

The Pennsylvania State University

The Graduate School

College of Agricultural Sciences

**EXPLORING THE MEDIATING EFFECT OF SOCIAL CAPITAL ON
HUMAN CAPITAL IN ECONOMIC WELL-BEING:
A MICRO-ANALYSIS OF FOUR COUNTRIES**

A Dissertation in

Agricultural, Environmental & Regional Economics and Demography

by

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor in Philosophy

December 2012

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ABSTRACT

While the importance of human capital and social capital have been widely recognized in a range of social phenomena, the mediating effect of social capital on human capital is only occasionally acknowledged. This study examines the role of social capital in the relationship between human capital and economic well-being. Both the additive effect and the interaction effect of social capital with human capital are considered to better depict its significance with a cross-cultural perspective.

Drawing on the International Social Survey Programme (ISSP 2001) on social networks and social support, the study focuses on four countries: two developed countries – the United States and Japan, and two developing ones – the Philippines and Brazil. The outcome variable of interest is individual economic well-being as measured by individual wages. Human capital is measured by formal schooling and work experience, and social capital by a diversity of social contacts (i.e., relatives and close friends) and social engagement in various groups or associations. Econometric models (e.g., OLS, Heckman Selection model, and SUR model) are used to test the roles of social capital in different contexts.

The empirical findings are mixed and heterogeneous. The significance of human capital remains for all the four countries, reaffirming the theory of human

capital. However, different aspects of social capital (bonding, bridging and linking) tend to demonstrate different effects for different countries. In spite of the mixed results, social capital is not negligible in terms of its magnitude and significance, but rather deserves further specific study in depth to reveal the effect of each of the indicators. Furthermore, social capital is never meant to substitute but complement human capital either in positive or negative effects, as it is commonly observed in the real world that people utilize the social capital at their disposal from time to time out of habit. It may also be the case that people are asked for help by their network ties, bearing losses to a certain degree, to benefit the latter's economic well-being. In other words, certain types of social capital amplify human capital while others offset human capital in their effects on economic well-being, or compensate for lower levels of human capital.

There are two limitations of this study. First of all, the measurement of social capital needs to be further refined so as to cover not only the quantity of social network ties but also the quality of these ties, both of which matter in social contexts. Second, the cross-sectional data from the ISSP survey on social networks do not allow drawing causal inferences for social capital in the relationship between human capital and economic well-being. Even though the current research design considers the possible sample selection issues and uses both the Heckman selection model and the

SUR model, it does not consider the potential endogeneity of social capital in the process of social and economic development. Further causal inferences would be able to shed more light on how social capital is leveraged for human capital to work best towards the improvement of economic well-being. Should panel data be available in the future survey cycles, this issue might be addressed by controlling for potentially unobservable factors. In addition, social capital is so complex a topic that it is highly contingent on social culture and economic institutions. Cross-cultural comparisons are very interesting but would be more insightful if cultural factors were included in the theoretical framework. These limitations deserve future research.

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ACKNOWLEDGEMENTS

Finally it comes to the point to express my gratitude for those – my social network contacts – who have helped me walk through the whole process of graduate study, an important chapter of my life.

First of all, the Lord Jesus Christ deserves my whole-hearted thanks and praise, by whose grace and mercy I have been led out of my grass-root village in China and given the opportunity to pursue my undergraduate study at Peking University followed by the current doctoral study at Penn State. I could never imagine what my life would have been without God's amazing grace and miraculous provision during different stages of my life.

I feel very much indebted to my advisor Prof. David Abler who in the past few years has patiently borne my slow-wittedness and provided guidance and supervision for my dissertation research from theories to methodologies. He is always immediately available to help when I need assistance. And his rich stock of knowledge and insights is a great resource for me to draw upon to complete the study. My sincere appreciation and thanks go to my committee members Prof. Steve Smith, Prof. Stephan Goetz, Prof. David Shapiro and Prof. Jill Findeis, all of whom are senior social scientists in different fields of economics and social studies. Their

constructive questions, comments and suggestions have expanded my depth and breadth of reasoning and critical thinking. Professors Abler, Smith and Shapiro also spent a great deal of time editing my writing, grammar, wording and punctuation for me to be more professional.

Of course, my parents and family are my strong backup force that I can rely on wherever I am and whenever I feel lonely. My parents and brothers are still working hard and leading a rural lifestyle back in my village. My wife Ling, devoted with her unending love and unconditional support, has been my best companion throughout the rough hills and valleys. Our daughter, born at 00:01AM Nov 8, 2012 Eastern Time, is now only 8 days old (as of today Nov 16, 2012). Her lovely smile while swaddled sleeping gives me great comfort and impetus to confront tomorrow's challenges.

Also, I would like to give thanks to my friends in the State College Chinese Alliance Church for their precious prayers, encouragement and fellowship. Too many friends there are to be addressed each by their name, as reliable social network ties, they line up to form my social capital that interacts with my human capital to my benefits and success of life.

CHAPTER 1

INTRODUCTION

Before getting down to the subject, I would like to first tell a story of myself.

I had to look for a funding opportunity to sustain my doctoral research after my four-year graduate assistantship in my home department ran out. It was a tough period for me as I tried every effort to apply for any possible graduate assistantship opening on campus – it is the policy that international students are generally not allowed to work off campus. With great hope, I was interviewed by two positions that, I thought, were quite relevant to my background and experience. However, I was turned down relentlessly, leaving me in despair. Then by chance, I sent an email with little hope to a faculty member (let's call him Prof. A) in another department who I knew from going to the same church, asking him whether he knew of any information on funding opportunities. Before long, he contacted me about one potential position which he thought I might be interested in. Then he referred me to his colleague (Prof. B) with my curriculum vitae and I was offered this position after a brief talk with his colleague. Months later, I learned from my fellow graduate student that he, in the same situation as me, once contacted Prof. B for any funding assistantship opportunity but was told "no". Neither my fellow graduate student nor I knew Prof. B in person,

but it was both because I knew Prof. A and Prof. A knew Prof. B that I came to know Prof. B and was offered a position, while my fellow graduate student did not have even an indirect contact with Prof. B. This experience taught me an important lesson about the significance of social ties in our social networks. Without my social tie with Prof. A, I would have had no chance to get this job and sustain my graduate study.

Here is another story. Last spring, I applied, out of curiosity and reminiscence of childhood, for a plot in the community garden close to my apartment. However, as a green hand, I had had little experience about gardening as to where to get vegetable seeds or seedlings and when to sow and what vegetables to sow in what season. Fortunately, I came across in the garden a couple of acquaintances who were also gardeners for a few years. They kindly provided me useful information on my previous where-when-what questions and some even generously offered me extra seeds they had or seedlings they had cultivated. In this way and with my diligent working in the garden, I was able to grow a variety of vegetables satisfactorily which not only saved me a portion of food expenditures but also supplied organic and healthful vegetables.

These life stories are mere two examples of countless cases when we, besides me, benefit from our social network contacts to leverage our knowledge and skills in the perpetual pursuit of happiness and well-being. Without our social ties to

either channel the flow of information or provide resources/help needed, it would be possible for one to end up with no place to show his/her talents. The knowledge and skills one has is called his/her human capital; and the social networks one belongs to provides him/her the necessary social capital. Thereby, one's social capital and human capital usually work together to facilitate his/her actions for desirable outcomes. This observation has motivated me to study how social capital and human capital may interplay in economic development especially from a micro perspective.

Throughout the history of economic thought, scholarly inquiries in the field of development economics have centered on what factors drive economic growth and how, with numerous and complicated social and economic phenomena going on, on one hand, poverty has been persistently with human beings since the beginning of human history, and on the other, wealth has always been a long-term pursuit for individuals and nations as a whole.

Classical economists like Adam Smith and David Ricardo identified three factors of production – stocks of land, labor and capital – with the latter two subject to the law of diminishing marginal returns. Land is an essential factor in agricultural and mining activities including the natural resources below and above the soil, and also refers to the site of production. Labor is the human effort employed in the process of production, and capital is human-made goods taking physical forms like machinery,

tools and buildings which obviously depreciate with use and even non-use.

Later on, through the remarkable work of such names as Arthur Lewis, Jacob Mincer, Theodore Schultz and Gary Becker, human capital was finally given its due credit about five decades ago in its significant widespread role in promoting economic development. In this way, human capital was separated from labor and also distinguished from other forms of capital, referring to the stock of education, experience, skills and even health. It is commonly recognized that human capital is a prominent engine for growth in modern economies at all levels in that it not only increases individual productivity in the workplace and competitiveness in the labor market but also promotes firms' productivity, and regional and national competitive advantage.

However, the formation of human capital is highly contingent on social structure and social relationships as James Coleman argued in the late 1980s in an attempt to build a theoretical construct to integrate a variety of theoretical sociological contexts. Furthermore, as human capital in its very nature is transportable and shareable, the process during which human capital exercises its role in production is highly associated with the specific social and political environments. This has given rise to the debated position of social capital in its impact on a range of social and economic situations.

Social capital broadly refers to the stock of shared trust, norms, values of relevant parties and the resources embedded in the social networks. It is analogous to the capital characteristics of physical capital and human capital in the aspect that social capital facilitates social interactions, enhances social cohesion, channels information, and reduces transaction costs and so on as a "soft" factor in economic development and production. Therefore, social capital is not to be neglected in helping us to better understand how social structures can function well and both developing and developed economies can grow.

From another perspective, social capital or social support has always been at work all throughout the history of humankind. As Nowak (2012) put it, cooperation alongside competition operates in the form of five mechanisms – direct reciprocity, spatial selection, kin selection, indirect reciprocity, and group selection. Direct reciprocity is expected to occur when the agents in question cooperate with or treat each other well so that each of them may benefit from such cooperation. In direct reciprocity, one agent does goodwill to others and sometimes even strangers to stock good reputation for him/herself in return for future assistance from those to whom he/she did not provide aid though. Kin selection is the rule of agents assisting relatives in need, even when this means sacrifices, because their relatives share their genes. Spatial selection stated that, "Neighbors (or friends in a social network) tend to

help one another, so in a population with patches of cooperators, these helpful individuals can form clusters that can then grow and thus prevail in competition with defectors. The last mechanism, group selection, refers to the situation in which members of a group may behave altruistically for common greater good. The rules of cooperation therefore make perfect sense for one's family members, friends and other social network contacts to be his/her social capital as to facilitate his/her human capital. In other words, social capital can generate positive externalities for members of a social network through shared trust, norms and values that arise as a consequence of frequent social interactions (Durlauf and Fafchamps 2006; Durlauf and Ioannides 2010).

Although it is sometimes acknowledged that social capital and human capital may have an additive and thus substitutive effect for each other to a certain extent, and it is occasionally suggested there even exists an interplay effect between the two in the process of economic development, it still awaits to be investigated as to how one's social networks and civic participation facilitate his or her human capital with regard to individual economic well-being, or more specifically, labor market outcomes from country to country.

As such, this current study is an attempt to explore if there is a mediating effect of social capital on human capital in association with economic well-being at a

microeconomic level with a cross-country perspective, revealing the possible different interaction effects of different social and human capital components in different countries.

The rest of the study is outlined as follows. Chapter 2 surveys the theories and extant research on human capital and social capital and their interplay in economic settings. Chapter 3 then proposes a theoretical framework in order to test the potential interaction effects of human capital and social capital on economic well-being. Chapter 4 describes the dataset in detail followed by a specification of econometric models, and Chapter 5 presents the results and findings from the empirical modeling. The last chapter concludes with a brief discussion on the contributions and limitations of the current study as well as future research.

CHAPTER 2

LITERATURE REVIEW

The theory of human capital has been a great advancement in economic thoughts and research since the middle of last century, while social capital is a younger area of study in economics, sociology, and other social science disciplines. Both theories are important for economic development in developing countries as well as developed ones. This chapter aims to briefly review the theory of human capital, as it is already a mature theory, and survey the literature on social capital which is still under development as a consequence of ongoing contributions from relevant social sciences.

2.1 Human Capital

In classical economic thinking, a tripartite classification of factors of production was made among land, labor and capital, all of which were the sources of economic growth. Early economists reasonably found that economic progress lay in the division of labor and the simultaneous enlargement of land and capital that are otherwise subject to the law of diminishing marginal returns. While the quantities of

land and labor were easy to count, the capital factor was traditionally restricted to capital goods taking physical forms like the inputs of equipment, facilities and instruments. Under this analytical framework, the unexplained residual in modern economic abundance was then attributed to “technical change.” Although an all-inclusive concept of technology presumably would comprise the technical attributes of all factors and products, including the original technical properties of land and the innate abilities of labor, the idea of technical change was more about intangible technical attributes other than those, and was introduced as an exogenous process. Economists tried different approaches to cope with the economic effects of technical change without quite satisfactory general solution, until capital heterogeneity among other issues (e.g., institutions and forms of economic organization) was discovered to play a significant role in modern economic growth. Under such historical economic circumstances, the economic value of the improvement in the knowledge and skills of people was given duly its credit in growth theory, namely human capital (Schultz 1971, pp. 1-23).

Since then, human capital theory has been studied extensively encompassing the costs of and returns to investment on schooling and formal education, on-the-job training, migration, health and the search for economic information, as well as private and public research. Time allocation and family

planning have also taken a good position in human capital literature.

While there are various definitions on the concept of human capital (Stroombergen, Rose and Nana 2002, pp. 1-2), the definition given by the Organization for Economic Co-operation and Development is quite a general one:

“The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being.”

(OECD 2001, p. 18)

Different forms of capital have a common property that “they are assets that yield income and other useful outputs over long periods of time.” (Becker 2008)

While physical capital represents tangible goods (e.g., machinery, buildings, or vehicles) and usually depreciates with use, financial capital refers to saved-up wealth or assets, has purchasing power for goods and services and can appreciate with investment. Further, human capital is intangible as embodied in the knowledge, health or information possessed by human agents and therefore inseparable from the person under consideration (Schultz 1971, p. 48). The uniqueness of human capital makes it expandable, self-generating, transportable, and shareable (Crawford 1991). On one hand, due to the expandable and self-generating characteristics of human capital, the stock of knowledge can increase an individual’s human capital in terms of volume,

which shares some similarity with the appreciative nature of financial capital. On the other, due to the transportable and shareable characteristics of human capital, an individual's knowledge can be distributed to others and therefore the range of human capital is broadened (Kwon 2009).

As human capital is the knowledge or skills embodied in individuals, it can be categorized into general human capital and specific human capital. On one hand, general human capital can be defined as “generic knowledge and skill, not specific to a task or a company, usually accumulated through working experiences and education,” and it is transferable to different industries. On the other hand, specific human capital is usually accumulated through education, training, working experience on “knowledge specific to a firm/task,” and it is usually not transferable to different industries or occupations (Au, Altman and Roussel 2008).

The measurement of human capital can vary a lot statistically under different contexts (Stroombergen, Rose and Nana 2002). For simplicity and practical reasons, the human capital stock of an individual is often measured by her years of formal education or years of work experiences at a certain point of time, while that of a population can be measured in terms of the average or aggregation of all the individuals' human capital stock.

The formation of human capital is made possible by way of expenditures on education, training, medical care, migration, and so on as investments to increase human productivity (Becker 2008). It is expected that these investments will yield a positive rate of return for the relevant economic agents. As reviewed by Kwon (2009), human capital plays a significant role at all levels from increasing an individual's productivity in the workplace and competitiveness in labor market and thus income (Griliches and Regev 1995; Vinokur et al. 2000; Edwards 1979; Lucas 1988), to promoting firms' productivity and core competences or competitive advantage (Lepak and Snell 1999), and further to the growth of national economy (Denison 1962; Schultz 1961; Romer 1986).

However, the role of human capital may be subject to the specific social and political environment. As noted by Kwon (2009), the transportable and shareable characteristics of human capital imply the effect played by the network component of social capital, since social relations are indispensable from human activities including the formation and growth of human capital. More broadly speaking, “[h]uman and social capital are closely related to the way in which institutions and political and social arrangements impact on society.” (OECD 2001, p. 13) The concept of social capital is to be discussed in detail in the following section.

2.2 Social Capital

Social capital is a widely used common concept but has been minted for only a few decades (Bankston and Zhou 2002). It could be traced back to such classic thoughts as social exchange theory and psychological contract theory (Watson and Papamarcos 2002), and also such concepts as civil society and social connectedness (Adam and Roncevic 2003). Though the expression "social capital" appeared as early as in the 19th century, it was not until about 1920 that its metaphorical use referring to social connections and sociability began to be approximate to its current meaning (Hanifan 1920).

The role of social capital was seldom revisited afterwards, but gained momentum when contemporary authors like Bourdieu (1986) and Coleman (1987 and 1988) offered systematic treatments for the concept revealing the effects of social relations in the field of education. Among other pioneers, Putnam (1993 and 2000) contributed to the modern development of the concept and established its very positive position in political and civic participation. Since then, it has been deployed as a multidisciplinary theory with success both as a means to achieve desirable social, economic and political outcomes at micro as well as macro levels and an end being an important indicator of social well-being indices, not only in academic research but also in policy-making (Castiglione et al. 2008, pp. 1-10). As there have been

numerous authors working on the conceptualization of social capital,¹ it therefore makes little sense to repeat that here. Instead, the following sections focus mainly on the definition of social capital, and its types and measurement that are relevant to the current study. Also presented below are the benefits and potential risks of social capital under various social contexts with particular reference to economic performances with the synergy of human capital.

2.2.1 Definition of Social Capital

Before digging into the substantive issues related to social capital, first of all, we must inquire, what is social capital indeed? Intuitively, social capital is all about the value of social relations and civic engagement that can be utilized in order for the society to function well and for individuals or groups to achieve certain outcomes (Dekker and Uslaner 2001; Uslaner 2001; Adler and Kwon 2002; Szreter 2000).

However, the substance of social capital is by no means a simple topic if how it is conceptualized and operationalized in practice is scrutinized. Formally, due to its nature of multi-disciplinarity, multi-dimensionality, and context-specificness, dozens of definitions of social capital can be found in the literature in an attempt to

¹ See Claridge (2004) for a complete survey on the evolution and literatures of social capital, and Farr (2004) for a detailed conceptual history of social capital.

capture its complexity from different facets.² Fundamentally, the concept has two core aspects as presented by the term itself; one is the “social” part as embodied in social structures and relations, and the other is the metaphorical “capital” part embedded in the social structure that can be used as one of the factors needed to produce outputs or facilitate production (Coleman 1990, p. 302). In other words, social capital must be generated in the context of communities and social networks, but any individual in this social structure can take the advantage of this collectivity-owned capital to achieve their private objectives, and any group to enforce collective norms (Ferragina 2010, p. 75).

The social structures and ties between individuals or entities, which is rightly the *source of social capital*, can be, on one hand, as formal as government agencies, non-governmental organizations, political parties, industrial organizations, schools, labor unions, collaborative research networks, families, etc., and on the other as informal as social networks, friendships, hobby clubs, communities, fraternities or sororities, project teams of a class, and even an ad hoc event. For example, the most well known slogan "We are — Penn State!" for Penn Staters not only conveys the proud sense of being a member of the Penn State community, but also reflects the potential social capital appropriable for anyone who is affiliated with Penn State

² See Adler and Kwon (2002, p.20) for a concise list of definitions on social capital.

