguna Village in the Two Decades of Green Revolution,” summarizes the dynamics of East Laguna village over the past two decades using data from seven rounds of surveys (three from the Anatomy of Peasant Economy Phase I and four from Phase II). After this benchmark paper covering their two-decades commitment to the village, they continued their inquiry there. Hayami and Kikuchi (2000: p. 17) wrote that “[after the 1987 survey] we were convinced of the effectiveness of analyzing the historical dynamics of agrarian change by means of our village survey data,”⁸ and this conviction prompted them to start another round of surveys in 1995.

Four rounds of surveys were conducted from 1995 to 1997 under the IRRI-Japan Shuttle project. The 1995 complete enumeration survey was designed to be a benchmark for thirty years of East Laguna village and had the widest data coverage. This was followed by the 1996 and 1997 surveys that targeted only farmers, investigating irrigation management and rice marketing, respectively. Subsequently, the 1997 complete enumeration survey on demographic transition used retrospective data collection to cover the period from 1980 to 1997. Based on the data collected through these surveys, a number of papers were published in academic journals.⁹

⁸ Parenthesis inserted by authors.

⁹ For example, Hayami, Kikuchi, and Marciano (1998) focused on the expansion of the non-agricultural sector and analyzed establishment of metal craft manufacturers in the village, based on

These papers as well as past research based on previous surveys were compiled in *A Rice Village Saga: Three decades of Green Revolution in the Philippines* (Hayami and Kikuchi, 2000). Because of the recurrent surveys in this village, this book covers topics in agriculture comprehensively, including land tenure system and the impact of land reform, diffusion of modern rice varieties after the Green Revolution, the irrigation management system, labor contract system, and rice marketing channel (each chapter of this book will be discussed in more detail in Section 4). After this comprehensive book about Hayami and Kikuchi's three decades of intensive surveys in East Laguna village, their successors conducted another set of surveys in the 2000s that will be discussed below.

In addition to the work of Hayami and Kikuchi, two rounds of surveys were organized by Mahabub Hossain under the Anatomy of Peasant Economy Phase II project from 1980 to 1987 and the IRRI-Japan Shuttle project from 1995 to 1997. Hossain's project called Technology, Income Distribution, and Poverty in the Philippines (TIDP) includes two rounds of complete enumeration surveys using the same questionnaire module in both 1993 and 1997. Information on households and their members' characteristics, farming output and input, assets and cash flow, and income from agriculture and non-agriculture sources was collected. Although the questionnaire module is different from that of Hayami and Kikuchi, the data from the TIDP project is useful for bridging the gap between the 1987 and 1995 surveys conducted by Hayami and Kikuchi.

After the first survey conducted in 1966 by Umehara, a total of 13 surveys were conducted leading up to 1997. In the initial phase, these surveys focused on agriculture-related

the 1995 survey and field work. Kikuchi and Hayami's subsequent study (1999), also based on the 1995 survey and previous surveys, focused on labor contracts and discussed the transition of the labor contract system. In a third study published the same year, using data from the 1997 survey, Hayami, Kikuchi and Marciano (1999) studied the rice marketing channel and discussed the development of the rice market.

topics as well as the demographic transition of population growth and migration because farming was then the main source of income, as shown in Table 2. However, as the non-agriculture sector came to play an increasingly important role in the rural economy, researchers collected data on the non-agricultural sector in order to analyze the dynamics in the village. The two rounds of surveys by Hossain collected data on income and employment in the non-agricultural sector, and four rounds of surveys conducted after 1995 by Hayami and Kikuchi collected information on the non-agricultural sector. In the 2000s, however, the focus broadened to cover non-traditional topics in the agrarian village. For instance, one of the primary focuses of the 2001 survey was social capital and networks; the 2003 and 2006 surveys collected detailed consumption data; and the 2007 survey focused on the risk-coping mechanisms of households, especially after the disastrous typhoon *Milenyo* that hit the Philippines in 2006. Journal papers and book chapters, which have not been constrained to the field of traditional agricultural economics, were published using the data collected in these 2000s surveys.

Table 4 presents the data collected in each round of the surveys. Although the primary focus differs from one survey to another, basic information on the household and its members is available in almost all of these surveys. For instance, information on household composition, household assets, characteristics of household members, and education and occupation of household members was collected in most surveys. In addition to the data on the household and its members, data on rice yields and prices and rice production inputs are available in many survey rounds.¹⁰ Table 4 also shows that surveys in the 2000s collected data from different

¹⁰ Although analysis of the dynamic demographic transition and intergenerational transfer of wealth and educational status can potentially be conducted using this data set, no attempt has been made to use the data as longitudinal panel data. Our on-going research project with PRIMCED aims to construct a panel data from the 18 rounds of surveys conducted in East Laguna village, so that we can analyze the dynamics of the village in greater detail. It also attempts to analyze the dynamic shift of the agrarian village toward a non-agrarian economy by combining data for agricultural activities with the data for non-agricultural activities that is partially available in several surveys as shown in Table 4.

perspectives such as social networking, detailed consumption, and crisis coping strategy, which enables researchers to analyze different aspects of the village economy. The next section summarizes the research that uses data from East Laguna village.