University.

Typically, there are three dimensions to the essence of social capital: structural, relational and cognitive (Nahapiet and Ghoshal 1998, Devine and Roberts 2003). On the *cognitive dimension*, social capital includes shared languages and codes and shared narratives that are essential to provide shared representations and interpretations. For example, all the students and faculty members speaking Chinese in an American university may form a Chinese students and scholars association to help each other cope with possible culture shocks when they first come to America. The *relational dimension* refers to trust and trustworthiness, norms and sanctions, obligations and expectations, identity and identification. They are embedded in personal relationships and are useful for reducing transaction costs and thus essential for a society or organization to function well. Again, the trust and norms among the Chinese community in America thanks to their shared language and culture make it much easier for them to interact with each other. By contrast, the *structural dimension* of social capital refers more to impersonal social systems and the network of relations as a whole. It includes the presence and absence of network ties and network related resources, network configuration and appropriable organization. For instance, one's friendship network allows one to maintain emotional support, provides help in time of hardships or emergency, channels information about job opportunities and even

recommendations for jobs.

Therefore, the definitions of social capital may cover only one or two of the dimensions mentioned above due to different focuses and perspectives of study (Adler and Kwon 2002). For example, Bourdieu (1986, p. 249) defined social capital, at the structural dimension, as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition.” In Putnam’s (2000, p. 19) analogy to physical capital, referring to physical objects and human capital to the properties of human beings, social capital refers to the “connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them,” and has much to do with “civic virtue” that is helpful for the society when present in networks of reciprocal social relations. This definition identifies the structural and relational dimensions. The World Bank defined social capital as the institutions, relationships, and norms that enhance social cohesion and thus shape the quality and quantity of a society's social interactions.³ Fukuyama (1995 and 1997) is concerned with the relational dimension and considered social capital as “the existence of a certain set of informal values or norms shared among members of a group that permit cooperation among them” for common purposes. Adler and Kwon (2002, p.

³ World Bank, “What is Social Capital,” available at <http://go.worldbank.org/K4LUMW43B0>.

23) attempted to synthesize the definition of social capital, and stated it as “the good will available to individuals or groups. Its source lies in the structure and content of the actor’s social relations. Its effects flow from the information, influence and solidarity it makes available to the actor.”

While the three dimensions are equally important and highly interrelated in depicting a full picture of social capital, the cognitive and relational dimensions are usually tacitly embedded in the structural dimension. As such, the structural dimension can be approached quantitatively with the other two dimensions taken into account implicitly. In this way, Burt deemed social capital as “friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital” (1992, p. 9) and “the brokerage opportunities in a network” (Burt 1997a, p. 355). Similarly, Boxman et al. (1991, p. 52) defined social capital as “the number of people who can be expected to provide support and the resources those people have at their disposal,” whereas Portes (1998, p. 6) emphasized “the ability of actors to secure benefits by virtue of membership in social networks or other social structures.”

Despite the lack of consensus on a cross-disciplinary definition, social capital has shown strong vitality in social sciences as an explanatory variable to elucidate a range of social phenomena, as evidenced by numerous previous empirical

studies.

2.2.2 Social Capital Being Capital

Even though social capital is an appealing topic in social sciences and has generated plenty of interest in social and economic development, it does not come without disputes about its role as an important "soft" factor (i.e., intangible and behavioral-patterns related) in explaining economic growth compared to the established "hard" production factors (i.e., easy-to-observe and measure) like physical capital and human capital (Arrow 1999; Solow 1999). It is not surprising that there has been considerable controversy over the use of the term "capital" in such a concept, which, to some extent, is by analogy with the conventional forms of capital, i.e., financial capital, physical capital, and human capital.

As a matter of fact, the similarities and dissimilarities of social capital with other forms of capital are well recognized. In the first place, social capital can be invested with other resources and it can be expected to yield future returns for both individual members and collective actors, such as gaining superior access to information, power and solidarity in the case of building networks of external relations, and strengthening their collective identity and augmenting their capacity for collective action in the case of developing internal relations (Adler and Kwon 2002, p.

21).

Second, social capital is appropriable in the sense that a social organization or relationship initiated for one set of purposes may be used for other purposes by way of providing organizational resources, information, obligations, etc. For instance, a housing project built during World War II in an eastern city of the United States by the residents to address poor construction problems later became social capital available for them to improve the quality of life for residents (Coleman 1988, p. 108). Or, a sports club is first of all for the people who share the same sports interest, but the club members, through regular interactions, may be able to build such relationships as trust and friendship so that they could even start to work toward business goals.

Third, social capital is convertible, under certain conditions, “into economic capital and may be institutionalized in the forms of a title of nobility,” while economic capital is “immediately and directly convertible into money and may be institutionalized in the forms of property rights” (Bourdieu 1986). At the extreme of such cases, we all know that each of the presidential candidates in America could spend hundreds of millions of dollars in order to run for the President of America, which is possible because the presidential candidates have the social capital of supporting citizens and advocacy groups to donate, in return for promised policies

favoring the electorates.

Fourth, social capital requires maintenance like physical capital and human capital, but it does not depreciate with use, but instead grows and develops with use; though physical capital is depreciable and financial capital usually does not require maintenance (Adler and Kwon 2002). Here, the maintenance for social capital may include investment of time and money in one's network so that the trust and mutual reciprocity between the relationships is sustained to potentially draw on in the future. As long as the shared trust and norms are not violated, the relationship between agents can be reinforced with more and more interactions and then the stock of social capital embedded within can be increased.

Moreover, some forms of social capital are collective goods. This is especially true for internal and bonding social capital, the use of which is nonrivalrous for internal members but can be excludable for outsiders (Hechter 1987). There is therefore a positive role for social capital for insiders who possess membership rights and thus resources in the social network.

Last but not least, social capital, unlike other forms of capital being located in actors, resides in social relationships and requires mutual commitment and cooperation from two or more parties to maintain (Burt 1992, p. 58). Further, social

capital is not easily quantified (Solow 1997), and is not rentable or tradable on an open market like other forms of capital, but is instead embedded within a group (Gant et al. 2002; Glaeser et al. 2002). Nonetheless, Adler and Kwon (2002, p. 22) have made a reasonable statement:

“Social capital falls squarely within the broad and heterogeneous family of resources commonly called ‘capital’. In some respects, the use of the term is metaphorical, but such metaphorical uses are very widespread, and it is difficult to see what harm they do.”

Just as human capital was criticized with its use of the term “capital” in the early days and the measurement of human capital was then subjected to close scrutiny before a rough consensus was made gradually a half century ago, social capital may also have to undergo a long period of scholarly inquiry on its internal validity and conceptual refinement before it is formally and commonly accepted as a reliable and valid field of research and policy solutions.⁴

2.2.3 Types of Social Capital and Measurement

Depending on different research goals and perspectives from different

⁴ See Robison et al. (2002) for an overview of the justification of the concept social capital as capital.

disciplines, social capital may take on a number of distinctive forms, ranging from strong/weak ties in a network, vertical/horizontal structures, open/closed membership, geographically dispersed/circumscribed, and instrumental/principled in function, etc. (Heffron 2000). Even though there are so many classifications, the approach by Woolcock (2001) is a sound one; it breaks social capital into three aspects: bonding, bridging and linking social capital, all of which combine to delineate a complete picture of the way social networks function with embedded resources.

Specifically, bonding social capital refers to relations between people in similar situations. Just as the title "bonding" indicates, there is a special bond connecting people in immediate family, close friends or neighbors. More distant ties of like persons like friends, associates and colleagues then form bridging social capital which implies the horizontal "connections between people who share broadly similar demographic characteristics." Linking social capital, however, captures the vertical relations between heterogeneous people in dissimilar situations, which enable partakers to forge alliances with sympathetic individuals in positions of power to leverage more resources than otherwise would be available only through bonding and bridging relations.

Measures of a concept usually correspond to its conceptualization. Due to the multi-dimensional and multi-disciplinary facets of the concept, social capital for

empirical purposes cannot be measured just by a single indicator as we do with age or distance, but usually with a number of proxy indicators or indices that are often necessary for a concrete research design. Generally, various indicators have been employed under various contexts, mostly being social and civic trust, norms of reciprocity, membership in groups or associations of any kind, social networks and embedded resources, etc. at micro, mezzo, and macro levels of analysis.⁵ This may seem somewhat confusing but rightly reflects the complexity of social capital, as its constructs are inherently abstract and subjective interpretations are inevitable from concepts to operational measures.

In order to capture enough relevant information, the current study will measure social capital at the individual level both by the number of social ties and their engagement in a variety of social and civic groups and associations.

2.2.4 Benefits of Social Capital

Although the debate on the conceptualization and measurement of social capital has not ended, the substance of social capital has well supported the fact of social solidarity that produces or facilitates desired social outcomes, such as

⁵ A detailed survey on the measurement of social capital was made by Claridge (2004), which lays out the issues and practices in measuring social capital.

facilitation of higher levels of, and growth in, gross domestic product; facilitation of more efficient functioning of labor markets; lower levels of crime; and improvements in the effectiveness of institutions or government; educational attainment (Coleman 1988); public health; and community governance, providing more effective public services, better cooperative action and natural resources management (Pretty 2003); more rapid diffusion of information; and informal insurance (Narayan and Pritchett, 1999).

Since the benefits of social capital abound, generally speaking, they can be summarized as lying in three dimensions: information, influence and control, and social solidarity for both the focal actor and the broader aggregate through externalities (Sandefur and Laumann 1998). The information benefits for the focal actor facilitate broader access to information at lower cost since information asymmetries exist almost everywhere in social exchange. Examples include interpersonal relationships playing an important role in channeling information about jobs and job applicants (e.g., Boxman et al. 1991; Granovetter 1995), market conditions and trade opportunities (Fafchamps and Minten 1999), innovations (Rogers 1995; Coleman, Katz and Menzel 1966), and information diffusion especially for tacit knowledge (Uzzi 1997).

The influence and control derived from social networks facilitates the

accomplishment of tasks and thus accrue to the members and society relevant benefits. Examples include the “Senate Club” in Coleman (1988) and public goods delivery through collective action with leadership and trust when state capacity to tax and organize is limited (Fafchamps 2007).

The solidarity benefits through strong social norms, beliefs and trust are reflected in the formation of amiable communities, less crime and violence, child development, educational attainment, public health, civic engagement at the societal level, organizational citizenship behavior at the organizational level, etc. (Putnam 2000).

Recognizing the significant role of social capital in community-driven development operations, the Social Capital Initiative at the World Bank⁶ since October 1996 developed a Social Capital Implementation Framework “to translate the theory of social capital into a more practical construct,” breaking down the concept of social capital into five dimensions – groups and networks, trust and solidarity, collective action and cooperation, social cohesion and inclusion, and information and communication – all of which are well applied to the structural and cognitive forms of social capital. Basically, groups and networks enable people to be organized and mobilize resources to support each other and make collective decisions to solve

⁶ Social Capital: <http://go.worldbank.org/COQTRW4QF0>

problems of common interest. Trust and solidarity is the key adhesive to the sustainability of communities, groups and networks and their operations. Collective action and cooperation may be quite necessary in community-organized activities providing public services like building and maintaining infrastructure; and it is especially important for better governance and improved accountability. And social cohesion and inclusion is manifested through communities' collective action and cooperation with trust in each other and solidarity. The dissemination of information and communication builds trust and cohesion as well as reduce negative social capital. Vertical flows of information help keep the members being informed of and horizontal flows provide the community a medium for knowledge and idea exchange. In practice, rural communities often lack human capital (education and skills) and social capital (organizations and networks) to transform their natural capital (natural resources endowments) into productivity and income. Social capital critically affects rural people's capacity to perform development tasks effectively and efficiently especially with the absence or weakness of formal institutions or policies.

When it comes to economic growth, extant research on social capital shows diverse effects, probably due to the differing measurements or levels of social capital adopted in specified contexts. The seminal work by Putnam et al. (1993) argues that social capital as measured by membership in groups and clubs favors economic

growth in northern Italy compared to the lesser stock of social capital in south Italy. Surprisingly, Putnam's study (2000) on U.S. economic growth during 1950s-1990s derives inconsistent findings that the U.S. experienced rapid economic growth and also rapid decline in social capital in the 1990s. An alternative interpretation made by Fafchamps (2007, pp. 101-104) argues that trust may work in different forms (i.e., generalized trust and personalized trust) in different social contexts. As generalized trust toward the general population of agents in the U.S. has improved over the period studied along with technological advancement and the capacity building of formal and legal institutions, club or association membership has become less necessary or attractive because such social capital requires investment of time and sometimes money too. The Italian experience was true for an early development period when generalized trust was insufficient or incomplete, and therefore personalized trust from interpersonal relationships played an essential part in economic growth. This point may apply to economic growth in present-day developing countries.

A recent study by Callois and Schmitt (2009) follows the bonding/bridging/linking classification of social capital and finds that all three forms of social capital have a robust and positive role in rural economic development in terms of changes in rural population and employment. The integrative and relational aspects of social capital are as important as human capital in sports managers' earnings (Barros

and Alves 2003). Social capital also exhibits a strong positive relationship with women's economic, political, health, and education status. It is therefore suggested that women and women's organizations be engaged in the debate over how to increase social capital (Caiazza and Putnam 2002). Research has also found that social capital facilitates collective action on the accelerated adoption of soil conservation measures if inherent bonding social capital in local communities can be utilized to build up bridging social capital which then leads to more information and resources from outside their immediate locality (Cramb 2005, 2006).

As far as the unit of analysis is concerned, it is increasingly recognized that social capital plays a significant role in influencing individual welfare through network externalities at a microeconomic level; and “greater social capital may lead to higher economic growth, better human capital acquisition and more efficient governance at a macroeconomic level (Iyer, et al. p. 1019).”⁷

2.2.5 Risks of Social Capital

Just like the flip side of a coin, there are also downsides or negative externalities of social capital to which usually not enough attention is paid. For

⁷ For a detailed review on the impact of social capital on economic growth and regional development, see Rupasingha et al. (2002) and Iyer et al. (2005).

example, it may foster behaviors that worsen rather than improve economic performance, or act as a barrier to social inclusion and social mobility due to its excludability for outsiders. While helping reduce transaction costs in market exchange, it may also have negative consequences like facilitating social inequity and crime depending on the specific social contexts.⁸ The risks of social capital sometimes come from the uneven distribution of social capital in society, rent-seeking clubs, exploited use by criminal gangs (e.g., Ku-Klux-Klan, mafia) (Gambetta 1993) and also greater negative externalities than positive externalities (Fafchamps 2007). Beugelsdijk and Smulders (2003) find that higher levels of bonding social capital may restrain economic growth due to the high cost of time incurred during socializing, while higher level of bridging social capital may enhance economic growth because participation in intercommunity networks reduces incentives for rent seeking and cheating. The risks of social capital pose a caveat for academic research and policy making.

2.3 Interaction of Human Capital and Social Capital

Human capital, as measured by formal education and work experience, etc., has been both theoretically and empirically recognized as one of the essential factors

⁸ See Adler and Kwon (2002) and Claridge (2004) for a detailed review of the benefits, risks and their balance of social capital.

in economic development, therefore scarce human capital and a lack of investment in it may result in an underdeveloped steady state (Becker, Murphy and Tamura, 1990). Tragically, this is true for many poor countries, where poor people, even though a number of development agencies have tried to provide all kinds of aid to them, have little human capital stock to lift themselves out of a poverty trap, a "self-reinforcing mechanism which causes poverty to persist" (Azariadis and Stachurski 2005, p. 326) due to lack of human capital, business capital, infrastructure, natural capital, public institutional capital and knowledge capital (Sachs 2006, p. 244).

Moreover, since human capital is specific to the social contexts where political, institutional and legal arrangements constitute the rules and institutions for human and social capital to work (OECD 2001, p. 13), even lower levels of human capital may be mediated by the social network resources at one's disposal on the outcome of labor market (Boxman et al. 1991; Fox and Gershman 2000; Lin and Huang 2005; Xue 2008). In particular, Xue (2008) observed there are mixed and varied interaction effects between immigrants' social capital and human capital on their wages during their first years in Canada through the analysis of the Longitudinal Survey of Immigrants to Canada, where strong ties like family networks and friends are more beneficial than weak ties like organizations in their effects of helping immigrants find better jobs with higher wages in the first few years, especially for

those with less human capital. Not only so, among all the social capital indicators, the ethnic diversity of workplace network is the most influential factor that is positively related to wages. Boxman et al. (1991) maintained that social capital as measured by external work contacts and memberships is useful for income attainment at any level of human capital (human capital and experience) while human capital makes little difference when the level of social capital is quite high.

Although it has been appreciated that social capital and human capital may interplay in an individual's economic outcome, the effects are quite heterogeneous and are far from providing an illuminating picture on how social capital mediates human capital in the society as to enlarge our knowledge of such complex social and economic phenomena. It therefore behooves one to examine this issue under different contexts using different measures. With that in mind, this study intends to draw upon the social networks survey by the International Social Survey Programme (ISSP 2001) with a cross-country perspective to shed more light on the mechanisms of social capital's interaction with human capital with regard to individual economic outcomes.

CHAPTER 3

THEORETICAL FRAMEWORK AND HYPOTHESES

3.1 Theoretical Framework

Based on the human capital and social capital theories and previous studies, I have proposed a theoretical framework as illustrated in Figure 1: Proposed Theoretical Framework with Three Effects in an attempt to reexamine the effects of human capital on individual economic well-being when social capital is taken into account. The flow chart suggests that there are potentially three ways for human capital and social capital to have an effect on individual economic well-being. The three effects, labeled with number 1, 2 and 3, are to be elaborated in detail as follows.

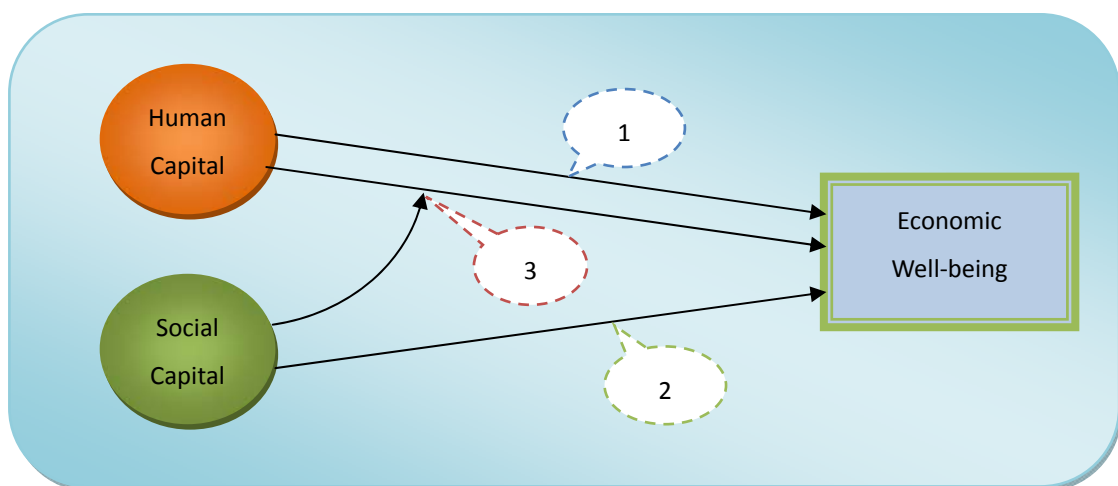


Figure 1: Proposed Theoretical Framework with Three Effects

Before going to the three effects, let's first look at the measurement of

economic well-being. There have been numerous debates on this complicated issue over time, and a number of measures have been proposed to capture its different aspects at different levels of analysis, such as an income or earning approach (GDP per capita, household income, wages, etc.), consumption approach (disposable income, final expenditures on goods and services), as well as poverty and economic inequality (poverty threshold, Gini coefficient, etc.). Moreover, composite indices are also suggested in order to be more complete and thus able to compare across time and nations (see, for example, Osberg (1985) and UNDP (1990)). This study adopts an income approach using wages to measure individual economic well-being due to data availability and the relevance of this measure to this study's questions.