4. List of publications based on data from East Laguna village

Table 5 lists the publications that use data collected in East Laguna village, and Table 6 calculates the number of publications. Three books and 61 articles—including 18 journal articles, working paper/discussion papers, and book chapters—have been written using data from this village. Those numbers alone tell us how intensively this village has been studied. Through the recurrent surveys, research has offered and discussed (i) a microscopic view of household decisions, (ii) changes in the socio-economic status of the village, and (iii) the role of community mechanisms and the evolution of institutions, among other things.

Firstly, surveys in East Laguna village have provided detailed descriptions of household decisions on rice production. In the early stages of the surveying, one of the main research topics was the impact of the Green Revolution. Since East Laguna village is closely located to not only IRRI but also the University of the Philippines at Los Baños (UPLB), where facilities related to agriculture are located, it was one of the very first villages to adopt modern rice varieties. New agricultural technology has been rapidly diffused in the village and had a favorable impact on rice yield (Hayami and Kikuchi, 2000: chapter 5). In addition, the diffusion of new technology and the consequent productivity increase induced migration to the village from upland areas, where productivity was lower and thus the marginal product of labor was low. This new technology resulted in the reduction of interregional inequality of income and induced change in labor relationships (Kikuchi and Hayami, 1983). Another primary interest was the impact of land reform, which was implemented in 1972 by President Marcos, on the

land tenure system and income distribution. The land reform program reduced rice plots operated through sharecropping and increased leasehold and farmer-owned plots. This had a positive impact on income distribution by transferring income from rich land owners in towns to poor farmers in the village. However, we must note that, in the early period of land reform in the mid-1970s, the income disparity between farmers and agricultural laborers widened, limiting the opportunity for agricultural laborers to ascend to become owner farmers (Hayami, Marciano and Kikuchi, 1998; Hayami and Kikuchi, 2000: chapter 4). In the mid-1980s, when the non-farm labor market started to develop, landless households became increasingly able to explore income-earning opportunities outside agriculture that allowed them to increase their income vis-à-vis the farmers who benefited from the land reform. A strand of literature by Hayami and Kikuchi evaluated the impact of two major developments, specifically the Green Revolution and land reform, on efficiency and equity in the village economy.

In addition, labor contracts, irrigation management systems, and rice marketing channels were studied using data from the village. Labor contracts, especially those for rice harvesting, changed with changing economic environments such as increased rice yields, increased labor supply due to migration, and increased opportunities for non-agricultural employment. The shift in the harvesting contract from *Hunusan* to *Gama* and to the new *Hunusan* was analyzed intensively.¹¹ Hayami and Kikuchi argued that this shift in the harvesting contract was an institutional innovation that accommodated the community norm and market efficiency in order to eliminate the market disequilibrium caused by exogenous changes in the socioeconomic

¹¹ Under the *Hunusan* contract, anyone can participate in the harvesting of a rice paddy and receive a fixed share of their harvesting. Under the *Gama* contract, harvesters have to weed the paddy without any compensation in order to participate in the harvesting work. Under the new *Hunusan* contract, only those who are invited by a farm owner can participate in harvesting. In our field work in 2010 and 2011, we found that, while the majority of farmers offer *Hunusan* and *Gama* types of contracts, some farmers have started to adopt a new type of harvesting contract, called *Pakyaw*, in which harvesting work is out-sourced to a foreman who is responsible for hiring workers to harvest an assigned paddy.

environment (Kikuchi and Hayami, 1980; Kikuchi, 1981; Hayami, 1998; Kikuchi and Hayami, 1999; Hayami and Kikuchi, 2000: chapter 7). This indicated that institutions in rice harvesting are not at all static, but are dynamically changing to explore gains from new technology. The relatively new topics in agriculture in this village are irrigation management and rice marketing. As for irrigation, the Sta. Cruz irrigation system was completed under the National Irrigation Administration (NIA) in the late 1950s and prompted the Green Revolution in this area. However, the irrigation system deteriorated due to the lack of proper maintenance, and farmers started using water pumps for irrigation instead of utilizing the national system. The deterioration of this system was analyzed and the importance of complementary interaction between the government and community to enhance irrigation management was emphasized (Hayami and Kikuchi, 2000: chapter 6; Kikuchi, Fujita and Hayami, 2001; Fujiie, Hayami and Kikuchi, 2005).¹² As for rice marketing, the players in this market and channels through which they interacted were documented. This study revealed that the rice market was basically competitive while long-term relationships were established between players to reduce transaction costs. Therefore, the market mechanisms, together with community-type mechanisms established by long-term transactions, work to enhance market efficiency (Hayami, Kikuchi and Marciano, 1999; Hayami and Kikuchi, 2000: chapter 8). The analysis of the role of market, state, and community underlies the Hayami and Kikuchi's series of inquiries into the village.

Secondly, as discussed in Section 2, the village experienced a shift from an agricultural society to non-agricultural society, and the dynamic transition of the socio-economic status of the village was documented. Although the village used to be demarcated from other villages and had not yet been exposed much to the urban economy at the time of Hayami's first inquiry into it, the village today has frequent interactions with other villages, local towns, and major cities

¹² The NIA completed the rehabilitation (canal lining and water gate installation) of the system in 2011.

and is well-exposed to urban economic activities. This change was facilitated by the expansion of the road system that connects East Laguna Village with Metro Manila, as shown in Figure 1.¹³ Hayami and Kikuchi documented the changes in the villagers' socioeconomic status through their microscopic analysis of the agrarian society and their inquiry into the village economy's non-agricultural sector. In terms of villagers' wealth status, successive rounds of surveys show that the real income grew continuously in this village, as shown in Table 2, and that the ratio of the population under the poverty line decreased from 68% in 1974 to 56% in 1995. In terms of equality, while the distribution of land holdings became much more skewed—with a Gini coefficient of 0.54 in 1966, 0.76 in 1980, and 0.89 in 1995—the distribution of income remained largely unchanged. Increased opportunities in non-agricultural employment can explain this apparent contradiction, since the increasingly unequal land distribution would have led to higher income inequality if the village had remained agrarian (Hayami and Kikuchi, 1999; Hayami and Kikuchi, 2000: chapter 10). As discussed in Section 3, Hayami and Kikuchi started to realize the importance of the non-farm sector and collected data on it. As a representative case of growth in the non-farm sector, the emergence of a rural manufacturing sector within the village was analyzed (Hayami, Kikuchi and Marciano, 1998; Hayami and Kikuchi, 2000: chapter 9).¹⁴ The process of the shift away from a traditional agrarian village and the consequent dynamism of the villagers' social and economic status were documented.

Thirdly, Estudillo et al. (2010) reviewed historical changes in East Laguna village, focusing on (i) management of irrigation systems, (ii) land and labor relations, (iii) coping with

¹³ The Manila South Super Highway was extended to Calamba in 1978 (Hayami and Kikuchi, 2000: p.24).

¹⁴ These publications analyze the sudden surge of cottage manufacturing in the village in the 1990s. Although they described the paper mill and metal-craft industry as having been established and developed during the 1990s, these industries had almost shut down by the time of our recent field work in 2010 and 2011. The possible reason for the failure of industrial development is the declining demand for products from abroad, competition with other suppliers (possibly overseas suppliers), or a shift in manufacturing systems from cottage manufacturing to large-scale factory manufacturing.

risk, (iv) social capital, and (v) development of the non-farm sector. As discussed above, Hayami and Kikuchi analyzed the importance and limitations of community mechanisms in their study of irrigation system and labor relations. Their successors have taken community mechanisms into account when analyzing changes in the village economy. As for coping with risk, private transfers from friends and relatives serve as an *ex post* risk-coping strategy, suggesting that village community mechanisms work as buffers against negative shocks (Fuwa, Marciano and Reaño, 2006; Sawada et al., 2009). Kajisa (2007) analyzed how social capital works for small businesses in the labor market. Social capital, defined as “the structure of informal social relationships conducive to developing cooperation among economic actors aimed at increasing social product, which is expected to accrue to the group of people embedded in those social relationships” (Hayami, 2009: p.98), is one form of community mechanism, and its role in the non-agricultural sector provides insight into the village economy. Through four decades of inquiry into the village, researchers on rural villages have been able to deepen their understanding of the role of community in village economies.

5. Conclusion

This paper provides an overview of the four decades of research conducted in East Laguna village. Throughout the research process, all the villagers, through their active cooperation, greatly contributed to the advancement of our understanding of the dynamics of the agrarian economy as well as village community mechanisms. However, some aspects of the village economy remain unexplored. First, as the exposure of the village to the outside world has accelerated, an increasing number of villagers have migrated to cities as well as to foreign countries. Consequently, remittance has come to play an important role in this village and in other parts of the Philippines. Nonetheless, the role of remittance in the village economy has not been sufficiently documented. Second, although borrowing and lending are frequently practiced

in various forms—such as through credit extended by *sari-sari* stores; borrowing from friends, relatives, or neighbors; and the ROSCA type of mutual lending—these transactions have not been studied in detail. In addition, we have recently found that an increasing number of women participated in Grameen-type micro credit organizations. We have also found that, in addition to traditional pawning of land and asset items, some villagers borrow money using their ATM cards as collateral, which is called *Sangla ATM* (“Sangla” means pawning in Tagalog). Since data on borrowing and lending were collected in several rounds of surveys, as shown in Table 4, an analysis of the changes in financial transactions in the village economy may potentially be a research topic worth investigating in the future. Although East Laguna village has been studied intensively over the past four decades, we still have much to learn from this village.

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Umehara, H. (1967) "Philippine no Beisaku Noson (in Japanese: A rice village in the Philippines)" in T. Takigawa and H. Saito (eds.), *Ajia no Tochi Seido to Noson shakai kozo (Land tenure system and rural social structure in Asia)* (Tokyo: Institute of Developing Economies).