The first effect is about human capital directly affecting economic well-being, which is represented by the number 1 in Fig. 3.1. As reviewed in Chapter 2, numerous studies have established the firm and significant position of human capital in productivity and economic development at all different levels of aggregation (individual, organizational, regional and nation levels), alongside with the other classic forms of capital like natural capital and physical capital. Therefore, as a positive factor, human capital must be included in any analysis of individual economic well-being across countries.

Second, like human capital, social capital also reveals an effect on economic

well-being that is not negligible. Often times, individual economic performance is inseparable from the social and cultural contexts which the individuals therein contribute to form and affect. Cooperative economic activities may achieve direct and indirect reciprocity in the real world (Barrett 2005, p. 3). Thus, the welfare of an individual may be affected by the overall situation of the household, the community, the region and even the country he or she lives in, and the relative situation of their peers (Layard 2005), and also by the levels of social interaction (Kahneman and Krueger 2006). As the saying goes, "it's not what you know but who you know that matters," which is mainly to underscore the importance of who you know (social capital), but at the meantime, in fact minimizes the role of what you know (human capital). For instance, having a father in a position of power may be beneficial for the son to possess more social ties than otherwise, and thus have access to more job opportunities with good pay. As a result, social capital is capable of explaining part of the disparities in economic well-being, as labeled by the number 2 in Figure 2.

With the first two effects already in place, the third has to do with the synergic effect between social capital and human capital, which is captured by the number 3 in Fig. 3.1 referring to the interaction of the two types of capital. Coleman's (1988, p. 109) classic study indicates that social capital in the family and community plays critical roles in the creation of human capital in the next generation. One's

social capital may work to facilitate or attenuate the positive effect of human capital in one's economic performance. This can be deemed as an indirect effect of human capital. Again for instance, someone having a rich father may be better educated and obtain a better income than someone from a poor family, or a new college graduate with social ties may put her human capital to better use than someone from the same school but without much social capital.

In order to put the theoretical framework abovementioned into empirical analysis, I have formulated the following models.

$$Y = f(HK, R_1) \tag{3.1}$$

$$Y = g(SK, R_2) \tag{3.2}$$

$$Y = h(HK, SK, R_3) \tag{3.3}$$

$$Y = \varphi(HK, SK, SK * HK, R_4) \tag{3.4}$$

Y is the economic well-being of the subjects under study; HK and SK are the human capital stock and social capital stock of the subjects, respectively; $SK * HK$ captures the interactive effect of social capital and human capital; and R_1 , R_2 , R_3 , and R_4 are vectors of control variables in the corresponding equation. f , g , h and φ are the function forms that relate the variables on the right side of the equations to

the economic well-being variable on the left side. Equation (3.1) is actually the popular Mincerian earnings model on human capital accumulation. Equation (3.2) is a simple linear model with only social capital as the explanatory variables, and is listed only for comparison with Equations (3.1) and (3.3), while equation (3.3) is a full linear additive model with both human capital and social capital. Equation (3.4) is a general approach to examining the effects of both types of capital on economic well-being with an interaction effect present, which would be tested against the first three models.

3.2 Hypotheses

Given the theoretical framework and analytic models, it is expected that the following conditions will hold.

$$\frac{\partial f}{\partial HK} > 0, \quad (3.5)$$

$$\frac{\partial g}{\partial HK} > 0, \quad (3.6)$$

$$\frac{\partial h}{\partial HK} > 0, \quad (3.7)$$

$$\frac{\partial \varphi}{\partial HK} > 0, \quad (3.8)$$

$$\frac{\partial g}{\partial SK} > 0, \quad (3.9)$$

$$\frac{\partial h}{\partial SK} > 0, \quad (3.10)$$

$$\frac{\partial \varphi}{\partial SK} > 0, \quad (3.11)$$

$$\frac{\partial^2 \varphi}{\partial SK \partial HK} > 0, \quad (3.12)$$

Conditions 3.5 – 3.8 capture the hypothesis that human capital is typically positive in relation to economic well-being when demographic variables are controlled. This is a generally accepted hypothesis in both developing and developed countries based on studies that collectively span long time periods and many different cultures. The second hypothesis is in alignment with conditions 3.9 and 3.10, stating that generally social capital is positively associated with economic well-being. It is further hypothesized that, when interactions are taken into account, the synergic effect of social capital and human capital is positive (condition 3.12) as being an amplifying factor for human capital in promoting earnings. As a result, the total effect of social capital is positive in relation to incomes (condition 3.11).

CHAPTER 4

DATA AND METHODOLOGY

This chapter describes in detail the dataset to be used and compares the econometric approaches to the problem of interest.

4.1 Data

In order to test the hypotheses outlined in the previous chapter, I utilized the Social Relations and Support Systems (or Social Networks II) survey by the International Social Survey Programme (ISSP Research Group 2001).⁹ The ISSP is a cross-national and cross-cultural continuing annual survey effort which presents social scientists with a wealth of important social science topics since 1985, such as the role of government (1985, 1990, 1996, 2006), social inequality (1987, 1992, 1999, 2009), social networks (1986, 2001), religion (1991, 1998, 2008), family and changing gender roles (1988, 1994, 2002), work orientations (1989, 1997, 2005), national identity (1995, 2003), environment (1993, 2000, 2010) and health (2011), etc. The ISSP surveys are designed so that the questions are meaningful and relevant to all

⁹ See <http://www.issp.org>.

the countries covered by the program, and also can be expressed in an equivalent manner in all relevant languages.

4.1.1 Data Description

While the Social Networks survey is available in both 1986 and 2001¹⁰, the first one covers only eight countries (i.e., Australia, Federal Republic of Germany, Great Britain, USA, Austria, Hungary and Italy) and the second one, besides these eight countries, covers another 29 developing and developed countries or regions from six continents (ISSP 1986 and 2001). Among the developing countries in the 2001 survey are the Philippines and Brazil. In the current research, Japan and United States in the 2001 survey are selected as developed countries for an international comparison.

The 2001 survey was conducted from January 2000 to April 2002 entailing 276 variables including archive and ID variables, variables covering the topics of interest and demographic variables. Except for the United States, the other three countries had the questionnaires translated into local languages usually through group discussion and back translation. The questionnaires were pre-tested in Brazil and the

¹⁰ The dataset and questionnaires of the ISSP 2001 survey can be accessed at <http://www.gesis.org/issp/issp-modules-profiles/social-networks/2001/>.

Philippines but not in Japan and the United States.

The Brazil and United States samples were designed to be representative of the adults of any nationality, while the Philippines and Japan samples were designed to be representative of adults of only citizens of the country. The Brazil and Japan samples were designed to be representative of the adults living in both private and institutional accommodations, and the United States and the Philippines were for adults living in private accommodations only. Except that the Japan sample had a minimum age cut-off of 16, the other three countries had a minimum age cut-off of 18. All the stages of sampling in Brazil, Japan and the United States, and some of the stages in the Philippines, were based purely on probability or random sampling. Stratification factors were also used during sampling in all four countries (Klein and Harkness 2003).

The issued sample unit in Brazil was a household, using a quota to identify a respondent. Quota sampling is a practical method to select a respondent within a household based on factors such as sex or age group. For example, women are to be interviewed in half of all households and men in the other half to balance the sex ratio of respondents. It was addressed in the United States using a Kish grid to identify a respondent. A Kish grid is a sampling method named after the statistician who invented it. In this method, the number of people in the household is ascertained and

numbered in a table, and a random number is chosen to select a particular person.

The sample unit was named individual in Japan. It is not clear what the issued sample unit was in the Philippines but a Kish grid was used for the identification of the respondent.

In the field work, face-to-face interviews were used in Brazil and the Philippines; self-completion with some interviewer involvement was used in Japan; and the United States survey used face-to-face interviews for background demographic variables and self-completion with some interviewer involvement for the other variables. As a result, the Brazil survey reported an issued sample of 2000 and a final completed sample of 2000; Philippines survey reported a completed sample of 1200; Japan had an eligible sample of 1694 and completed cases of 1321, so the response rate was 78 percent; the United States had an eligible sample of 2072 and completed cases of 1149, so the response rate was approximately 55 percent.

The respondents were asked to answer such questions as the number of adult brothers and sisters; frequency of personal (visits, meetings) and non-personal contacts (telephone, letter, fax or e-mail) with parents, brothers and sisters and own children; number of close friends at work place, in the neighborhood, and in general; participation in group activities like sports clubs, charitable organizations,

neighborhoods, political parties, associations, and churches or religious organizations, etc. The demographic and personal information collected includes country; number of children less than 18 years and over 18 years; sex; age; marital status; education (years of schooling); employment status of the respondents; hours worked weekly; living in a urban or rural area, etc. Weekly wages of the respondents were also reported.

4.1.2 Summary Statistics

With equivalent questionnaires, the four countries selected (i.e., the Philippines, Brazil, United States and Japan, in this order hereafter) have identical variables collected with sample sizes of 1200, 2000, 1149 and 1321, respectively. Listed in Tables 4.1 – 4.4 are the continuous variables of interest (i.e., income and work hours, human capital variables, and bonding and bridging social capital variables) for each country with definitions followed by the descriptive statistics. Table 4.5 assembles the demographic information of the respondents in each country, and Table 4.6 lays out the linking social capital variables, both breakdowns and in aggregate, for the four countries. The dependent variables are the natural logarithms of wages and work hours per month. The work hours variable was originally reported by each respondent as per week and was transformed into work hours per month to align with the wage per

month.¹¹

Human Capital

The human capital variables are measured by the reported years of formal schooling and potential post-school work experience (Tables 4.1 – 4.4). The years of potential work experience was not reported by the respondents but calculated from age and years of schooling following Mincer (1974).¹² The respondents in the Philippines, Brazil, the United States and Japan have on average 9.1, 6.6, 13.4 and 12.2 years of education, respectively, while the average years of experience are 26.3, 25.2, 26.1 and 29.1, respectively.¹³

¹¹ Work hours per month = work hours per week * 52 weeks in a year / 12 months.

¹² The underlying assumption is that work experience is continuous and starts immediately after completion of schooling, so that work experience is equal to current age minus age at completion of schooling. In usual cases, schooling starts at age 6, giving the years of potential work experience = age – years of education – 6.

¹³ Japan doesn't allow grade repetition at all grades (Belot and Vandenberghe, n.d.), while repetition rates are highest in the first grade in the Philippines (OECD 2000). Quoting other studies, Brophy (2006) stated that, "In the United States, only a small percentage of students are repeating in any given year, but 15-30 percent repeat at least one grade by age 15," and that grade repetitions are more common in rural Brazil. Thus, the assumption that formal schooling starts at age 6 with no grade repetition would be slightly violated, and the years of schooling would be inflated to different degrees resulting in a smaller rate of return to schooling (β_1), while the years of experience and the associated rate of return would remain unchanged. However, little can be done to deal with this measurement error as there is no data available for correction and this assumption is truly useful in simplifying the measure.

Social Capital

The available social capital information can be classified into three types: bonding, bridging and linking social capital. Bonding social capital is measured by the numbers of adult siblings, adult children as well as dummies for whether or not the respondent's father and mother are still alive (Tables 4.1 – 4.4 and 4.5). On average Filipinos have 4.8 adult brothers or sisters, Brazilians 4.6, Americans 2.8, and Japanese 2.4, which reflects fertility differences across the countries. The average reported amount of adult children is 1.5 for Filipinos, 1.2 for Brazilians, and 1.1 for both Americans and Japanese, whereas the number of children less than 18 years old is 1.6 for Filipinos, not available for Brazilians, and 0.5 for both Americans and Japanese. These household demographics reaffirm that the demographic transition is still underway in the developing countries of the Philippines and Brazil, while the developed countries of United States and Japan are well in their advanced stages of demographic transition. The average percentages of father and mother being alive or not are reported in Table 4.5; they indicate that more than 60 percent of respondents' mothers in the four countries are alive, while this case is for only around 50 percent of respondents' fathers.

Bridging social capital is measured by the numbers of close friends at the respondent's work place, in the neighborhood or district, and at other places such as

clubs and at church (Tables 4.1 – 4.4). The average number of close friends at work place for the four countries is 2.6, 2.7, 1.8 and 2.9, respectively. In the neighborhood, the respondents reported having 4.6, 10.0, 3.2 and 4.0 close friends on average, respectively. Apart from those at work, in the neighborhood, or family members, close friends at other places amount to 3.4, 14.3, 7.8 and 6.7, respectively on average. Overall, it appears that Filipinos report having the smallest number of close friends while Brazilians have the most, and the average for Americans is close to that of the Japanese.

Linking social capital is measured by membership and participation in all types of groups or associations for which information was collected on the survey (Table 4.6), i.e., (i) political party, club or association; (ii) trade union or professional association; (iii) church or other religious organization; (iv) sports group, hobby or leisure club; (v) charitable organization or group; (vi) neighborhood association or group; (vii) other associations or group. The respondents are categorized according to their membership and participation frequencies in the activities of the listed groups or associations, Category 0 being those who did not belong to such a group or association in the past 12 months; Category 1 being those who belonged but never participated in the group's activities in the past 12 months; and Category 2 being those who belonged to and participated at least once in the group's activities in the past 12 months. Americans have the highest percentages of membership and involvement in all the

types of groups or associations except for neighborhood association or group where Japanese are the most active with 51.78 percent of either belonging to or participating in the activities at least once, compared to Americans' 20.10 percent of involvement. Brazilians are the most inactive in group/association types (i), (iv), (vi) and (vii), while Japanese are the most inactive in types (iii) church or other religious organization, and (v) charitable organization or group. Filipinos have the lowest membership in type (ii): trade union or professional association.

Aggregate variables measuring membership and participation in any type of group or association are defined such that a respondent would be counted as in Category 0 if she never belonged to any of the seven types of groups or associations; a respondent would be counted as in Category 1 if she had membership in at least one type but didn't participate in the group's activities at least once in the past 12 months; and a respondent would be counted in as Category 2 if she participated in the activities of any type of group or association at least once in the past 12 months. On average, 82.33 percent of Americans are involved in any group or association, followed by the Japanese at 73.58 percent and Filipinos at 55.67 percent. Brazilians have the least engagement in any group or association, with an average of only 39.20 percent.

Each of the measures of social capital stated above is potentially subject to suffer from measurement error. As all these variables refer to the same underlying

concept of either bonding social capital or bridging social capital, the problem of multicollinearity can also occur if they are all included jointly in the regression model, and the results can be unnecessarily complicated. Therefore, scales for bonding social capital and bridging social capital are constructed to check the internal consistency of the indicators in measuring the same underlying concept. Table 4.1 lists the calculation of Cronbach's Alpha for both a bonding social capital scale and a bridging social capital scale for the four countries. It suggests that none of the Alpha indices is a good construct from the individual indicators for bonding and bridging social capital. In other words, each of the individual indicators captures different aspects of bonding and bridging social capital.

Table 4.1: Internal reliability check for bonding and bridging social capital

<i>Cronbach's Alpha</i>	Philippines	Brazil	United States	Japan
Bonding Social Capital scale	0.50	0.57	0.58	0.77
Bridging Social Capital scale	0.61	0.60	0.37	0.48
Number of Obs.	1200	2000	1149	1321

Note: As a rule of thumb, a Cronbach's alpha that is greater than 0.80 suggests good internal consistency of the underlying concept, and one that is less than 0.80 but greater than 0.70 is acceptable. However, any Cronbach's alpha that is less than 0.70 is too poor to be acceptable.

Data source: ISSP 2001, and own calculations.

Demographic and Control Variables

Also available are demographic variables such as sex of respondent, marital status, urban/rural status, work status, etc. Around half of the respondents are male in

all the four countries (Table 4.5). Filipinos have the highest percentage of married respondents (76.83) and least of single ones (12.75); while Brazilians have the highest percentage of singles (42.05) and an almost equivalent percentage of married ones (44.95). The respondents of single Americans account for 28.55 percent and Sp/Dv/Wd (Separate/Divorced/Widowed) for 27.85 percent, leaving the married ones only 43.60 percent, which is the least among the four countries. Japanese has the least percentage of Sp/Dv/Wd respondents (10.37), followed by Filipinos (10.42).

According to 2000 census data for the four countries, the ISSP 2001 sample data is basically representative of the entire population of each country in terms of the marital status and urban-rural population distribution. In the Philippines 2000 Census of Population and Housing, marriage statistics are available for the total population 10 years old and over; the single population accounted for 43.9 percent, married 45.7 percent, and Sp/Dv/Wd/other 10.4 percent (Castro 2008). This is different from that of ISSP 2001 sample distribution of marital statuses due to different sampling universes. However, the urbanization rate in the 2001 ISSP sample coincides with that of the 2000 Census data.

In the Brazilian 2000 Census, the marital status for those 18 years and older is distributed as single 43.3 percent, married 46.4 percent, and Sp/Dv/Wd 10.3

percent,¹⁴ which is close to the ISSP 2001 Brazil sample distribution. The sample urbanization rate from ISSP 2001 is also close to that of the 2000 Census data.¹⁵

The U.S. 2000 Census shows that married Americans in 2000 accounted for 54.4 percent of the 221.1 million people aged 15 and over, single 27.1 percent, and Sp/Dv/Wd 18.5 percent (Krider and Simmons 2003). Given the sample size, the ISSP 2001 survey is not far from these statistics in terms of marital status. The ISSP 2001 sample data also basically coincides with the Census data on the urbanization rate.

Japan had an urbanization rate of 78.7 percent in 2000, which is not in agreement with the ISSP 2001 sample distribution. However, the marital status in 2000 was distributed as single 28 percent, married 60 percent, and Sp/Dv/Wd 12 percent, which is very close to the ISSP 2001 Japan sample distribution.¹⁶

The respondents in the Philippines have the highest percentage living in rural areas (48.00) and lowest percentage living in urban areas (52.00) compared with other three countries. While both Brazilians and Americans respondents have a little bit more than 80 percent holding an urban status, this number for Japanese is as high as 95.46

¹⁴ Source: own calculations from Censo Demográfico 2000, available at http://www.ibge.gov.br/english/estatistica/populacao/censo2000/nupcialidade_fecundidade/tabela_brasil.shtm

¹⁵ Cayetano Paderanga, Jr., "Philippine urbanization in the medium term", 03 February 2010.