Figure 1: Map of East Laguna village

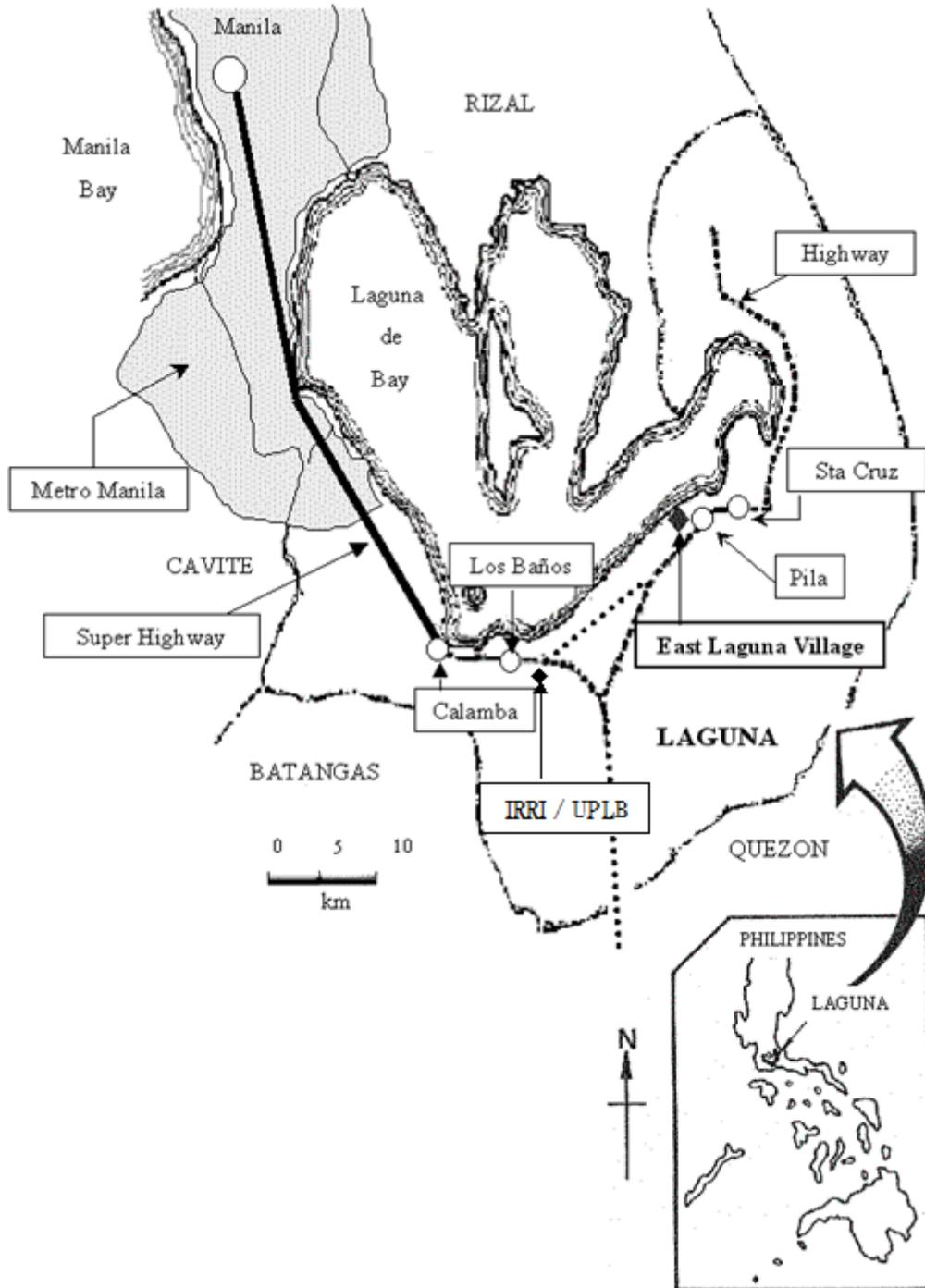


Table 1: Demographic overview of East Laguna village

Year	Farmer households ^a	Agricultural labor households ^a	Non-agricultural households ^a	Total number of households	Population
1966	46 (70)	20 (30)	0 (0)	66 (100)	399
1976	54 (50)	55 (50)	0 (0)	109 (100)	639
1987	53 (34)	98 (62)	7 (4)	158 (100)	871
1995	51 (21)	150 (62)	41 (17)	242 (100)	1185
2007	36 (9)	138 (32)	254 (59)	428 (100)	1953

Source: Hayami and Kikuchi (2000) p. 54 and Estudillo et al. (2010) p. 225

Note:

(a) Numbers in parentheses are percentages.

Table 2: Sources of household income in East Laguna village

Year	Income from agricultural sources ^a	Income from non-agricultural sources ^a	Total ^a
1974-1976	50 (87)	8 (13)	58 (100)
1980-1983	33 (62)	20 (38)	53 (100)
1995-1996	20 (36)	36 (64)	56 (100)
2006-2007	24 (32)	52 (68)	70 (100)

Source: Hayami and Kikuchi (2000) p. 235 and Estudillo et al. (2010) p. 229

Note:

(a) Numbers in parentheses are percentages. Income is deflated by the CPI outside Metro Manila (1995 = 100).

Table 3: List of surveys conducted in East Laguna village

Survey ID	Year	Principal Researcher in Charge	Availability ^a	Title	Surveyed Month	Number of Samples
1	1966	H. Umehara	N.A.		Dec. 1966	Complete enumeration (N=66)
2 ^b	1974	Y. Hayami	***	Preliminary survey of "Anatomy of Peasant Economy"	Nov. 1974	Complete enumeration (N=95)
3 ^b	1975-1976	Y. Hayami	*	Anatomy of Peasant Economy (diary)	Apr. 1975- May. 1976	Selected sample (N=12)
4 ^b	1976	Y. Hayami and M. Kikuchi	*	Laguna land tenure survey	Dec. 1976	Complete enumeration (N=111)
5 ^c	1980	M. Kikuchi	**	Laguna social mobility and migration survey	Sep.-Oct. 1980	Complete enumeration (N=126)
6 ^c	1980-1982	M. Kikuchi	***	Anatomy of Peasant Economy phase II (diary)	May. 1980- Jun. 1982	Selected sample (N=15)
7 ^c	1983	M. Kikuchi	†	Laguna village survey	Mar. 1983	Complete enumeration (N=125)
8 ^c	1987	Y. Hayami	***	Laguna land tenure survey	Oct. 1987	Complete enumeration (N=155)
9 ^d	1993	M. Hossain	**	Technology, income distribution and poverty in the Philippines	Nov. -Dec. 1992	Complete enumeration (N=190)
10 ^d	1997	M. Hossain	***	Technology, income distribution and poverty in the Philippines	Jan. 1997/ Aug. 1997	Complete enumeration (N=244)
11 ^e	1995	Y. Hayami and M. Kikuchi	***	Laguna village resurvey	May. -Jun. 1995	Complete enumeration (N=242)
12 ^e	1996	Y. Hayami and M. Kikuchi	***	Laguna village farmer resurvey	Jul. 1996	Farmers only (N=51)
13 ^e	1997	Y. Hayami and M. Kikuchi	***	Marketing survey	Jul. 1997	Farmers only (N=43)
14 ^e	1997	Y. Hayami and M. Kikuchi	***	Village population survey	Oct. 1997	Complete enumeration (N=266)
15	2001	K. Kajisa	***	Laguna social mobility and migration survey	Aug. 2001/ Dec. 2001	Complete enumeration (N=297)
16	2003	N. Fuwa	***	A livelihood system of rural households	Aug.-Sep. 2003	Complete enumeration (N=376)
17	2007	J. Estudillo	*	Household responses on natural disasters: tropical storm Milenyo in Tubuan 2006	Feb. 2007	Complete enumeration (N=405)
18	2007	Y. Sawada	***	Household responses on natural disasters: tropical storm Milenyo in Tubuan 2007	Aug.-Sep. 2007	Complete enumeration (N=433)

Note:

(a) Availability: ***(Encoded data available and original questionnaires stored) ** (Encoded data available but part of original questionnaires missing) * (Encoded data available but all original questionnaires missing) † (Encoded data partially available)

(b) Anatomy of Peasant Economy Phase I project

(c) Anatomy of Peasant Economy Phase II project

(d) Technology, Income Distribution and Poverty in the Philippines project

(e) IRRI-Japan Shuttle project

Table 4: Data collected in surveys in East Laguna village

Survey ID	Year	Major information collected ^a																
		Complete enumeration survey	Household composition	Household assets	Land holdings	Record keeping (Diary)	Rice yield and price	Input for rice production	Income	Borrowing and lending	Non-agricultural activities	Crisis-coping strategy	Social network	Consumption	Basic characteristics of household members (relationship, sex, age, etc.)	Education of household members	Occupation of household members	Members and non-members living outside the household and sending/receiving remittances
1	1966	Y	l	n	l	n	l	n	n	n	n	n	n	n	n	n	n	
2	1974	Y	c	c	c	n	c	l	l	n	l	n	n	l	c	c	c	n
3	1975-1976	N	l	l	l	c	l	l	l	l	l	n	n	l	n	n	n	n
4	1976	Y	c	c	c	n	c	c	c	c	l	n	n	l	c	c	c	n
5	1980	Y	c	n	l	n	c	c	c	n	l	n	n	n	c	c	c	n
6	1980-1982	N	l	l	l	c	l	l	l	l	l	n	n	l	n	n	n	n
7	1983	Y	l	n	l	n	l	l	l	n	l	n	n	n	n	n	n	n
8	1987	Y	c	c	c	n	c	c	c	n	l	n	n	n	c	c	c	n
9	1993	Y	c	c	c	n	c	c	c	c	l	n	n	n	c	c	c	c
10	1997	Y	c	c	c	n	c	c	c	c	l	n	n	n	c	c	c	c
11	1995	Y	c	c	l	n	c	c	c	c	c	n	n	n	c	c	c	n
12	1996	N	n	c	l	n	c	c	n	n	n	n	n	n	n	n	n	n
13	1997	N	n	n	n	n	c	l	n	c	n	n	n	n	n	n	n	n
14	1997	Y	c	n	n	n	l	n	n	n	n	n	n	n	c	c	c	n
15	2001	Y	c	c	c	n	c	c	c	c	c	n	c	n	c	c	c	c
16	2003	Y	c	c	c	c	c	l	n	n	l	c	n	c	c	c	c	c
17	2007	Y	c	l	l	c	l	l	n	n	l	c	n	c	c	c	c	c
18	2007	Y	c	c	c	n	c	c	c	c	l	c	c	n	c	c	c	c

Note:

(a) c: fairly complete data available, l: limited data available, n: data not available