¹⁶ Source: Statistics Bureau, Ministry of Internal Affairs and Communications, Japan.

percent. In addition, the reported work status for the past 12 months varies across the countries, with working Japanese respondents being the most in terms of share (84.94 percent).

Table 4.2: Descriptive statistics for continuous variables: Philippines

Variable	Definition	Obs	Mean	Std. Dev.	Min	Max
<i>Wage</i>	Monthly wage	1170	3629.5	6013.6	0	50000
<i>Lnwage</i>	Log of monthly wage	775	8.1	1.0	5.3	10.8
<i>Wkhr</i>	Work hours per month	746	196.5	91.3	8.7	416
<i>Lnwkhr</i>	Log of work hours	746	5.1	0.6	2.2	6.0
<i>Age</i>	Age when interviewed	1200	41.7	14.8	18	84
<i>Edu</i>	Years of formal schooling	1163	9.1	3.9	1	35
<i>Exp</i>	Years of work experience	1163	26.3	15.9	0	71
<i>Siblings</i>	# of adult brothers/sisters	1200	4.8	3.2	0	36
<i>child18</i>	# of children age 18 and above	1200	1.5	2.4	0	15
<i>Kids</i>	# of children age 18-	1200	1.6	1.8	0	8
<i>Frdwkp</i>	# of close friends at workplace	1200	2.6	5.2	0	95
<i>Frdnbh</i>	# close friends in neighborhood	1200	4.6	6.0	0	90
<i>Frdoth</i>	# of close friends at other places	1200	3.4	5.4	0	50

Data source: ISSP 2001, and own calculations.

Notes: 1. The minimum wage per month coded as 0 was "no income" for 395 observations, causing the difference between the observation number of wage and that of *lnwage*; the maximum wage per month coded as 50,000 was actually open-ended "more than 50,000" for 4 observations.

Table 4.3: Descriptive statistics for continuous variables: Brazil

Variable	Definition	Obs	Mean	Std. Dev.	Min	Max
<i>Wage</i>	Monthly wage	1945	611.1	4485.3	0	99998
<i>Lnwage</i>	Log of monthly wage	1189	5.8	1.0	0	11.5
<i>Wkhr</i>	Work hours per month	773	188.2	75.5	0	416
<i>Lnwkhr</i>	Log of work hours	768	5.1	0.5	2.6	6.0
<i>Age</i>	Age when interviewed	2000	38.7	16.0	18	92
<i>Edu</i>	Years of formal schooling	1911	6.6	4.5	0	39
<i>Exp</i>	Years of work experience	1911	25.2	17.7	0	83
<i>Siblings</i>	# of adult brothers/sisters	1987	4.6	3.6	0	29
<i>child18</i>	# of children age 18 and above	2000	1.2	2.2	0	14
<i>Kids</i>	# of children age 18-	2000	0	0	0	0
<i>Frdwkp</i>	# of close friends at workplace	2000	2.7	12.1	0	98
<i>Frdnbh</i>	# close friends in neighborhood	2000	10.0	22.9	0	98
<i>Frdoth</i>	# of close friends at other places	2000	14.3	27.4	0	98

Data source: ISSP 2001, and own calculations.

Notes: 1. The minimum wage per month coded as 0 was "no income" for 756 observations; the maximum wage per month coded as 99,998 was actually open-ended "more than 99,998" for 2 observations. *Wkhr*=0 means "does not work."

Table 4.4: Descriptive statistics for continuous variables: United States

Variable	Definition	Obs	Mean	Std. Dev.	Min	Max
<i>Wage</i>	Monthly wage	1101	4326.1	14238.9	0	83333
<i>Lnwage</i>	Log of monthly wage	781	7.6	1.3	3.7	11.3
<i>Wkhr</i>	Work hours per month	1140	120.8	100.8	0	385.7
<i>Lnwkhr</i>	Log of work hours	758	5.1	0.5	1.5	6.0
<i>Age</i>	Age when interviewed	1143	45.6	17.1	19	89
<i>Edu</i>	Years of formal schooling	1143	13.4	3.0	1	20
<i>Exp</i>	Years of work experience	1138	26.1	17.6	0	81
<i>Siblings</i>	# of adult brothers/sisters	1149	2.8	2.4	0	19
<i>child18</i>	# of children age 18 and above	1149	1.1	1.7	0	9
<i>Kids</i>	# of children age 18-	1149	0.5	1.0	0	6
<i>Frdwkp</i>	# of close friends at workplace	1149	1.8	3.2	0	30
<i>Frdnbh</i>	# close friends in neighborhood	1149	3.2	4.8	0	50
<i>Frdoth</i>	# of close friends at other places	1149	7.8	10.6	0	75

Data source: ISSP 2001, and own calculations.

Notes: 1. The minimum wage per month coded as 0 was "no income" for 320 observations; the maximum wage per month coded as 999,996 was actually open-ended "more than 110,000" for 34 observations. *Wkhr*=0 means "does not work."

Table 4.5: Descriptive statistics for continuous variables: Japan

Variable	Definition	Obs	Mean	Std. Dev.	Min	Max
<i>Wage</i>	Monthly wage	1282	230.8	258	0	1666.7
<i>Lnwage</i>	Log of monthly wage	1078	7.7	1.0	6.2	9.9
<i>Wkhr</i>	Work hours per month	1315	120.8	110.0	0	416
<i>Lnwkhr</i>	Log of work hours	833	5.1	0.6	1.5	6.0
<i>Age</i>	Age when interviewed	1321	48.2	17.5	16	95
<i>Edu</i>	Years of formal schooling	1149	12.2	3.0	1	48
<i>Exp</i>	Years of work experience	1149	29.1	18.6	0	81
<i>Siblings</i>	# of adult brothers/sisters	1321	2.4	1.9	0	10
<i>child18</i>	# of children age 18 and above	1321	1.1	1.2	0	6
<i>Kids</i>	# of children age 18-	1321	0.5	0.9	0	6
<i>Frdwkp</i>	# of close friends at workplace	1321	2.9	5.1	0	60
<i>Frdnbh</i>	# close friends in neighborhood	1321	4.0	5.9	0	97
<i>Frdoth</i>	# of close friends at other places	1321	6.7	10.1	0	97

Data source: ISSP 2001, and own calculations.

Notes: 1. The minimum wage per month coded as 0 was "no income" for 204 observations; the maximum wage per month coded as 20,000 was actually open-ended "more than 15,000,000 yen" for 9 observations. *Wkhr*=0 means "does not work."

Table 4.6: Categorical and demographic variables for four countries

		Philippines	Brazil	United States	Japan
<i>Mother:</i>	Alive	731 (60.92%)	1327 (66.35%)	744 (64.75%)	822 (62.23%)
	Not Alive	469 (39.08%)	673 (33.65%)	405 (35.25%)	499 (37.77%)
<i>Father:</i>	Alive	513 (42.75%)	1007 (50.35%)	575 (50.04%)	594 (44.97%)
	Not Alive	687 (57.25%)	993 (49.65%)	574 (49.96%)	727 (55.03%)
<i>Sex:</i>	Male	600 (50.00%)	985 (49.25%)	555 (48.30%)	617 (46.71%)
	Female	600 (50.00%)	1015 (50.75%)	594 (51.70%)	704 (53.29%)
<i>Marital Status:</i>	Single	153 (12.75%)	841 (42.05%)	328 (28.55%)	284 (21.50%)
	Married	922 (76.83%)	899 (44.95%)	501 (43.60%)	897 (67.90%)
	Sp/Dv/Wd	125 (10.42%)	256 (12.80%)	320 (27.85%)	137 (10.37%)
	Missing	0 (0.00%)	4 (0.20%)	0 (0.00%)	3 (0.23%)
<i>Urban/Rural Status:</i>	Urban	624 (52.00%)	1624 (81.20%)	925 (80.50%)	1261 (95.46%)
	Rural	576 (48.00%)	376 (18.80%)	224 (19.50%)	59 (4.47%)
	Missing	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.08%)
<i>Work Status:</i>	Work	804 (67.00%)	1279 (63.95%)	876 (76.24%)	1122 (84.94%)
	Do not Work	392 (32.67%)	710 (35.50%)	273 (23.76%)	183 (13.85%)
	Missing	4 (0.33%)	11 (0.55%)	0 (0.00%)	16 (1.21%)
Number of Obs.		1200	2000	1149	1321

Data source: ISSP 2001, and own calculations.

Table 4.7: Frequency tabulation of various Linking Social Capital variables

	Philippines	Brazil	United States	Japan
(i) political party, club or association				
Category 0	1066 (88.83%)	1854 (92.70%)	861 (74.93%)	1212 (91.75%)
Category 1	45 (3.75%)	27 (1.35%)	75 (6.53%)	38 (2.88%)
Category 2	89 (7.42%)	119 (5.95%)	213 (18.54%)	71 (5.37%)
(ii) trade union or professional association				
Category 0	1114 (92.83%)	1735 (86.75%)	872 (75.89%)	1137 (86.07%)
Category 1	31 (2.58%)	80 (4.00%)	90 (7.83%)	61 (4.62%)
Category 2	55 (4.58%)	185 (9.25)	187 (16.28%)	123 (9.31%)
(iii) church or other religious organization				
Category 0	753 (62.75%)	1596 (79.80%)	427 (37.16%)	1194 (90.39%)
Category 1	98 (8.17%)	15 (0.75%)	116 (10.10%)	21 (1.59%)
Category 2	349 (29.08%)	389 (19.45%)	606 (52.74%)	106 (8.02%)
(iv) sports group, hobby or leisure club				
Category 0	970 (80.83%)	1813 (90.65%)	704 (61.27%)	842 (63.74%)
Category 1	72 (6.00%)	20 (1.00%)	25 (2.18%)	21 (1.59%)
Category 2	158 (13.17%)	167 (8.35%)	420 (36.55%)	458 (34.67%)
(v) charitable organization or group				
Category 0	1039 (86.58%)	1847 (92.35%)	762 (66.32%)	1262 (95.53%)
Category 1	50 (4.17%)	11 (0.55%)	46 (4.00%)	14 (1.06%)
Category 2	111 (9.25%)	142 (7.10%)	341 (29.68%)	45 (3.41%)
(vi) neighborhood association or group				
Category 0	956 (79.67%)	1820 (91.00%)	918 (79.90%)	637 (48.22%)
Category 1	70 (5.83%)	25 (1.25%)	46 (4.00%)	225 (17.03%)
Category 2	174 (14.50%)	155 (7.75%)	185 (16.10%)	459 (34.75%)
(vii) other associations or groups				
Category 0	1043 (86.92%)	1922 (96.10%)	814 (70.84%)	1089 (82.44%)
Category 1	49 (4.08%)	11 (0.55%)	50 (4.35%)	27 (2.04%)
Category 2	108 (9.00%)	67 (3.35%)	285 (24.80%)	205 (15.52%)
(viii) maximum involvement in group/association regardless of types (aggregated from i – vii)				
Category 0	532 (44.33%)	1216 (60.80%)	203 (17.67%)	349 (26.42%)
Category 1	127 (10.58%)	67 (3.35%)	78 (6.79%)	132 (9.99%)
Category 2	541 (45.08%)	717 (35.85%)	868 (75.54%)	840 (63.59%)
Number of Obs.	1200	2000	1149	1321

Notes: Category 0=don't belong to such a group or association in the past 12 months (used as base group); 1=belong to but never participate in the activities; 2=belong to and participate at least once in the activities.

Enclosed in parentheses are frequency percentages. Data source: ISSP 2001, and own calculations.

4.2 Econometric Models

With the data described as above, this section specifies the econometric models for further empirical analysis of the research questions outlined in Chapter 3. The dependent variable of interest is the logarithm of wages which will be examined with respect to a series of explanatory variables both in the Mincerian model and OLS with interaction terms. Also considered will be the logarithm of work hours per month in a Heckman model and the binary variable of decision to work or not in a Seemingly Unrelated Regression (SUREG) model.

4.2.1 Mincerian Model

There has been a wealth of efforts in human capital theory trying to explain and model the effect of human capital investment and accumulation on earnings (Mincer 1958, 1974; Becker 1964, 1993). Polachek (2007) did a thorough survey on the Mincerian earnings function and its extensive applications in explaining the observed differentiated earnings across genders, races, occupations, over the lifecycle and numerous other labor market phenomena.

Mincer's original earnings function was derived under the following assumptions: (i) the earning of an individual with certain years of schooling does not depend on his/her age; (ii) all individuals have the same present values of lifetime

incomes regardless of schooling if no post-school investments are made; (iii) the years of labor market experience and the years of formal education are independent of each other; and (iv) the return to post-school investment is constant. With these assumptions, income can be specified as log linearly distributed across formal schooling and post-schooling work experience and a quadratic term of that work experience:

$$\ln Wage_i = \beta_0 + \beta_1 Edu_i + \beta_2 Exp_i + \beta_3 Exp_i^2 + \varepsilon_i, \quad (4.1)$$

where $\ln Wage_i$ is the logarithmic wage of person i ; Edu is the years of schooling; and Exp is the years of potential labor market experience ($Exp = Age - Edu - 6$, assuming formal schooling starts at age 6 and no grade repetition or grade retention). The error terms ε_i are assumed to be independent and identically distributed random variables sampled from a normal distribution with zero mean: $\varepsilon_i \sim N(0, \sigma^2)$ where σ^2 is the variance.

Among the parameters to be estimated in Eq. (4.1), the intercept term β_0 represents the log earnings of an individual without any formal education and work experience; β_1 is the return to schooling; and β_2 and β_3 together give the return to post-school investment in labor market. Generally, we have $\beta_1 > 0$, $\beta_2 > 0$, and $\beta_3 < 0$, that is, incomes increase with years of schooling, and display a parabolic shape with years of work experience, allowing for possible decline in post-schooling human

capital acquisition. This quadratic specification for potential work experience indicates that, generally, income rises with work experience early in a person's career but at a decreasing rate, and then declines with work experience when one is close to the end of his/her career.

In mathematical form, the return to schooling is given by

$$\frac{\partial \ln Wage_i}{\partial Edu_i} = \frac{\partial Wage_i}{\partial Edu_i} \times \frac{1}{Wage_i} = \beta_1$$

And the return to work experience is given by

$$\frac{\partial \ln Wage_i}{\partial Exp_i} = \frac{\partial Wage_i}{\partial Exp_i} \times \frac{1}{Wage_i} = \beta_2 + 2\beta_3 Exp_i$$

The average rate of return to work experience will be measured here at the mean years of work experience of the specific sample.

In the current study, a collection of demographic and control variables (*DC*) are added to the classic Mincerian equation to account for potential heterogeneous effects across genders, marital status, rural/urban status, etc., as shown in Eq. (4.2):

$$\ln Wage_i = \beta_0 + \beta_1 Edu_i + \beta_2 Exp_i + \beta_3 Exp_i^2 + \gamma DC_i + \varepsilon_i, \quad (4.2)$$

4.2.2 OLS with Social Capital and Interaction Terms

As previous studies indicate, social capital also plays an important role in

affecting the outcome of individual economic well-being, either directly or via mediating effects on human capital. Therefore, it behooves one to examine the additive effects of human capital and social capital on wages as well as the interactive effects of human capital and social capital with the presence of the additive effects. This is actually an extension of the Mincerian model.

To begin with, the effect of social capital alone on wage is examined with a series of demographic variables added as control variables, as specified in Eq. (4.3), where SK_i is a vector consisting of social capital variables outlined in Section 4.1 (i.e., bonding social capital – number of adult siblings, number of adult children, mother being alive, and father being alive; bridging social capital – number of close friends at the workplace, number of close friends in the neighborhood, and number of close friends at other places; and linking social capital – maximum involvement in groups/associations regardless of types), and δ is a vector of parameters to be estimated corresponding to the social capital variables aforementioned. It is expected that the return to social capital $\delta = \frac{\partial \ln Wage_i}{\partial SK_i} > 0$.

$$\ln Wage_i = \beta_0 + \delta SK_i + \gamma DC_i + \varepsilon_i, \quad (4.3)$$

Then, human capital is also included in the model so that the additive effect of social capital can be analyzed from OLS regression as in Eq. (4.4). It is again expected

that the marginal effect of social capital $\delta = \frac{\partial \ln Wage_i}{\partial SK_i} > 0$, and the return to human capital α (a vector of coefficients) would keep the same signs as in the Mincerian model.

$$\ln Wage_i = \beta_0 + \alpha HK_i + \delta SK_i + \gamma DC_i + \varepsilon_i, \quad (4.4)$$

However, our primary interest is to see whether there exist interaction effects between human capital and social capital, that is, whether social capital has mediating effects on human capital's impact on economic well-being. An interaction term of social capital and human capital, therefore, shows up in Eq. (4.5) to capture such effects. The hypothesis herein is that social capital has a positive interactive effect for human capital on incomes, i.e., $\theta = \frac{\partial^2 \ln Wage_i}{\partial SK_i \partial HK_i} > 0$, and therefore the total effect of social capital on income is positive in theory: $\frac{\partial \ln Wage_i}{\partial SK_i} = \delta + \theta HK_i > 0$.

$$\ln Wage_i = \beta_0 + \alpha HK_i + \delta SK_i + \theta HK_i \times SK_i + \gamma DC_i + \varepsilon_i, \quad (4.5)$$

Therefore, compared to that in Eq. (4.4), the total marginal effect of social capital in Eq. (4.5) captures not only the additive effect of social capital on income but also its interactive effect, so that the social capital dimension of the development equation can be delineated along with the human capital dimension.

4.2.3 Heckman

As the sample indicates, there might be sample selection bias, as those who did not work during the past 12 months would have received a wage of zero and thus are excluded from the log-linear model specified above. This can be thought of as a form of omitted variable bias (Heckman 1979). Heckman proposed a two-step statistical approach to correct for this selection bias as laid out in Eqs. (4.6) and (4.7).

$$Worknot_i = \rho_0 + \sigma HK_i + \omega DC_i + u_i, \quad (4.6)$$

$$\ln Wage_i = \beta_0 + \alpha HK_i + \delta SK_i + \theta HK_i \times SK_i + \gamma DC_i + \tau \lambda_i + \varepsilon_i, \quad (4.7)$$

The first step in Eq. (4.6) is a probit model and determines the propensity to be employed, while the second step in Eq. (4.7) corrects for self-selection by incorporating a transformation of the predicted individual probability of working as an additional explanatory variable. The coefficient on the inverse Mills ratio λ_i is then tested against a null hypothesis of zero for sample selectivity.