Table 5: List of papers published that used data from East Laguna Village

Year of publication	Category ^a	Author(s)	Title	Book/ Journal/ Working Paper title
1967	BC	Umehara, H	Philippine no Beisaku Noson (in Japanese: A rice village in the Philippines)	T. Takigawa and H. Saito (eds.), <i>Ajia no Tochi Seido to Noson shakai kozo (Land tenure system and rural social structure in Asia)</i> (Tokyo: Institute of Developing Economics)
1975	WP	Y. Hayami, L. Maligalig, and N. Fortuna	Socio-economic Characteristics of a Rice Village in Southern Luzon: A Report of Benchmark Survey for Anatomy of Peasant Economy	IRRI Agricultural Economics Paper 75-10, May 1975
1976	WP	Y. Hayami and L. Maligalig	Structure of Asset Holdings of the Households in a Rice Village in Southern Luzon: Report No. 2 for Anatomy of Peasant Economy	IRRI Agricultural Economics Paper 75-20, July 1976
1976	WP	Y. Hayami, P. Flores, and L. Maligalig	Labor Utilization in a Rice Village in Southern Luzon: Report No. 3 for Anatomy of Peasant Economy	IRRI Agricultural Economics Paper 76-24, August 1976
1976	WP	Y. Hayami, P. Flores, and L. Maligalig	Anatomy of Household Economy in a Rice Village in Southern Luzon: Report No. 4 for Anatomy of Peasant Economy	IRRI Agricultural Economics Paper 76-25, August 1976
1976	WP	Y. Hayami, P. Flores, and L. Maligalig	Social Accounts of a Rice Village in Southern Luzon: Report No. 5 for Anatomy of Peasant Economy	IRRI Agricultural Economics Paper 76-26, August 1976
1977	WP	M. Kikuchi, L. M. Bambo, and Y. Hayami	Evolution of Land Tenure System in a Laguna Village: Report No. 1 for the project "Dynamics of Agrarian Change"	IRRI Agricultural Economics Paper
1978	B	Y. Hayami, M. Kikuchi, P.F. Moya, L.M. Bambo, and E. B. Marciano.	<i>Anatomy of a Peasant Economy: A Rice Village in the Philippines</i> (International Rice Research Institute)	
1978	J	Y. Hayami and M. Kikuchi	Social Accounts of a Philippine Village	<i>Developing Economics</i> 16(2): 147-168
1978	WP	M. Kikuchi, N. Fortuna, L. M. Bambo, and Y. Hayami	Polarization of a Laguna Village: Report No. 2 for the project "Dynamics of Agrarian Change"	IRRI Agricultural Economics Paper 78-01
1980	BC	Y. Hayami, P.F. Moya, L. Maligalig, and M. Kikuchi	The Economic Accounts of Households in a Philippine Village	K. Ohkawa and B. Key (eds.), <i>Asian Socioeconomic Development: A National Account Approach</i> (Tokyo: University of Tokyo Press)
1980	J	M. Kikuchi and Y. Hayami	Inducements to Institutional Innovations in an Agrarian Community	<i>Economic Development and Cultural Change</i> 29(1): 21-36
1980	J	M. Kikuchi and Y. Hayami	Technology and Labor Contract: Two Systems of Rice Harvesting in the Philippines	<i>Journal of Comparative Economics</i> 4(4): 357-377
1980	WP	M. Kikuchi, L. M. Bambo, and M. L. Obusan	Recent Economic Changes in a Laguna Village: Report No. 1 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper 80-15
1981	J	M. Kikuchi	Changes in Rice Harvesting Systems in the Philippines and Indonesia: Village Structure and Choice of Contractual Arrangements	<i>Developing Economics</i> 19(4): 291-304
1981	B	Y. Hayami and M. Kikuchi	<i>Asian Village Economy at the Crossroads: An Economic Approach to Institutional Change</i> (Tokyo: University of Tokyo Press)	
1981	WP	M. Kikuchi, L. M. Bambo, N. M. Fortuna, E. B. Marciano, M. L. Obusan and C. Opeña	Changes in Labor Utilization in a Rice Village in Southern Luzon: An Interim Report: Report No. 2 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper 81-35
1982	BC	M. Kikuchi and Y. Hayami	Growth and Equity in New Rice Technology: A Perspective from Village Studies	IRRI (ed.), <i>Rice Research Strategies for the Future</i> (Los Banos: International Rice Research Institute)
1982	BC	M. Kikuchi and Y. Hayami	Technological and Institutional Response and Income Shares under Demographic Pressure: A Comparison of Indonesian and Philippine Villages	G.B. Hainsworth (ed.), <i>Village - Level Modernization in Southeast Asia: The Political Economy of Rice and Water</i> (Vancouver: University of British Columbia Press)
1982	WP	M. Kikuchi, L. M. Bambo, N. M. Fortuna, and C. Opeña	Estimations of Life Table and True Rates of Birth, Death and Natural Increase of Population for a Rural Village in Southern Tagalog, Philippines, 1920-49 and 1950-80	IRRI Agricultural Economics Paper 82-24

Note:

(a) J: Journal article, WP: working paper/ discussion paper, B: Book, and BC: Book chapter

Table 5: List of papers publications that used data from East Laguna Village (cont.)