4.2.4 SUREG

Another concern lies in the risk of possible correlations between the length of work time and wages, which can be tested using the seemingly unrelated regression (SUREG) (Zellner 1962). As a generalization of a linear regression model, SUREG is

usually composed of several regression equations with different dependent variables and potentially different sets of exogenous explanatory variables for each equation. Those equations can be estimated separately as they are valid linear regressions on their own except that the error terms may have cross-equation correlations. As in Eqs. (4.8) and (4.9), the error terms ε and u are assumed to be correlated across equations. If they are correlated, then the SUR model gives consistent and efficient estimators.

$$\ln Wage_i = \beta_0 + \alpha HK_i + \delta SK_i + \theta HK_i \times SK_i + \gamma DC_i + \varepsilon_i, \quad (4.8)$$

$$\ln Wkhr_i = \rho_0 + \sigma HK_i + \varphi SK_linking_i + \omega DC_i + u_i, \quad (4.9)$$

CHAPTER 5

EMPIRICAL MODELING: RESULTS AND FINDINGS

With the data and the econometric models presented in the last chapter, I used the analytical package STATA 10.1 to test the hypotheses on social capital and human capital. All the results are listed in the tables in the Appendix.¹⁷ This chapter discusses the results for each country on the variable groups, namely, human capital variables, single social capital variables, interaction variables, total marginal effects of social capital variables, bonding, bridging and linking social capital variables, as well as demographic and control variables.

5.1 Philippines

5.1.1 Human Capital Variables

With all the demographic factors (gender, marital status, urban/rural status and number of children under 18 years old) controlled for, the human capital variables in the Philippines all display the expected signs across the models examined (see

¹⁷ Table A.8 shows the result of joint significance tests (F tests) on social capital variables in Model III and social capital variables and interaction items in Model IV, which indicates that the social capital variables as a whole are significant even though some of them are not individually.

Table A.1). First, the years of formal education (*edu*) is significantly positive. Roughly, the average return to formal education in the Philippines is 0.0882 according to the estimates of the Mincerian model,¹⁸ meaning that each additional year of formal schooling is associated with an 8.8 percent of increase in monthly wages, which is only slightly different from other estimations on Filipino income for various years (Psacharopoulos and Patrinos 2004). It makes sense, as in the context of Philippines formal schooling is regarded as an important path to upward mobility, and schooling alone can explain much of the variance of earnings (Mazumdar 1989).

The other human capital variable, the linear years of work experience (*exp*), is positive and its quadratic form (*exp2*) negative, though they are significant only in the Heckman selection model. By the Heckman estimates, the monthly wage first slowly rises at a decreasing rate with years of work experience; however, it begins to decline as a Filipino goes beyond an average of 32.4 years of experience in the labor force.¹⁹ This happens about six years after the sample mean years of work experience (26.3) (Table A.6).

¹⁸ $\text{Exp}(0.0845) - 1 = 0.0882$.

¹⁹ $-0.0518 / (2 * (-0.0008)) = 32.4$.

5.1.2 Single Social Capital Variables

The relationships of social capital variables to monthly wage in Philippines, if considered without interactions (Models II and III), are not uniform. For bonding social capital, a person with a mother being alive (*mother*) earns, on average, about 16 to 20 percent more than otherwise;²⁰ father being alive (*father*) and the number of adult siblings (*siblings*) make no difference; while the number of adult children (*child18*) is significantly negative, that is, one additional adult child is associated with a 3.7 percent decrease in wages (Model II).²¹ For bridging social capital, the number of friends at the workplace (*frdwkp*) is positive in both models and significant in Model III, resulting in a marginal effect of 1.013 for wage;²² the number of friends in the neighborhood (*frdnbh*) is not significant; nor is the number of friends at other places (*frdoth*) statistically significant. For linking social capital, compared with those who do not belong to any kind of groups or associations during the past 12 months, a membership (*group_1*) in any kind of groups or associations has a significant positive association with wages (in both models), while a person who participates more frequently (*group_2*) in the activities of such groups in the past 12 months may have a lower wage than those (*group_1*) who belong to such a group but are not active in the

²⁰ $\text{Exp}(0.1525) - 1 = 0.1647, \text{Exp}(0.1826) - 1 = 0.2003$.

²¹ $\text{Exp}(-0.0377) - 1 = -0.0370$.

²² $\text{Exp}(0.0130) = 1.0131$.

activities (Model II).

Nonetheless, when the interactions between social capital variables and human capital variables are included in the analysis of Models IV – VI, the social capital variables alone do not show significance except mother being alive (*mother*) in Model VI. More details on the interaction effects and the total marginal effects of these social capital variables follow.

5.1.3 Interaction Variables

Rather than look at human capital variables or social capital variables alone or additively, the interaction variables deal with the simultaneous influences via the products of the two types of capital. The interactions of education with mother being alive (*eduXmom*) and number of adult siblings (*eduXsibl*) are significantly positive, whereas the two bridging social capital variables themselves are not statistically significant in Models IV and V. It is notable that the sign of mother being alive (*mother*) turns from positive in Models II and III to negative in Models IV – VI where its positive effect is picked up by the interaction variable. It indicates an important effect of mother being alive intertwining with years of education, as the latter alone remains significantly positive. It is the same with respect to the number of adult siblings intertwining with years of education. Though the interplays between

education and most other social capital variables tell very little, the interaction between education and number of neighborhood friends does not favorably influence wages in the Philippines, implying that the positive effect on wages of one's education may be counteracted by his/her spending time with neighborhood friends.

When it comes to interactions with work experience, the linking social capital variables have a positive relation with wages (*expXgrp_2* in Models IV and V, *expXgrp_1* in Model VI). This indicates that either having a membership in any group/association or being active in such groups/associations would amplify the positive effects of work experience on monthly wages. However, the linking social capital variables alone are not statistically significant. With significance, mother being alive interacted with experience (*expXmom*) is positively related with a higher wage in Model VI.

Apart from the significant effects noted above, the other social capital variables, with human capital variables considered at the mean time, seem to have no statistical significance on one's monthly wage in Philippines.

5.1.4 Total Marginal Effects of Social Capital Variables

When interaction effects are involved, it is more insightful to consider the

total marginal effects of each social capital variable on wages. In the Philippines, among all the social capital variables, mother being alive (bonding social capital), number of friends at the workplace (bridging social capital), and being a member of any group/association (linking social capital) are positive and statistically significant. An individual with mother being alive would have a wage 22 percent more than if the mother was not alive.²³ An additional workplace friend is associated with a 1.7 percent increase in wages.²⁴ Those who belong to any type of group/association are estimated to earn 27 percent more than those who do not belong to such a group/association during the past twelve months.²⁵

5.1.5 Linking Social Capital Variables

The linking social capital variable discussed above is a general one and a composite variable. Yet, it is conducive to a much better understanding of how linking social capital is related with wages in a certain social context if we break this variable down into seven different types, namely membership or participation in (i) a political party, club or association; (ii) trade union or professional association; (iii) church or other religious organization; (iv) sports group, hobby or leisure club; (v) charitable

²³ $\text{Exp}(0.1976) - 1 = 0.2185$.

²⁴ $\text{Exp}(0.0170) - 1 = 0.0171$.

²⁵ $\text{Exp}(0.2382) - 1 = 0.2690$.

organization or group; (vi) neighborhood association or group; and (vii) other associations or groups (Table A.7). For Filipinos, having a membership in either of the linking social capital types (i), (ii), (v), (vi) and (vii) is significantly associated with a much higher monthly wage by 42, 53, 61, 33 and 47 percent, respectively.²⁶

An individual who is frequently engaged in the activities of a trade union or professional association earns 67 percent more than one who does not even belong to such an organization,²⁷ but it makes little difference if one merely belongs to or participates more often than not in these organizations.²⁸ Those who are active in a charitable organization or group have an average wage 38 percent more than those with no membership, and again the intensity of involvement does not matter. However, involvement in a church or other religious organization is associated with a 17 percent lower wage, other things equal.²⁹

5.1.6 Demographic & Control Variables

The demographic and control variables across the models indicate that there exist significant differences in wages between genders as well as between urban and

²⁶ $\text{Exp}(0.3512) - 1 = 0.4208$, $\text{exp}(0.4236) - 1 = 0.5275$, $\text{exp}(0.4774) - 1 = 0.6119$, $\text{exp}(0.2886) - 1 = 0.3346$, $\text{exp}(0.3833) - 1 = 0.4671$.

²⁷ $\text{Exp}(0.5135) - 1 = 0.6711$.

²⁸ $\text{chi}2(1) = 0.12$, $\text{Prob} > \text{chi}2 = 0.7329$.

²⁹ $\text{Exp}(0.3214) - 1 = 0.3791$, $\text{Exp}(-0.1817) - 1 = -0.1662$.

rural residents. Females earn about 28 percent less than males per month, *ceteris paribus*, while the wage of urban residents is 80 percent more than that of rural residents (Model I).³⁰ However, marital status makes no statistically significant difference in terms of monthly wages; nor does the number of children less than 18 years old at home.

5.2 Brazil

5.2.1 Human Capital Variables

Controlling for all the demographic factors (gender, marital status, and urban/rural status), all of the human capital variables in Brazil also display the expected signs with not much variance of magnitudes across the models examined (see Table A.2). The number of years of formal education (*edu*) is significantly positive. Roughly, the average rate of return to formal education in Brazil is 0.0929 according to the estimates of the Mincerian Model,³¹ meaning that each additional year of formal schooling is associated with a 9.3 percent of increase in monthly wages, which is less than that found in other studies of Brazilian income from various years, perhaps due to different years of data (Psacharopoulos and Patrinos 2004).

³⁰ $\text{Exp}(-0.3232) - 1 = -0.2762$, $\text{exp}(0.5865) - 1 = 0.7977$.

³¹ $\text{Exp}(0.0888) - 1 = 0.0929$.

The other human capital variable, the linear years of work experience (*exp*), is positive, while its quadratic form (*exp2*) is negative, and they are statistically significant in almost all the models. That is, the monthly wage first slowly rises at a decreasing rate with years of work experience; however, it begins to decline as a Brazilian goes beyond an average of 38.9 years of experience in the labor force (Model VI).³² This happens about 18 years after the sample mean years of work experience (21.0) (Table A.6).

5.2.2 Single Social Capital Variables

The relationships between the social capital variables and monthly wages in Brazil, if considered without interactions (Models II and III), are not uniform. For bonding social capital, a person with mother being alive (*mother*) earns on average about 13 percent more than otherwise (Model II), and this is statistically significant.³³ On the contrary, father being alive (*father*) makes a negative difference in Brazil. Further, both the number of adult siblings (*siblings*) and number of adult children (*child18*) are significantly negative in Model II. That is, one additional adult sibling and one additional child are associated with 1.7 percent and 3.3 percent decrease in

³² $-0.0467/(2*(-0.0006)) = 38.9$.

³³ $\text{Exp}(0.1181) - 1 = 0.1254$.

wage, respectively (Model II).³⁴ None of the bridging social capital variables makes any difference, though the coefficients for number of friends at the workplace (*frdwkp*) and number of friends in the neighborhood (*frdnbh*) are slightly above zero. With respect to linking social capital, similar to the case of Philippines, compared with those who do not belong to any kind of group or association in the past 12 months, a membership (*group_1*) in any kind of group or association has a significantly positive relation with wage (in both models), while one who participates more frequently (*group_2*) in the activities of such groups in the past 12 months may have a lower wage than those (*group_1*) who belong to such a group but are not active in its activities (Model II).

When the interactions between the social capital variables and human capital variables are included in the analysis (Models IV – VI), most of the social capital variables alone do not exhibit statistical significance. One exception is the number of adult children (*child18*) in Models IV and V, which turns from significantly negative to significantly positive. These changes imply the importance of possible interaction effects, which will be elaborated in the following section.

³⁴ $\text{Exp}(-0.0172) - 1 = -0.0171$, $\text{exp}(-0.0331) - 1 = -0.0326$.

5.2.3 Interaction Variables

Rather than look at human capital variables or social capital variables alone or additively, the interaction variables deal with the simultaneous influences by the products of the two types of capital. The interactions of education with father being alive (*eduXdad*) and number of adult siblings (*eduXsibl*) are significantly negative, whereas the two bridging social capital variables themselves are both positive in Models IV – VI though not statistically significant. It is notable that all the signs of the bonding social capital variables in Models II and III turn opposite in Models IV – VI, whether significant or not. This indicates the existence of important interaction effects among these variables. Although the interactions between education and most other social capital variables tell very little in terms of a story, the interaction between education and frequent participation in groups/associations is significantly positive in Model VI, implying a synergistic effect of formal schooling and linking social capital on wages in Brazil.

Work experience interacting with the bonding social capital variables shows little significance in impacts on wages except for the interaction with the number of adult children, which is significantly negative though small in magnitude (Models IV and V). Also significant, but small in the size is the positive interaction between years of work experience and the number of neighborhood friends (Models IV and V). In

Model VI, the number of friends at other places interacting with work experience makes very little difference as well, and frequent participation in groups/associations together with work experience has a significant positive effect on monthly wages.

5.2.4 Total Marginal Effects of Social Capital Variables

When interaction effects are involved, it is more insightful to consider the total marginal effects of each social capital variable on wages. In Brazil, among all the types of social capital, the number of adult siblings (bonding social capital), being a member of any groups/associations and being active in any groups/associations (linking social capital) are significant. An additional adult sibling is associated with a 1.9 percent decline in wages.³⁵ Other things equal, those who belong to any type of group/association earn monthly 32 percent more than those who did not belong to such a group/association in the past twelve months, while being active in any type of group/association is associated with a 19 percent greater wage than not belonging to any group or association.³⁶ However, being active in any group/association is not much different in its impact on wages from only being a group or association member.³⁷

³⁵ $\text{Exp}(-0.0188) - 1 = -0.0186$.

³⁶ $\text{Exp}(0.2382) - 1 = 0.3245$, $\text{exp}(0.1717) - 1 = 0.1873$.

³⁷ $\text{chi2}(1) = 0.42$, $\text{Prob} > \text{chi2} = 0.5155$.

5.2.5 Linking Social Capital Variables

Following the case of Philippines, I break down the general linking social capital discussed above into seven types for a better understanding of linking social capital within a certain social context. Those seven types are membership or participation in (i) a political party, club or association; (ii) trade union or professional association; (iii) church or other religious organization; (iv) sports group, hobby or leisure club; (v) charitable organization or group; (vi) neighborhood association or group; and (vii) other associations or groups. For Brazilians, having a membership in type (ii) is significantly associated with a higher monthly wage of about 90 percent.³⁸ This percentage is even higher than that of the Philippines (53 percent).

An individual who is frequently engaged in the activities of a sports group, hobby or leisure club earns 32 percent more than one who does not belong to such an organization,³⁹ but it makes little difference if one merely belongs to or participates more often in these organizations. Those who are active in a neighborhood association or group have an average wage of 21 percent more than those with no membership.⁴⁰

³⁸ $\text{Exp}(0.6417) - 1 = 0.8997$.

³⁹ $\text{Exp}(0.2794) - 1 = 0.3223$.

⁴⁰ $\text{Exp}(0.1889) - 1 = 0.2079$.

5.2.6 Demographic & Control Variables

Similar to the Philippines, the Brazilian demographic and control variables across the models also indicate that there exist significant differences in wages between genders as well as between urban and rural residents. Females earn about 30 percent less than males per month, *ceteris paribus*, while the wage of urban residents is 17 percent more than that of rural residents (Model I).⁴¹ In addition, married people (*marital_2*) have 22 percent higher wages than single individuals,⁴² but being separated/divorced/widowed (*marital_1*) is not statistically associated with a higher or lower wage than being single. Married people earn more than separated / divorced / widowed people, though with not much statistical significance.

5.3 United States

5.3.1 Human Capital Variables

Controlling for all the demographic factors (gender, marital status, urban/rural status and number of children under 18 years old), all of the human capital variables in the United States also display the expected signs with not much variance in magnitudes across the models examined (see Table A.3). The number of years of

⁴¹ $\text{Exp}(-0.3542) - 1 = -0.2983$, $\text{exp}(0.1606) - 1 = 0.1742$.

⁴² $\text{Exp}(0.1948) - 1 = 0.2151$.

formal education (*edu*) is significantly positive. Roughly, the average return to formal education in the U.S. is 16.7 percent, according to the estimates of the Mincerian model,⁴³ meaning that each additional year of formal schooling is associated with a 16.7 percent of increase in monthly incomes, which is higher than that found in other studies of U.S. returns to investment in education from various years (Psacharopoulos and Patrinos 2004).

The other human capital variable, the linear years of work experience (*exp*), is positive, while its quadratic form (*exp2*) negative with wages (i.e. a parabolic shape), and they are statistically significant in all of the models. That is, the monthly wage first slowly rises at a decreasing rate with years of work experience; however, it begins to decline as an American goes beyond an average of 29.7 years of experience in the labor force (Model I).⁴⁴ This happens about 8 years after the sample mean years of work experience (21.4) (Table A.6). Another study estimated that the peak earnings for Americans occurred at a work experience of 28.8 years in 2000 (Polachek 2007),⁴⁵ which is close to the current estimation.

⁴³ $\text{Exp}(0.1546) - 1 = 0.1672$.

⁴⁴ $-0.0712 / (2 * (-0.0012)) = 29.7$.

⁴⁵ By the estimation of Polachek (2007), the peak earning occurred at $-0.04375 / (2 * (-0.00076)) = 28.8$.

5.3.2 Single Social Capital Variables

The relationships of social capital variables to individual wages in the U.S., if considered without interactions (Models II and III), are unique among the four countries studied here. None of the bonding or linking social capital variables is statistically significant, except for bridging social capital, where the number of friends in the workplace (*frdwkp*) makes a positive difference while the number of neighborhood friends (*frdnbh*) is negative and statistically significant. One additional friend at the workplace is associated with a 4.6 percent increase in wages, while one additional friend in the individual's neighborhood is associated with a 3.3 percent decrease in wages (Model II).⁴⁶

When the interactions between the social capital variables and human capital variables are included in the analysis (Models IV – VI), the number of friends at the workplace becomes statistically insignificant, and so does the number of neighborhood friends. Mother being alive (*mother*) becomes statistically significant and negative (Models IV and V). Other things equal, a person with mother being alive earns 67 percent less than otherwise, which is a puzzling result but matters little as we can see in further analysis below of the total effects of the social capital variables. The number of friends at other places (*frdnbh*) turns significantly negative from

⁴⁶ $\text{Exp}(0.0449) - 1 = 0.0459$, $\text{exp}(-0.0332) - 1 = -0.0327$.

statistically insignificantly positive in Models II and III, meaning that one additional friend in the neighborhood is associated with a 7.7 percent decrease in wages (Model IV).⁴⁷ Another prominent change is linking social capital (Models IV and VI), where being active in any group/association (*group_2*) is associated with a higher income of about 185 percent (Model IV).⁴⁸

5.3.3 Interaction Variables

In the U.S., while the interaction of education with the number of friends at places other than workplace or neighborhood, e.g., church or club (*eduXfrdoth*), is significantly positive, education interacting with being active in groups/associations is significantly negative, meaning that having more friends at such places as church or club enlarges the effect of education but intensive participation in any type of groups/associations shrinks the effect of education.