Year of publication	Category ^a	Author(s)	Title	Book/ Journal/ Working Paper title
1982	WP	M. Kikuchi, L. M. Bambo, N. M. Fortuna, C. Opeña, and R. Schmid	Social Mobility and Migration in a Rice Village in Laguna, Philippines: A Summary of Findings	IRRI Agricultural Economics Paper 82-26
1983	WP	M. Kikuchi, L. M. Bambo, E. B. Marciano, and M. L. Obusan	Household Economy in a Rice Village in Southern Luzon, 1980-1982: Report No. 3 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper 83-06
1983	WP	M. Kikuchi, L. M. Bambo, E. B. Marciano, and M. L. Obusan	Structure of Asset Holdings of Household in a Rice Village in Southern Luzon, 1980-1982: Report No. 4 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper 83-07
1983	WP	M. Kikuchi, L. M. Bambo, E. B. Marciano, and M. L. Obusan	Social Accounts of a Rice Village in Southern Luzon, 1980-1982: Report No. 5 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper 83-08
1983	WP	M. Kikuchi, L. M. Bambo, E. B. Marciano, and M. L. Obusan	Changes in Household Economy in a Rice Village in Southern Luzon, 1975/76, 1980/81 and 1981/82: Report No. 6 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper 83-09
1983	WP	M. Kikuchi, L. M. Bambo, E. B. Marciano, and M. L. Obusan	Social Accounts of a Rice Village in Southern Luzon, 1975/76, 1980/81 and 1981/82 at 1975/76 Constant Prices: Report No. 7 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper
1983	WP	M. Kikuchi, L. M. Bambo, E. B. Marciano, M. L. Obusan, and C. Opeña	Summary Tables for Household Labor Utilization, 1981/82: Report No. 8 for Anatomy of Peasant Economy II	IRRI Agricultural Economics Paper
1983	J	M. Kikuchi and Y. Hayami	New Rice Technology, Intrarural Migration, and Institutional Innovation in the Philippines	<i>Population and Development Review</i> 9(2): 247-257
1983	BC	M. Kikuchi	Recent Changes in a Laguna Rice Village: A New Generation of Changes?	A.J. Ledesma, P.Q. Makil and V.A. Miralao (eds.), <i>Second View from the Paddies: More Empirical Studies on Philippine rice Farming and Tenancy</i> (Manila: Institute of Philippine Culture, Ateneo de Manila University)
1983	J	Y. Hayami and M. Kikuchi	Asian Village at the Crossroads: Reply	<i>Developing Economies</i> 21(1): 73-78
1983	WP	M. Kikuchi, A. Huysman, and L. Res	New Rice Technology and Labor Absorption: Comparative Histories of Two Philippine Villages	IRRI Research Paper No. 90
1985	BC	Y. Hayami and M. Kikuchi	Directions of Agrarian Change: A View Form Villages in the Philippines	J.M. Mellor and G.M. Desai (eds.), <i>Agricultural Change and Rural Poverty: Variations on a Theme by Dharm Narain</i> (Maryland: Johns Hopkins University Press)
1986	BC	M. Kikuchi	Growing Impact of Off-farm Employment on a Rural Economy	R.T. Shand (ed.), <i>Off-Farm Employment in the Development of Rural Asia</i> , (Canberra: Australian National University): 99-131
1990	WP	Y. Hayami, M. Kikuchi, L. Bambo, and E. B. Marciano	Transformation of a Laguna Village in the Two Decades of Green Revolution	IRRI Research Paper No. 142
1991	BC	Y. Hayami and M. Kikuchi,	Changes in Income Distribution in a Philippine Village in the Two Decades of Green Revolution	T. Mizoguchi (ed.) <i>Making Economies More Efficient and More Equitable: Factors Determining Income Distribution</i> (Tokyo: Kinokuniya)
1996	WP	Y. Hayami, M. Kikuchi, and E. B. Marciano	Structure of Rural-based Industrialization: Metal Craft Manufacturing in the Philippines	IRRI Social Sciences Discussion Paper 96-05
1997	WP	Y. Hayami, M. Kikuchi, and E. B. Marciano	Middlemen and Peasants in Rice Marketing in the Philippines	IRRI Social Sciences Division Discussion Paper Series No. 97-01
1997	WP	M. Kikuchi, E. B. Marciano, M. Hossain, and Y. Hayami	A Laguna Rice Village: Three Decades of Changes Before and After Green Revolution	IRRI Social Sciences Discussion Paper 97-02
1998	J	Y. Hayami	Norms and Rationality in the Evolution of Economic Systems: A View from Asian Villages	<i>Japanese Economic Review</i> 49 (1): 36-52
1998	J	Y. Hayami, M. Kikuchi, and E. B. Marciano	Structure of Rural-based Industrialization: Metal Craft Manufacturing in the Outskirts of Greater Manila, the Philippines	<i>Developing Economies</i> 36 (2):132-54
1998	J	Y. Hayami, E. B. Marciano, and M. Kikuchi	Did Philippines Land Reform Reduce Inequality? A Perspective from a Laguna Village	<i>Journal of Agricultural Economics and Development</i> 26(1-2): 13-37
1998	WP	M. Fujita, Y. Hayami, and M. Kikuchi	The Conditions of Farmer Participation in Irrigation Management: A Cross Section Analysis for the Philippines	IRRI Social Sciences Division Discussion Paper Series No. 98-01

Note:

(a) J: Journal article, WP: working paper/ discussion paper, B: Book, and BC: Book chapter

Table 5: List of papers publications that used data from East Laguna Village (cont.)

Year of publication	Category ^a	Author(s)	Title	Book/ Journal/ Working Paper title
1998	WP	Y. Hayami and M. Kikuchi	The Three Decades of Green Revolution in a Philippine Village	IRRI Social Sciences Division Discussion Paper Series No. 98-04
1998	WP	M. Kikuchi, M. Fujita, E. B. Marciano, and Y. Hayami	State and Community in the Deterioration of a National Irrigation System	IRRI Social Sciences Division Discussion Paper Series No. 98-05
1998	WP	Y. Hayami and M. Kikuchi	Income Growth and Distributional Change in a Philippine Village in the Three Decades of Green Revolution	IRRI Social Sciences Division Discussion Paper Series No. 98-06
1998	WP	Y. Hayami, E. B. Marciano, and M. Kikuchi	Did Philippines Land Reform Reduce Inequality? A Perspective from a Laguna Village	IRRI Social Sciences Division Discussion Paper Series No. 98-07
1999	J	Y. Hayami and M. Kikuchi	The Three Decades of Green Revolution in a Philippine Village	<i>Japanese Journal of Rural Economics</i> 1: 10-24
1999	J	M. Kikuchi and Y. Hayami	Technology, Market, and Community in Contract Choice: Rice Harvesting in the Philippines	<i>Economic Development and cultural change</i> 47(2): 371-86
1999	J	Y. Hayami, M. Kikuchi, and E. B. Marciano	Middlemen and Peasants in Rice Marketing in the Philippines	<i>Agricultural Economics</i> 20 (2): 79-93
1999	J	Y. Hayami and M. Kikuchi	Kindaika ha Fubyoudou wo Motarasu ka? Philippines Nounon no 30 nen (in Japanese: Does modernization lead to inequality? Three decades in a Philippines agrarian village)	<i>Keizai Kenkyu (Economic Review)</i> 50(2): 107-119
2000	J	M. Hossain, F. Gascon, and E. B. Marciano	Income Distribution and Poverty in Rural Philippines: Insights from Repeat Village Study	<i>Economic and Political Weekly</i> 35(52-53): 4650-4656
2000	WP	E. B. Marciano, F. Gascon, E. Cabrera, and M. Hossain	Technology Impact on Distribution of Rural Household Income and Poverty: Insights from Repeat Village Study Representing Different Rice Ecosystems in the Philippines	Conference paper, International Rice Research Conference, Los Baños, Laguna, Philippines, March - April, 2000
2000	B	Y. Hayami and M. Kikuchi	<i>A Rice Village Saga: Three Decades of Green Revolution in the Philippines</i> (London: MacMillan Press)	
2001	BC	Y. Hayami and M. Kikuchi	The Two Paths of Agrarian System Evolution in the Philippine Rice Bowl	M. Aoki and Y. Hayami (eds.), <i>Communities and Markets in Economic Development</i> (Oxford: Oxford University Press)
2001	BC	M. Kikuchi, M. Fujita, and Y. Hayami	State, Community and Market in the Deterioration of an Irrigation System in the Philippines	M. Aoki and Y. Hayami (eds.), <i>Communities and Markets in Economic Development</i> (Oxford: Oxford University Press)
2002	WP	M. Hossain, M. L. Bose, T.U. Tran, A.G. Agarwal, J. Thakur, and E. B. Marciano	Impact of Modern Rice in Irrigated and Rainfed Environments	Conference paper, International Conference on Impacts of Research and Development, San Jose, Costa Rica, February, 2002
2005	J	M. Fujie (Fujita), Y. Hayami, and M. Kikuchi	The Conditions of Collective Action for Local Commons Management: the Case of Irrigation in the Philippines	<i>Agricultural Economics</i> 33(2): 179-189
2006	WP	N. Fuwa, E. B. Marciano, and J. Reaño	Report on the 2003 Livelihood System of Rural Households Survey in the Philippines	IRRI working paper
2007	J	K. Kajisa	Personal Networks and Nonagricultural Employment: The Case of a Farming Village in the Philippines	<i>Economic development and cultural change</i> 55(4): 699-707
2009	BC	Y. Sawada, J. P. Estudillo, N. Fuwa, and K. Kajisa	How do People Cope with a Natural Disaster? The Case of Super Typhoon Milenyo in the Philippines	G. P. Carnaje and L. S. Cabanilla (eds.), <i>Development, Natural Resources and the Environment</i> (Los Baños: University of the Philippines)
2009	WP	N. Fuwa and E. B. Marciano	Alternative Pathways out of Rural Poverty in the Philippines: A Descriptive Study	Background paper for World Bank Report, Philippines: Fostering More Inclusive Growth
2010	J	N. Fuwa, E. B. Marciano, and J. Reaño	Consumption behavior and poverty in the rural Philippines: A Quantitative Description	<i>Journal of Asia-Pacific Studies (Waseda University)</i> 15: 27-52
2010	BC	J. P. Estudillo, Y. Sawada, K. Kajisa, N. Fuwa, and M. Kikuchi	The Transformation of Hayami's Village	K. Otsuka and K. Kalirajan (eds.), <i>Community, Market and State in Development</i> (New York: Palgrave Macmillan)
2011	J	N. Fuwa	Should We Track Migrant Households When Collecting Household Panel Data? Household Relocation, Economic Mobility and Attrition Biases in the Rural Philippines	<i>American Journal of Agricultural Economics</i> 93 (1): 56-82

Note:

(a) J: Journal article, WP: working paper/ discussion paper, B: Book, and BC: Book chapter

Table 6: Number of publications (by decade)

Year	J (Journal Article)	WP (Working Paper)	B (Book)	BC (Book Chapter)	Total
~1970s	1	7	1	1	10
1980s	5	11	1	6	23
1990s	7	9	0	1	17
2000s~	5	4	1	4	14
Total	18	31	3	12	64