With regard to work experience, its interaction with number of adult siblings is negatively related to wages. It is the same with its interaction with having a membership in any type of group/association, to a larger extent though.

⁴⁷ $\text{Exp}(-0.0802) - 1 = -0.0771$.

⁴⁸ $\text{Exp}(1.0462) - 1 = 1.8468$.

5.3.4 Total Marginal Effects of Social Capital Variables

In the U.S., among all the types of social capital variables, number of friends at the workplace and number of friends in the neighborhood (bridging social capital) are both significant, with the former being positive and the latter negative. Having one additional friend at the workplace is associated with a 1.8 percent increase in wages,⁴⁹ while one additional friend in the neighborhood is associated with a 2.5 percent decrease in wages.⁵⁰

Belonging to any type of group/association and being active in such an organization (linking social capital) are both negatively related to wages. Being active in any group/association is associated with a wage that is 74 percent less than not belonging to any group or association.⁵¹

5.3.5 Linking Social Capital Variables

Though the overall linking social capital variable is negative with regard to wages in the U.S., the breakdowns among different types of linking social capital show a different picture. Types (i) political party, club or association, (v) charitable organization or group, and (vi) neighborhood association or group are not statistically

⁴⁹ $\text{Exp}(0.0175) - 1 = 0.0177$.

⁵⁰ $\text{Exp}(-0.0253) - 1 = -0.0250$.

⁵¹ $\text{Exp}(-1.3345) - 1 = -0.7367$.

significant with respect to wages. The following groups/associations, (either being a member or being active) have a positive relationship with incomes: (ii) trade union or professional association; (iii) church or other religious organization; and (vii) other associations or groups. Frequent participation in (ii) trade union or professional association is associated with a 20 percent increase in wages compared to having no membership.⁵² One who belongs to (iii) a church or other religious organization has a wage of 44 percent more than one who did not belong during the past 12 months.⁵³ Being a member in type (iv) sports group, hobby or leisure club is negatively associated with wages, being 44 percent less than if not a member.⁵⁴ Type (vii) other associations or groups has a significantly positive relationship with wages if frequent participation is involved.

5.3.6 Demographic & Control Variables

For the U.S., the demographic and control variables show similar results across the models estimated. There are significant differences in wages between genders as well as between marital statuses. Females earn about 44 percent less than males per month, *ceteris paribus*, and married people (*marital_2*) have a 34 percent

⁵² $\text{Exp}(0.1809) - 1 = 0.1983$.

⁵³ $\text{Exp}(0.3658) - 1 = 0.4417$.

⁵⁴ $\text{Exp}(-0.5807) - 1 = -0.4405$.

greater wage than single individuals (Model I),⁵⁵ but being separated / divorced / widowed (*marital_1*) is not associated with a higher or lower wage than being single. Married people earn more than separated / divorced / widowed people, though with little significance. Understandably, there is not much difference in wages between urban and rural residents due to large-scale rural-urban migration in the U.S. during the past century that has eliminated the rural-urban income gap still found in many other countries. Also, people living in rural areas in the U.S. frequently commute to work in urban areas.

5.4 Japan

5.4.1. Human Capital Variables

Controlling for all the demographic factors (gender, marital status, urban/rural status and number of children under 18 years old), the human capital variables in Japan have the expected signs (see Table A.4). The number of years of formal education (*edu*) is significantly positive. The average return to formal education in Japan is 0.0579 according to the estimates of the Mincerian model,⁵⁶ meaning that each additional year of formal schooling is associated with a 5.8 percent

⁵⁵ $\text{Exp}(-0.5863) - 1 = -0.4436$, $\text{exp}(0.2945) - 1 = 0.3425$.

⁵⁶ $\text{Exp}(0.0563) - 1 = 0.0579$.

increase in wages, which is similar to other studies of Japan on the returns to investment in education from various years (Psacharopoulos and Patrinos 2004).

The other human capital variable, the linear years of work experience (*exp*), is positive, while its quadratic form (*exp2*) negative with respect to wages (i.e. a parabolic shape), and these variables are significant in all of the models. That is, wages first slowly rises at a decreasing rate with years of work experience; however, they begin to decline as work experience goes beyond an average of 36.3 years (Model I).⁵⁷ This happens about 10 years after the sample mean years of work experience (26.7) (Table A.6).

5.4.2 Single Social Capital Variables

The relationships of social capital variables to income in Japan, if considered without interactions (Models II and III), are all positive in the cases where they are statistically significant. For the bonding social capital variables, an individual with mother being alive (*mother*) has a wage 26 percent more than otherwise (Model II).⁵⁸ Father being alive (*father*), number of adult siblings (*siblings*) and number of adult children (*child18*) do not show statistical significance here. For the bridging

⁵⁷ $-0.0508 / (2 * (-0.0007)) = 36.3$.

⁵⁸ $\text{Exp}(0.2313) - 1 = 0.2602$.

social capital variables, the number of friends at the workplace (*frdwkp*) makes a positive difference, while neither the number of friends in the neighborhood (*frdnbh*) nor those at other places (*frdoth*) is significant. Having one additional workplace friend is associated with a 3.3 percent increase in wages, and one additional friend in the neighborhood or other places makes little difference. For the linking social capital variables, both holding a membership or being active in any type of group/association are significantly positive with regard to wages to the extent of 21.5 percent and 10.8 percent more than belonging to no group or association in the past 12 months, respectively (Model II).⁵⁹

When the interactions between the social capital variables and human capital variables are included in the analysis (Models IV – VI), mother being alive (*mother*) remains significant in Model VI with an even greater effect, meaning a person with mother being alive earns 123 percent more than otherwise.⁶⁰ The number of workplace friends (*frdwkp*) is significant in Models IV and VI, and again friends at other places do not have a significant impact on wages. However, the linking social capital variable turns to significantly negative in Model VI.

⁵⁹ $\text{Exp}(0.1943) - 1 = 0.2145$, $\text{exp}(0.1028) - 1 = 0.1083$.

⁶⁰ $\text{Exp}(0.8006) - 1 = 1.2269$.

5.4.3 Interaction Variables

In Japan, the interaction of education with the number of friends at the workplace (*frdwrk*) is significantly negative (Model VI), and education interacting with being a member in a group/association is significantly positive. Other than this, the interactions of education with the other social capital variables are not statistically significant.

With regard to work experience, its interaction with father being alive (*father*) (Model IV) and number of adult children (Model VI) are both positive. The same is true with respect to its interaction with being active in any type of group/association (Model VI). However, its interaction with number of friends at the workplace is negative and statistically significant (Models IV and VI).

5.4.4 Total Marginal Effects of Social Capital Variables

Similar to the U.S., none of the bonding social capital variables in Japan are significant in their marginal effects on incomes. However, the number of friends at the workplace (bridging social capital) and being active in groups/associations (*group_2*) are both positively significant. One additional friend at the workplace is associated

with a 2.1 percent increase in wages,⁶¹ while someone who is frequently involved in the activities of any type of group/association earns 113 percent more than one who had no membership during the past 12 months.⁶²

5.4.5 Linking Social Capital Variables

Though the overall linking social capital is positive with regard to wages in Japan, the breakdowns show that effect to a lesser extent. Types (i) political party, club or association, (iii) church or other religious organization, (vi) neighborhood association or group, and (vii) other associations or groups are not statistically significant. Type (ii) trade union or professional association is significantly positive in both categories (*group_1* and *group_2*), being 38 percent and 35 percent higher wages than having no membership in such associations, respectively.⁶³ Being active in Type (iv) sports group, hobby or leisure club is positively associated with wages, about 12.4 percent more than if not a member.⁶⁴ However, being active in Type (v) charitable organization or group is significantly negative with respect to wages, about 23 percent less than if not a member.⁶⁵

⁶¹ $\text{Exp}(0.0203) - 1 = 0.0205$.

⁶² $\text{Exp}(0.7541) - 1 = 1.1257$.

⁶³ $\text{Exp}(0.3251) - 1 = 0.3842$, $\text{exp}(0.3007) - 1 = 0.3508$.

⁶⁴ $\text{Exp}(0.1165) - 1 = 0.1236$.

⁶⁵ $\text{Exp}(-0.2562) - 1 = -0.2260$.

5.4.6 Demographic & Control Variables

The demographic and control variables have somewhat different effects on wages in Japan than in the other three countries. The results indicate that there exist significant differences in wages between genders as well as between urban/rural statuses. Females, if they ever work, earn about 63 percent less than males per month, *ceteris paribus*, and urban residents (*urbrural*) have 33 percent greater wages than rural residents (Model I),⁶⁶ but marital status and number of children under 18 years of age at home do not have statistically significant impacts on wages.

5.5 Discussion

Previous studies provide evidence for the positive impact of social networks on the efficiency and effectiveness of job seeking and consequently a wage premium in some countries and a wage penalty in others, corresponding to the efficiency of formal job search channels.⁶⁷ Although a larger social network is usually found to be associated with greater use of informal search channels for jobs and higher reservation wages (Caliendo et al. 2011), few empirical studies have been done with regard to the impact of current social contacts on wage outcomes, which is the main focus of this

⁶⁶ $\text{Exp}(-0.9981) - 1 = -0.6314$, $\text{exp}(0.2824) - 1 = 0.3263$.

⁶⁷ See Mellizzari (2010) for a literature survey on the wage effect of finding jobs through informal contacts.

study.

Bonding Social Capital

Among the bonding social capital indicators, only mother being alive in the Philippines has a positive impact on wages. In Philippine culture, family bonds are so close that all familial ties are recognized and remote relatives may be known as cousins. In rural Philippines, social network ties, by the order of importance, are kin networks, household neighborhood, farm neighborhood, and membership in a farmer's association (Palis, et al. 2002). The kin-based nature of networks of relationships in Filipino rural communities is widely recorded (Barnes 1954; Bott 1957; Jocano 1997; Murray 1973; Rolda 2001), featuring strong ties, mutual trust, norms and reciprocity. The most important domestic unit is the extended family, where mothers and daughters sharing a home may make decisions concerning the home and usually do not confer with their male family members. Women are also responsible for family money management (Anonymous, n.d.).⁶⁸ In this unique cultural context, one adult with his/her mother present or alive is more advantageous than that without mother alive in that he/she can have more financial resources or extended family contacts to use when in need.

⁶⁸ These are also attested by my own observation during visiting in the Philippines.

Though also a Catholic-dominated country like the Philippines, Brazil is quite different from the Philippines in terms of socioeconomic development and culture. In Brazil, the bonding social capital indicators do not have a positive relationship with wages, but on the contrary, a negative sign is found for the number of siblings. It is well observed that higher fertility is often associated with lower income for families within a society and across countries (Borg 1989; Schultz 2005), which indicates that someone who has more siblings may have fewer financial resources from family members to support him/her under various circumstances. This disadvantage may be even intensified by the fact that more than half of the Brazilian respondents feel that their family members, relatives, and/or friends make too many demands upon them.⁶⁹ It seems paradoxical that more network ties mean more embedded resources to leverage for the benefit of one's economic outcomes, but at the same time based on the principle of reciprocity and mutual benefits, more network ties may also mean more time and resources to be leveraged by the network contacts, which, if demanding, is to the detriment of one's economic well-being. Therefore, there is a possible threshold for the number of siblings, and a balance is needed for the interactions between siblings; otherwise, potential social capital might become a burden for some social actors.

⁶⁹ When asked, "Do you feel that your family, relatives and/or friends make too many demands on you," 52.6% of the 1,922 respondents in Brazil answered "yes."

Bridging Social Capital

As far as bridging social capital is concerned, the number of friends at the workplace displays a positive relationship with wages in the Philippines, United States and Japan, while this positive effect is not statistically significant for Brazil. These findings complement previous studies dealing with the impact of social networks on job seeking and economic outcomes. Workplace friendship is a voluntary relationship that is built between coworkers during the process of working on shared tasks, socializing during non-work time and sometimes due to physical work proximity, and goes beyond the normal relationship of colleagues (Yager 1999). As true friendships entail mutual trust, loyalty and support, workplace friendship is highly associated with the cohesiveness of workplace, job satisfaction and organizational commitment (Buunk, et al. 1993), enhancing creativity and productivity (Yager 1999), and further career success (Markiewicz, et al. 1997; Morrison 2003).

The number of friends in the neighborhood and other places does not show statistical significance. Of course, this is not to deny the value and importance of having friends in the neighborhood and other places, but rather suggests that the number of such friends makes little difference for economic outcomes.

Linking Social Capital

Among all the linking social groups or organizations, holding a membership in a trade union or professional association deserves attention, as it stands out as the single type of linking social capital that has a significant positive relationship with wages across the four countries. All the other linking social organizations display heterogeneous effects with wages for different countries.

According to the Collins Dictionary, trade union, or labor union, is "an association of employees formed to improve their incomes and working conditions by collective bargaining with the employer or employer organizations,"⁷⁰ while professional association is "a body of persons engaged in the same profession, formed usually to control entry into the profession, maintain standards, and represent the profession in discussions with other bodies."⁷¹ Though trade union is different from professional association, they share a common feature in that they both function to grant their members access to more resources or social network ties than otherwise. While many countries have seen a considerable decline in the density of trade union memberships in the past decades due to the restructuring of economies and other

⁷⁰ See <http://www.collinsdictionary.com/dictionary/english/trade-union>.

⁷¹ See <http://www.collinsdictionary.com/dictionary/english/professional-association>.

factors,⁷² numerous studies, as quoted in Mayer (2004), find that union workers earn about 10% to 30% more than their nonunion counterparts, after controlling for individual, job and labor market characteristics. Despite the fact that trade unions raise workers' wages based on workers' seniority and education⁷³ by the means of collective bargaining, it is noted that their collective actions are indeed enabled through shared trust, norms and common goals among union members which are their social capital, in effect. Besides, both trade unions and professional organizations provide their members opportunities to build networks with others and thus expand their stock of social capital.

⁷² See OECD stats: http://stats.oecd.org/Index.aspx?DataSetCode=UN_DEN on the U.S. and Japan; see a report at <http://asiancorrespondent.com/81540/trade-unionism-in-the-philippines-is-gone-almost/> for the Philippines.

⁷³ Seniority refers to work experience and measures one's human capital along with educational attainment.

CHAPTER 6

SUMMARY AND CONCLUSIONS

This last chapter summarizes the empirical findings from the previous chapters and discusses in brief the contribution to the literature of social capital and possible policy implications about what measures can be taken in economic development programs for social capital and human capital to work in synergy with regard to individual economic well-being. Finally, the limitations of the current study are considered and potential future research is also suggested.

6.1 Summary of Findings

In the first place, human capital again shows its significance in economic well-being. Formal schooling, one of the human capital variables, plays an important role in individual wages in all of the four countries, but at different rates of return for different countries, ranging from a 15 percent increase for the United States at the highest, to 6 percent for the Philippines, at the lowest. The other human capital variable, work experience, is positively associated with wages at a decreasing rate of return before reaching its "peak" years for all the four countries, though this effect is not statistically significant for the Philippines. That is, a typical American would

enjoy positive rates of return from investing in on-the-job training in the first 30 years of his/her participation in the labor force, but after the 30 years, he/she would generally not be able to benefit from such investment. The peak for Brazil is 39 years. These findings are not new but reaffirm human capital theory in terms of its power to explain economic outcomes.

However, human capital does not work toward economic well-being solely by itself. When social capital is taken into account, both the additive and interaction effects of social capital tend to be mixed in terms of different indicators and for different countries. For example, in the SUR models, mother being present or alive is not beneficial for one's economic well-being by itself, but is beneficial when interplaying with education in the Philippines. This result is not found in the other countries. Similarly, the number of friends apart from those at the workplace and in the neighborhood is not beneficial for one's economic well-being by itself, but is beneficial when interplaying with education in the U.S. None of the additive effects of social capital in Brazil is statistically significant, whereas its interaction effects with father being present or alive and with the number of adult siblings are unexpectedly negative, meaning father being present or alive is a passive factor for one's wage, and the same is true with more adult siblings in the family. In Japan, mother being present or alive is a positive factor only by itself for economic well-being, while the number

of friends at the workplace is positive by itself but its interplays with both education and experience are, beyond expectation, negative for wages.

On the other hand, the total marginal effects of the social capital variables, as derived from each of their additive and interaction effects, display some interesting rough patterns. *For bonding social capital*, as measured by the presence of parents and the number of adult siblings and adult children, a typical Filipino would improve his/her economic well-being from the mother being alive by a premium of 20 percent. A Brazilian would have a 2 percent lower wage with one more adult sibling, probably due to too many demands from family and relatives. *For bridging social capital*, friends at the workplace matter positively for all the countries but Brazil. That is, having more friends at the workplace means higher wages either due to high positions or advantageous sociability. It is noteworthy to find that having more friends in the neighborhood in the U.S. is negatively associated with wages, perhaps because of time spent with neighborhood friends rather than working.

For linking social capital, even more varying results are obtained with regard to each single type of linking association or group. Involvement with a political party, club or association to a certain degree is associated with higher wages in the Philippines but not in the other three countries. Those holding memberships or intensively engaged in some sort of trade union or professional association tend to

earn more than those without even a membership, and this is by and large true for all four countries. Primarily, people who are active in trade unions or professional associations are likely to be in privileged positions in their workplace with better pay. Frequent participation in a church or other religious organization in the Philippines is associated with lower wages, while less involvement with religious organizations in the U.S. is associated with higher wages. This reflects a potential difference of the effects of religious organizations on individual economic well-being. Both in Japan and Brazil, more participation in sports groups, hobby or leisure clubs means better economic well-being, while in the U.S. participation in such groups to a certain extent is associated with lower wages. These results call for further research in order to reach a meaningful conclusion. Higher wages are also found for those who participate in charitable organizations in the Philippines but not the other countries. The same is true for neighborhood associations or groups in the Philippines and Brazil. Therefore, overall, economic well-being is better for Filipinos who are involved in most of the linking organizations, except for churches or other religious organizations. Brazilians, Americans and Japanese are all found to have higher wages if they participate in the activities of trade unions or professional associations. Other than this, the different types of linking organizations have different effects on economic well-being.

Even though the findings are mixed, social capital is not negligible in terms

of its magnitude and significance, but rather deserves further study to reveal the effect of each of the indicators. Social capital is never meant to substitute but complement human capital either in positive or negative effects, as it is commonly observed in the real world that people utilize the social capital at their disposal from time to time out of instinct. It may also be the case that people are asked for help by their network ties, bearing losses to a certain degree, to benefit the latter's economic well-being. In other words, certain types of social capital amplify human capital while others offset human capital in their effects on economic well-being, or compensate lower levels of human capital.

While a body of previous studies on social capital have indicated the significance of social capital on various social outcomes including economic development, it is important to note that most of the literature modeled social capital and the outcome variable in a direct way. The current study deals with social capital in both a direct and an indirect approach so that the mediating effect of social capital on human capital can be captured alongside with its direct effect on economic well-being, thus revealing a more precise picture of the social component of capital. The empirical modeling on the four countries suggests that social capital factors do indeed have both direct and indirect effects, though the effects are heterogeneous across the countries. On the other hand, human capital is found to work toward individual

economic well-being, not just on its own but also via the facilitation of certain social capital indicators for different countries, which further warrants the significant position of social capital in the capital equation of economic development.

6.2 Policy Implications

The findings from the empirical modeling suggest at least two policy implications. One is about friendships at the workplace (bridging social capital) and the other about membership in trade unions or professional organizations (linking social capital), both of which are positively related with individual economic outcomes across countries.

Since friendships at the workplace are considered an important factor in enhancing perceived workplace cohesiveness, job satisfaction and career success, promoting a friendly workplace environment may help the formation of friendships between coworkers. With mutual trust, friends at the workplace can lead to more creativity and better productivity, which often will lead to better economic situation for the employer and individual incomes as well. Organizational management and the building of a corporate culture need to take this into account when making rules, regulations and planning for events. Also, employees who refer their friends to employers may be rewarded for their trustworthiness and for the referrals, if they are

successful.

Membership in trade unions or professional organizations usually provides good opportunities for people from similar organizations but different social contacts to build networks and even leverage resources to realize potential social outcomes. Skills learning in such professional organizations may also equip members for further career development. Despite the fact that trade union membership has declined in many countries, trade unions remain the most influential form of worker's organization. In a fast changing society, encouraging participation in trade unions will give union members more access to information, resources and the opportunity for promotion. Likewise, when community development policy is to be designed, a community learning center can be established where members can socialize with each other, exchange information and even accomplish community projects for their common good.

6.3 Limitations and Future Research

Of course, this study is not free from limitations, as one can read between the lines. There are three major shortcomings that need to be addressed in future research.

The first limitation concerns the measurement of social capital. The measures of social capital used here are broad and less focused on certain aspects of economic well-being and thus subject to revisions. Not only are the quantities of network ties (e.g., number of friends and family members) important, but also the qualities of the social network ties (e.g., frequency of contact either in person or by modes of communication) also matter. For instance, one close family member may be more helpful than ten so-so friends. Moreover, such qualitative scale data as attitudes and trust can also complement the already included quantitative data to capture more of one's social capital. Further refining the conceptualization and measurement of social capital becomes necessary.

Next, though the ISSP survey is a cross-national effort from a cross-cultural perspective and has been conducted annually for 27 years, it covers one of a variety of social science research topics in any given year; therefore, panel data for social capital might be available in the years to come and make it possible to control for unobservable individual attributes to better single out the relationship between social capital, human capital and economic well-being. Or, even if panel data is not available, social capital data on the same countries that are of interest would also be useful for us to make comparisons of the dynamics of social capital over time and space.

Last but not least, although the current research design considers the

possible sample selection issues and uses both the Heckman Selection model and SUR model, it does not consider the potential endogeneity of social capital in the process of social and economic development. Further causal inferences would be able to shed more light on how social capital is leveraged with human capital to work best towards the improvement of economic well-being. In addition, social capital is so complex a topic that it is highly contingent on social culture and economic institutions. Cross-cultural comparison is very interesting but would be more insightful if cultural issues were included in the theoretical framework. These limitations all deserve future research.

It is worth pointing out that, even if there is potential endogeneity for social capital in this study, the case for endogeneity is mixed. Among the three types of social capital, bonding ties with parents, adult siblings and adult children are generally exogenous; and the decision whether to become involved with social groups or associations is usually made over time, which helps to reduce the degree of endogeneity of the linking ties. Bridging social contacts (i.e, close friends at the workplace, in the neighborhood and other contexts) may be predetermined due to one's disposition and personality. For example, if one is inclined to be sociable, he/she may have many friends, on the one hand; and on the other, he/she may be more likely to be in a high position with good pay. With this in mind, the findings for the four

countries are interesting and enhance our understanding of social capital and its impacts on human capital and economic well-being from a cross-cultural perspective.

APPENDIX

RESULTS OF EMPIRICAL MODELING

Table A.1: Empirical Modeling for Human and Social Capital on Wages – Philippines

MODEL	I–Mincerian	II–OLS	III–OLS	IV–OLS	V–Heckman	VI–SUREG
DEP. VARIABLE	<i>lnwage</i>					
INDEP. VARIABLES	<i>HK + CV</i>	<i>SK + CV</i>	<i>HK+SK+ CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>
<i>HUMAN CAPITAL VARIABLES (HK)</i>						
<i>edu</i>	0.0845*** (0.0095)		0.0835*** (0.0099)	0.0515** (0.0252)	0.0685** (0.0277)	0.0574** (0.0258)
<i>exp</i>	0.0095 (0.0084)		0.0107 (0.0089)	0.0134 (0.0158)	0.0518* (0.0273)	0.0049 (0.0157)
<i>exp2</i>	-0.0002 (0.0001)		-0.0001 (0.0001)	-0.0002 (0.0002)	-0.0008** (0.0004)	-0.0001 (0.0002)
<i>SOCIAL CAPITAL VARIABLES (SK)</i>						
<i>BONDING</i>	<i>mother</i>	0.1826** (0.0749)	0.1525** (0.0767)	-0.3785 (0.3287)	-0.3431 (0.3198)	-0.6561** (0.3247)
	<i>father</i>	0.0050 (0.0739)	-0.0222 (0.0754)	0.4549 (0.3204)	0.4704 (0.3065)	0.4856 (0.3104)
	<i>siblings</i>	-0.0083 (0.0106)	-0.0063 (0.0105)	-0.0448 (0.0433)	-0.0416 (0.0410)	-0.0080 (0.0463)
	<i>child18</i>	-0.0377** (0.0163)	-0.0213 (0.0197)	-0.0649 (0.0984)	-0.0712 (0.0957)	0.0250 (0.1011)
<i>BRIDGING</i>	<i>frdwkp</i>	0.0099 (0.0063)	0.0130** (0.0061)	-0.0047 (0.0201)	-0.0046 (0.0203)	-0.0058 (0.0203)
	<i>frdnbh</i>	0.0052 (0.0060)	0.0001 (0.0060)	0.0246 (0.0256)	0.0260 (0.0256)	0.0294 (0.0275)
	<i>frdoth</i>	0.0037 (0.0064)	-0.0003 (0.0061)	0.0060 (0.0227)	0.0076 (0.0235)	-0.0098 (0.0257)
<i>LINKING</i>	<i>group_1</i>	0.4302*** (0.1102)	0.2823*** (0.1066)	-0.6206 (0.4970)	-0.5082 (0.4963)	-0.6551 (0.4997)
	<i>group_2</i>	0.1719** (0.0724)	0.0604 (0.0717)	-0.3210 (0.2895)	-0.2535 (0.2872)	-0.2661 (0.2971)
<i>INTERACTION VARIABLES (IN)</i>						
<i>eduXmom</i>				0.0415** (0.0205)	0.0400** (0.0203)	0.0599*** (0.0202)
<i>eduXdad</i>				-0.0299 (0.0203)	-0.0295 (0.200)	-0.0278 (0.0196)

(Table A.1 Continued)

<i>eduXsibl</i>	0.0058**	0.0056**	0.0040			
	(0.0028)	(0.0027)	(0.0029)			
<i>eduXchd18</i>	-0.0027	-0.0027	-0.0056			
	(0.0048)	(0.0047)	(0.0049)			
<i>eduXfrdwk</i>	0.0018	0.0020	0.0021			
	(0.0013)	(0.0013)	(0.0013)			
<i>eduXfrdnb</i>	-0.0022	-0.0023	-0.0031*			
	(0.0016)	(0.0016)	(0.0017)			
<i>eduXfrdoth</i>	-0.0009	-0.0010	-0.0005			
	(0.0015)	(0.0016)	(0.0016)			
<i>eduXgrp_1</i>	0.0507	0.0504	0.0472			
	(0.0341)	(0.0338)	(0.0336)			
<i>eduXgrp_2</i>	0.0104	0.0109	0.0093			
	(0.0209)	(0.0204)	(0.0209)			
<i>expXmom</i>	0.0062	0.0053	0.0118*			
	(0.0069)	(0.0067)	(0.0069)			
<i>expXdad</i>	-0.0080	-0.0085	-0.0109			
	(0.0080)	(0.0074)	(0.0077)			
<i>expXsibl</i>	-0.0005	-0.0005	-0.0008			
	(0.0008)	(0.0008)	(0.0009)			
<i>expXchd18</i>	0.0014	0.0016	-0.0003			
	(0.0017)	(0.0016)	(0.0018)			
<i>expXfrdwk</i>	0.0002	0.0001	0.0002			
	(0.0006)	(0.0006)	(0.0006)			
<i>expXfrdnb</i>	-0.0002	-0.0003	-0.0003			
	(0.0006)	(0.0005)	(0.0006)			
<i>expXfrdot</i>	0.0001	0.0000	0.0007			
	(0.0005)	(0.0005)	(0.0006)			
<i>expXgrp_1</i>	0.0141	0.0135	0.0177*			
	(0.0088)	(0.0085)	(0.0096)			
<i>expXgrp_2</i>	0.0104*	0.0096*	0.0065			
	(0.0055)	(0.0052)	(0.0059)			

DEMOGRAPHIC & CONTROL VARIABLES (DC)

<i>sex</i>	-0.3232***	-0.2236***	-0.2917***	-0.2975***	-0.9544**	-0.3363***
	(0.0697)	(0.0721)	(0.0701)	(0.0703)	(0.3783)	(0.0687)
<i>urbrural</i>	0.5865***	0.7600***	0.5606***	0.5323***	0.4956***	0.5071***
	(0.0688)	(0.0676)	(0.0691)	(0.0694)	(0.0826)	(0.0687)

(Table A.1 Continued)

<i>marital_1</i>	-0.0028 (0.1569)	-0.0631 (0.1538)	-0.0146 (0.1567)	-0.0838 (0.1582)	-0.0756 (0.1442)	-0.0299 (0.1541)
<i>marital_2</i>	-0.0135 (0.1204)	0.0245 (0.1202)	-0.0030 (0.1205)	-0.0183 (0.1213)	-0.0229 (0.1118)	0.0105 (0.1164)
<i>kids</i>	-0.0208 (0.0204)	-0.0392* (0.0206)	-0.0239 (0.0205)	-0.0243 (0.0209)	-0.0179 (0.0241)	-0.0144 (0.0207)
<i>Constant</i>	7.1448*** (0.1741)	7.6560*** (0.1400)	6.9273*** (0.2063)	7.2882*** (0.4281)	6.2901*** (0.7168)	7.2355*** (0.4352)
Number of Obs.	747	775	747	747	746	702
Adj. R Squared	0.28	0.22	0.29	0.30	----	0.35
Wald Chi2 / Chi2	----	----	----	----	262.28***	381.73***
<i>Second Equation for Models V and VI</i>						
				V –worknot	VI –lnwchr	
<i>edu</i>				0.0337** (0.0141)	0.0000 (0.0072)	
<i>exp</i>				0.0676*** (0.0097)	-0.0006 (0.0061)	
<i>exp2</i>				-0.0009*** (0.0002)	-0.0000 (0.0001)	
<i>group_1</i>				0.1995 (0.1510)	-0.0576 (0.0775)	
<i>group_2</i>				0.1100 (0.0909)	-0.1436*** (0.0506)	
<i>sex</i>				-1.2335*** (0.0880)	-0.0352 (0.0482)	
<i>urbrural</i>				-0.0769 (0.0922)	0.1469*** (0.0504)	
<i>kids</i>				0.0169 (0.0271)	-0.0149 (0.0140)	
<i>Constant</i>				-0.1237 (0.2074)	5.2351*** (0.1215)	
mills lambda				1.0938* (0.6151)	----	
Observations				1129	702	
R Squared				----	0.03	
Chi2				----	21.76***	

Note: Standard errors enclosed in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.2: Empirical Modeling for Human and Social Capital on Wages – Brazil

MODEL	I–Mincerian	II–OLS	III–OLS	IV–OLS	V–Heckman	VI–SUREG
DEP. VARIABLE	<i>lnwage</i>					
INDEP. VARIABLES	<i>HK + CV</i>	<i>SK + CV</i>	<i>HK+SK+ CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>
<i>HUMAN CAPITAL VARIABLES (HK)</i>						
<i>edu</i>	0.0888*** (0.0077)		0.0849*** (0.0078)	0.0985*** (0.0204)	0.0961*** (0.0222)	0.0894*** (0.0270)
<i>exp</i>	0.0384*** (0.0060)		0.0393*** (0.0064)	0.0302*** (0.0118)	0.0269* (0.0150)	0.0467*** (0.0166)
<i>exp2</i>	-0.0004*** (0.0001)		-0.0004*** (0.0001)	-0.0002* (0.0001)	-0.0002 (0.0001)	-0.0006** (0.0002)
<i>SOCIAL CAPITAL VARIABLES (SK)</i>						
<i>BONDING</i>	<i>mother</i>	0.1181* (0.0667)	0.0438 (0.0682)	-0.0272 (0.2451)	-0.0171 (0.2424)	-1.0000 (0.3166)
	<i>father</i>	-0.1163* (0.0632)	-0.0990 (0.0637)	0.2230 (0.2400)	0.2330 (0.2373)	0.3124 (0.2848)
	<i>siblings</i>	-0.0172** (0.0076)	-0.0161** (0.0075)	0.0382 (0.0265)	0.0386 (0.0261)	0.0053 (0.0346)
	<i>child18</i>	-0.0331** (0.0138)	-0.0123 (0.0155)	0.1244** (0.0600)	0.1333** (0.0612)	0.0688 (0.1060)
<i>BRIDGING</i>	<i>frdwkp</i>	0.0017 (0.0020)	0.0014 (0.0019)	0.0047 (0.0070)	0.0046 (0.0069)	0.0006 (0.0075)
	<i>frdnbh</i>	0.0002 (0.0013)	0.0007 (0.0013)	-0.0065 (0.0043)	-0.0066 (0.0043)	-0.0080 (0.0060)
	<i>frdoth</i>	-0.0010 (0.0010)	-0.0008 (0.0010)	0.0001 (0.0036)	-0.0000 (0.0035)	0.0045 (0.0045)
<i>LINKING</i>	<i>group_1</i>	0.3233** (0.1398)	0.2202* (0.1327)	0.3552 (0.5322)	0.2790 (0.5780)	0.4940 (0.6021)
	<i>group_2</i>	0.1628*** (0.0575)	0.0831 (0.0554)	-0.1246 (0.1957)	-0.1309 (0.2031)	-0.4162 (0.2641)
<i>INTERACTION VARIABLES (IN)</i>						
	<i>eduXmom</i>			0.0083 (0.0174)	0.0074 (0.0173)	0.0169 (0.0220)
	<i>eduXdad</i>			-0.0361** (0.0172)	-0.0367** (0.0170)	-0.0336* (0.0200)

(Table A.2 Continued)

<i>eduXsibl</i>	-0.0047**	-0.0047**	-0.0042*			
	(0.0020)	(0.0020)	(0.0024)			
<i>eduXchd18</i>	0.0014	0.0014	-0.0062			
	(0.0043)	(0.0043)	(0.0066)			
<i>eduXfrdwk</i>	-0.0001	-0.0002	-0.0000			
	(0.0006)	(0.0006)	(0.0006)			
<i>eduXfrdnb</i>	0.0005	0.0005	0.0004			
	(0.0003)	(0.0003)	(0.0004)			
<i>eduXfrdoth</i>	-0.0001	-0.0001	-0.0003			
	(0.0003)	(0.0003)	(0.0003)			
<i>eduXgrp_1</i>	0.0149	0.0162	0.0028			
	(0.0366)	(0.0366)	(0.0398)			
<i>eduXgrp_2</i>	0.0232	0.0223	0.0415**			
	(0.0150)	(0.0148)	(0.0185)			
<i>expXmom</i>	0.0008	0.0006	0.0018			
	(0.0058)	(0.0057)	(0.0080)			
<i>expXdad</i>	-0.0030	-0.0033	-0.0078			
	(0.0061)	(0.0061)	(0.0076)			
<i>expXsibl</i>	-0.0008	-0.0009	0.0004			
	(0.0006)	(0.0005)	(0.0009)			
<i>expXchd18</i>	-0.0029***	-0.0031***	-0.0026			
	(0.0011)	(0.0011)	(0.0023)			
<i>expXfrdwk</i>	-0.0001	-0.0001	0.0000			
	(0.0002)	(0.0001)	(0.0002)			
<i>expXfrdnb</i>	0.0001*	0.0001*	0.0002			
	(0.0001)	(0.0001)	(0.0002)			
<i>expXfrdot</i>	0.0000	0.0000	-0.0002*			
	(0.0001)	(0.0001)	(0.0001)			
<i>expXgrp_1</i>	-0.0089	-0.0081	-0.0112			
	(0.0114)	(0.0116)	(0.0154)			
<i>expXgrp_2</i>	0.0018	0.0017	0.0128*			
	(0.0039)	(0.0039)	(0.0066)			

DEMOGRAPHIC & CONTROL VARIABLES (DC)

<i>sex</i>	-0.3542***	-0.3185***	-0.3420***	-0.3517***	-0.2724	-0.3672***
	(0.0563)	(0.0595)	(0.0566)	(0.0571)	(0.2487)	(0.0713)
<i>urbrural</i>	0.1606**	0.2834***	0.1626**	0.1637**	0.1584**	0.2773***
	(0.0684)	(0.0718)	(0.0688)	(0.0688)	(0.0708)	(0.0916)

(Table A.2 Continued)

<i>marital_1</i>	0.1351 (0.0914)	0.2498*** (0.0895)	0.1347 (0.0917)	0.1492 (0.0924)	0.1444 (0.0917)	0.0143 (0.1252)
<i>marital_2</i>	0.1948*** (0.0671)	0.3950*** (0.0640)	0.2072*** (0.0672)	0.2251*** (0.0673)	0.2272*** (0.0666)	0.2294*** (0.0765)
<i>Constant</i>	4.4662*** (0.1306)	5.4696*** (0.1052)	4.5413*** (0.1609)	4.4644*** (0.3198)	4.6043*** (0.5547)	4.3987*** (0.4197)
Number of Obs.	1142	1184	1139	1139	1135	685
Adj. R Squared	0.16	0.08	0.17	0.18	----	0.23
Wald Chi2 / Chi2	----	----	----	----	213.44***	199.84***

Second Equation for Models V and VI

	V – <i>worknot</i>	VI – <i>lnwchr</i>
<i>edu</i>	0.0470*** (0.0100)	0.0006 (0.0056)
<i>exp</i>	0.0348*** (0.0070)	0.0029 (0.0051)
<i>exp2</i>	-0.0001 (0.0001)	-0.0000 (0.0001)
<i>group_1</i>	0.6340*** (0.2087)	0.0988 (0.0930)
<i>group_2</i>	0.1594** (0.0690)	-0.0881* (0.0420)
<i>sex</i>	-1.0063*** (0.0665)	-0.2246*** (0.0425)
<i>urbrural</i>	0.0924 (0.0854)	0.0529 (0.0559)
<i>Constant</i>	-0.3131** (0.1580)	5.1734*** (0.0967)
mills lambda	-0.1562 (0.4768)	----
Observations	1806	685
R Squared	----	0.05
Chi2	----	35.56***

Note: Standard errors enclosed in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.3: Empirical Modeling for Human and Social Capital on Wages – United States

MODEL	I–Mincerian	II–OLS	III–OLS	IV–OLS	V–Heckman	VI–SUREG	
DEP. VARIABLE	<i>lnwage</i>						
INDEP. VARIABLES	<i>HK + CV</i>	<i>SK + CV</i>	<i>HK+SK+ CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>	
<i>HUMAN CAPITAL VARIABLES (HK)</i>							
<i>edu</i>	0.1546*** (0.0151)		0.1553*** (0.0158)	0.1409*** (0.0533)	0.1327** (0.0528)	0.1463*** (0.0484)	
<i>exp</i>	0.0712*** (0.0102)		0.0678*** (0.0106)	0.0710*** (0.0240)	0.0551* (0.0310)	0.0541** (0.0224)	
<i>exp2</i>	-0.0012*** (0.0002)		-0.0011*** (0.0002)	-0.0011*** (0.0003)	-0.0006 (0.0007)	-0.0009*** (0.0003)	
<i>SOCIAL CAPITAL VARIABLES (SK)</i>							
<i>BONDING</i>	<i>mother</i>		-0.0150 (0.1153)	-0.0169 (0.1125)	-1.0964* (0.6125)	-1.1129* (0.5961)	-0.6583 (0.5657)
	<i>father</i>		-0.1471 (0.1018)	-0.0277 (0.0995)	-0.0839 (0.5437)	-0.1380 (0.5355)	0.0955 (0.4960)
	<i>siblings</i>		-0.0227 (0.0198)	-0.0050 (0.0191)	0.0720 (0.0941)	0.0739 (0.0914)	-0.0462 (0.1018)
	<i>child18</i>		-0.0390 (0.0358)	-0.0214 (0.0351)	-0.0078 (0.1736)	-0.0021 (0.1691)	0.1337 (0.1640)
<i>BRIDGING</i>	<i>frdwkp</i>		0.0449*** (0.0123)	0.0404*** (0.0112)	0.0583 (0.0797)	0.0602 (0.0779)	-0.0189 (0.0732)
	<i>frdnbh</i>		-0.0332*** (0.0107)	-0.0292*** (0.0098)	0.0086 (0.0609)	0.0090 (0.0595)	-0.0135 (0.0643)
	<i>frdoth</i>		0.0047 (0.0047)	0.0009 (0.0043)	-0.0802*** (0.0277)	-0.0811*** (0.0269)	-0.0745*** (0.0267)
<i>LINKING</i>	<i>group_1</i>		0.2169 (0.2150)	0.0862 (0.1989)	-0.3917 (1.1172)	-0.4024 (1.0848)	-0.6054 (1.0070)
	<i>group_2</i>		0.0989 (0.1220)	-0.0296 (0.1134)	1.0462* (0.6098)	0.9770 (0.5988)	1.2487** (0.5624)
<i>INTERACTION VARIABLES (IN)</i>							
	<i>eduXmom</i>			0.0515 (0.0352)	0.0530 (0.0343)	0.0279 (0.0323)	
	<i>eduXdad</i>			0.0137 (0.0342)	0.0161 (0.0336)	-0.0048 (0.0309)	

(Table A.3 Continued)

<i>eduXsibl</i>	-0.0014	-0.0012	0.0082			
	(0.0063)	(0.0061)	(0.0069)			
<i>eduXchd18</i>	-0.0006	-0.0015	-0.0090			
	(0.0100)	(0.0097)	(0.0095)			
<i>eduXfrdwk</i>	0.0006	0.0006	0.0036			
	(0.0050)	(0.0049)	(0.0045)			
<i>eduXfrdnb</i>	-0.0033	-0.0034	-0.0021			
	(0.0042)	(0.0041)	(0.0041)			
<i>eduXfrdoth</i>	0.0061***	0.0062***	0.0058***			
	(0.0019)	(0.0019)	(0.0018)			
<i>eduXgrp_1</i>	0.1221	0.1261	0.1156			
	(0.0814)	(0.0791)	(0.0725)			
<i>eduXgrp_2</i>	-0.0805*	-0.0781*	-0.0946**			
	(0.0412)	(0.0400)	(0.0375)			
<i>expXmom</i>	0.0141	0.0140	0.0108			
	(0.0113)	(0.0109)	(0.0105)			
<i>expXdad</i>	-0.0060	-0.0049	0.0007			
	(0.0098)	(0.0097)	(0.0089)			
<i>expXsibl</i>	-0.0026*	-0.0028**	-0.0021			
	(0.0014)	(0.0014)	(0.0014)			
<i>expXchd18</i>	-0.0003	-0.0001	-0.0004			
	(0.0028)	(0.0026)	(0.0027)			
<i>expXfrdwk</i>	-0.0010	-0.0010	-0.0006			
	(0.0009)	(0.0008)	(0.0008)			
<i>expXfrdnb</i>	0.0005	0.0005	0.0008			
	(0.0007)	(0.0006)	(0.0007)			
<i>expXfrdot</i>	-0.0002	-0.0002	-0.0002			
	(0.0003)	(0.0003)	(0.0003)			
<i>expXgrp_1</i>	-0.0623***	-0.0626***	-0.0475***			
	(0.0199)	(0.0190)	(0.0175)			
<i>expXgrp_2</i>	-0.0008	-0.0015	-0.0011			
	(0.0087)	(0.0083)	(0.0081)			

DEMOGRAPHIC & CONTROL VARIABLES (DC)

<i>sex</i>	-0.5863***	-0.5395***	-0.5990***	-0.5931***	-0.5214***	-0.5850***
	(0.0822)	(0.0894)	(0.0820)	(0.0831)	(0.1239)	(0.0823)
<i>urbrural</i>	0.1089	0.2093*	0.0823	0.0780	0.0912	0.0745
	(0.1044)	(0.1137)	(0.1053)	(0.1050)	(0.1073)	(0.1034)

(Table A.3 Continued)

<i>marital_1</i>	0.1671 (0.1269)	0.4412*** (0.1293)	0.1713 (0.1276)	0.1644 (0.1278)	0.1756 (0.1258)	0.1211 (0.1178)
<i>marital_2</i>	0.2945*** (0.1089)	0.06574*** (0.1114)	0.3138*** (0.1108)	0.2853** (0.1112)	0.2905*** (0.1092)	0.2707*** (0.1013)
<i>kids</i>	-0.0398 (0.0418)	-0.0584 (0.0451)	-0.0482 (0.0420)	-0.0425 (0.0420)	-0.0124 (0.0570)	-0.0244 (0.0419)
<i>Constant</i>	4.8127 (0.2399)	7.4265*** (0.1922)	4.9166*** (0.3001)	5.1526*** (0.8537)	5.4409*** (0.9088)	5.2733*** (0.7911)
Number of Obs.	775	781	775	775	775	674
Adj. R Squared	0.25	0.11	0.26	0.28	----	0.29
Wald Chi2 / Chi2	----	----	----	----	301.50***	269.30***

Second Equation for Models V and VI

	V – <i>worknot</i>	VI – <i>lnwchr</i>
<i>edu</i>	0.0105 (0.0178)	-0.0008 (0.0061)
<i>exp</i>	0.0422*** (0.0105)	0.0139*** (0.0040)
<i>exp2</i>	-0.0014*** (0.0002)	-0.0004*** (0.0001)
<i>group_1</i>	-0.1627 (0.2206)	0.0958 (0.0787)
<i>group_2</i>	0.2157* (0.1321)	0.0811* (0.0457)
<i>sex</i>	-0.3343*** (0.0998)	-0.1955*** (0.0328)
<i>urbrural</i>	-0.0371 (0.1262)	-0.0254 (0.0418)
<i>kids</i>	-0.1238*** (0.0482)	-0.0400** (0.0164)
<i>Constant</i>	1.0038*** (0.2918)	5.1692*** (0.0988)
mills lambda	-0.6199 (0.7855)	----
Observations	1045	674
R Squared	----	0.11
Chi2	----	80.50***

Note: Standard errors enclosed in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.4: Empirical Modeling for Human and Social Capital on Wages – Japan

MODEL	I–Mincerian	II–OLS	III–OLS	IV–OLS	V–Heckman	VI–SUREG
DEP. VARIABLE	<i>lnwage</i>					
INDEP. VARIABLES	<i>HK + CV</i>	<i>SK + CV</i>	<i>HK+SK+ CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>	<i>HK+SK+ HK*SK+CV</i>
<i>HUMAN CAPITAL VARIABLES (HK)</i>						
<i>edu</i>	0.0563*** (0.0101)		0.0534*** (0.0101)	0.0242 (0.0388)	0.1156 (0.1427)	0.0698* (0.0423)
<i>exp</i>	0.0508*** (0.0059)		0.0503*** (0.0065)	0.0473*** (0.0136)	0.1068* (0.0558)	0.0704*** (0.0152)
<i>exp2</i>	-0.0007*** (0.0001)		-0.0007*** (0.0001)	-0.0007*** (0.0002)	-0.0014** (0.0006)	-0.0013*** (0.0002)
<i>SOCIAL CAPITAL VARIABLES (SK)</i>						
<i>BONDING</i>	<i>mother</i>	0.2313*** (0.0639)	0.1418** (0.0704)	0.3857 (0.4495)	0.4599 (1.4763)	0.8006* (0.4636)
	<i>father</i>	-0.1024 (0.0646)	0.0013 (0.0726)	-0.7358 (0.4642)	-0.9847 (1.5021)	-0.3243 (0.4406)
	<i>siblings</i>	0.0021 (0.0147)	-0.0052 (0.0155)	-0.0643 (0.1130)	0.0112 (0.3769)	-0.0524 (0.1190)
	<i>child18</i>	0.0184 (0.0286)	0.0297 (0.0319)	-0.0241 (0.2258)	-0.0168 (0.7633)	-0.2773 (0.2391)
<i>BRIDGING</i>	<i>frdwkp</i>	0.0327*** (0.0053)	0.0299*** (0.0053)	0.1023*** (0.0373)	0.1202 (0.1235)	0.1097*** (0.0362)
	<i>frdnbh</i>	-0.0015 (0.0045)	-0.0063 (0.0049)	0.0225 (0.0427)	0.0058 (0.1415)	0.0018 (0.0416)
	<i>frdoth</i>	-0.0016 (0.0027)	-0.0014 (0.0028)	-0.0083 (0.0181)	-0.0171 (0.0604)	-0.0188 (0.0195)
<i>LINKING</i>	<i>group_1</i>	0.1943** (0.0937)	0.0925 (0.0956)	-1.0669 (0.6885)	-0.8734 (2.2114)	-0.7938 (0.6629)
	<i>group_2</i>	0.1028* (0.0618)	0.0271 (0.0639)	-0.6361 (0.4011)	0.1912 (1.3908)	-0.7216* (0.3968)
<i>INTERACTION VARIABLES (IN)</i>						
	<i>eduXmom</i>			-0.0100 (0.0258)	-0.0143 (0.0887)	-0.0358 (0.0265)
	<i>eduXdad</i>			0.0270 (0.0264)	0.0423 (0.0882)	0.0184 (0.0252)

(Table A.4 Continued)

<i>eduXsibl</i>	0.0043	-0.0003	0.0010
	(0.0066)	(0.0223)	(0.0070)
<i>eduXchd18</i>	-0.0026	-0.0059	0.0021
	(0.0116)	(0.0394)	(0.0118)
<i>eduXfrdwk</i>	-0.0030	-0.0044	-0.0054**
	(0.0024)	(0.0080)	(0.0023)
<i>eduXfrdnb</i>	-0.0018	-0.0008	0.0002
	(0.0028)	(0.0094)	(0.0027)
<i>eduXfrdoth</i>	0.0006	0.0012	0.0011
	(0.0012)	(0.0040)	(0.0012)
<i>eduXgrp_1</i>	0.0834**	0.0755	0.0502
	(0.0425)	(0.1385)	(0.0415)
<i>eduXgrp_2</i>	0.0390	0.0038	0.0343
	(0.0254)	(0.0861)	(0.0250)
<i>expXmom</i>	-0.0039	-0.0053	-0.0109
	(0.0066)	(0.0205)	(0.0070)
<i>expXdad</i>	0.0149**	0.0168	0.0003
	(0.0071)	(0.0223)	(0.0071)
<i>expXsibl</i>	0.0004	-0.0002	0.0006
	(0.0012)	(0.0040)	(0.0015)
<i>expXchd18</i>	0.0022	0.0029	0.0087**
	(0.0027)	(0.0091)	(0.0038)
<i>expXfrdwk</i>	-0.0013***	-0.0014	-0.0008*
	(0.0004)	(0.0012)	(0.0004)
<i>expXfrdnb</i>	-0.0003	-0.0001	-0.0004
	(0.0004)	(0.0014)	(0.0005)
<i>expXfrdot</i>	0.0000	0.0001	0.0002
	(0.0002)	(0.0006)	(0.0002)
<i>expXgrp_1</i>	0.0037	-0.0004	0.0085
	(0.0070)	(0.0215)	(0.0082)
<i>expXgrp_2</i>	0.0057	-0.0018	0.0118**
	(0.0042)	(0.0139)	(0.0050)

DEMOGRAPHIC & CONTROL VARIABLES (DC)

<i>sex</i>	-0.9981***	-0.9513***	-0.9660***	-0.9690***	-1.7098***	-1.0423***
	(0.0519)	(0.0504)	(0.0517)	(0.0526)	(0.4799)	(0.0568)
<i>urbrural</i>	0.2824**	0.3344***	0.2739**	0.2706**	0.3142	0.2441*
	(0.1213)	(0.1179)	(0.1196)	(0.1200)	(0.4357)	(0.1339)

(Table A.4 Continued)

<i>marital_1</i>	0.0669 (0.1245)	0.2235** (0.1122)	0.0583 (0.1254)	0.0708 (0.1269)	0.0789 (0.3956)	-0.0292 (0.1387)
<i>marital_2</i>	-0.0081 (0.0936)	0.2349*** (0.0844)	-0.0307 (0.0959)	-0.0274 (0.0980)	-0.0258 (0.3097)	0.0234 (0.0953)
<i>kids</i>	0.0056 (0.0315)	0.0214 (0.0325)	0.0083 (0.0331)	-0.0017 (0.0338)	0.0498 (0.1244)	-0.0578* (0.0345)
<i>Constant</i>	4.0357*** (0.2033)	4.8311*** (0.1552)	3.8245*** (0.2354)	4.3343*** (0.6690)	1.6812 (2.7475)	3.8323*** (0.7154)
Number of Obs.	924	1075	924	924	913	687
Adj. R Squared	0.38	0.32	0.40	0.41	----	0.45
Wald Chi2 / Chi2	----	----	----	----	27.21	498.97***

Second Equation for Models V and VI

	V – <i>worknot</i>	VI – <i>lnwchr</i>
<i>edu</i>	0.0813*** (0.0245)	-0.0099 (0.0076)
<i>exp</i>	0.0499*** (0.0091)	-0.0006 (0.0050)
<i>exp2</i>	-0.0005*** (0.0002)	-0.0001 (0.0001)
<i>group_1</i>	-0.0164 (0.1780)	-0.0699 (0.0776)
<i>group_2</i>	0.1854 (0.1165)	-0.0959* (0.0503)
<i>sex</i>	-0.8285*** (0.1108)	-0.4893*** (0.0413)
<i>urbrural</i>	0.0487 (0.2384)	-0.0770 (0.1001)
<i>kids</i>	0.0625 (0.0613)	-0.0464** (0.0219)
<i>Constant</i>	-0.4155 (0.3973)	5.7881*** (0.1636)
mills lambda	2.8725* (1.7232)	----
Observations	1085	687
R Squared	----	0.19
Chi2	----	162.70***

Note: Standard errors enclosed in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.5: Total marginal effects of Social Capital variables on Wage

Social Capital Variables	Philippines	Brazil	United States	Japan	
<i>BONDING</i>	<i>mother</i>	0.1976*** (0.0745)	0.0680 (0.0903)	-0.0400 (0.1174)	0.0504 (0.0823)
	<i>father</i>	-0.0539 (0.0755)	-0.1111 (0.0738)	0.0438 (0.0898)	-0.0803 (0.0691)
	<i>siblings</i>	0.0062 (0.0104)	-0.0188** (0.0095)	0.0218 (0.0185)	-0.0223 (0.0212)
	<i>child18</i>	-0.0338 (0.0306)	-0.0341 (0.0497)	0.0007 (0.0362)	-0.0188 (0.0459)
<i>BRIDGING</i>	<i>frdwkp</i>	0.0170*** (0.0066)	0.0009 (0.0022)	0.0175* (0.0108)	0.0203*** (0.0052)
	<i>frdnbh</i>	-0.0062 (0.0062)	0.0001 (0.0018)	-0.0253** (0.0105)	-0.0056 (0.0049)
	<i>frdoth</i>	0.0028 (0.0063)	-0.0017 (0.0013)	0.0007 (0.0043)	0.0003 (0.0030)
<i>LINKING</i>	<i>group_1</i>	0.2382** (0.1106)	0.2810* (0.1663)	-0.0174 (0.2008)	0.0752 (0.1062)
	<i>group_2</i>	-0.0115 (0.0733)	0.1717** (0.0690)	-1.3345** (0.5880)	0.7541* (0.4009)

Note: Standard errors enclosed in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table A.6: Summary statistics of Human Capital variables in the sample of Model VI

	Variable	Obs	Mean	Std. Dev.	Min	Max
Philippines	<i>edu</i>	702	9.1	4.1	1	35
	<i>exp</i>	702	26.3	13.9	0	71
Brazil	<i>edu</i>	685	7.7	4.7	0	39
	<i>exp</i>	685	21.0	13.3	0	65
United States	<i>edu</i>	674	13.9	2.8	2	20
	<i>exp</i>	674	21.4	12.9	0	69
Japan	<i>edu</i>	687	12.8	3.1	3	48
	<i>exp</i>	687	26.7	14.6	0	70

Data source: ISSP 2001, and own calculations.

Table A.7: Total marginal effects of various Linking Social Capital variables on Wage

	Philippines	Brazil	United States	Japan
<i>political party, club or association</i>				
<i>group_1</i>	0.3512** (0.1746)	-0.2137 (0.4170)	0.0068 (0.1742)	0.0510 (0.1596)
<i>group_2</i>	-0.0729 (0.1219)	0.0833 (0.1176)	0.1065 (0.1111)	0.1820 (0.1174)
<i>trade union or professional association</i>				
<i>group_1</i>	0.4236* (0.2168)	0.6417*** (0.1626)	0.2553 (0.6943)	0.3251*** (0.1070)
<i>group_2</i>	0.5135*** (0.1557)	0.1637 (0.1062)	0.1809* (0.1082)	0.3007*** (0.0797)
<i>church or other religious organization</i>				
<i>group_1</i>	0.1837 (0.1148)	-0.3241 (0.6242)	0.3658*** (0.1408)	-0.0980 (0.3585)
<i>group_2</i>	-0.1817** (0.0789)	0.1177 (0.2864)	-0.6457 (0.4437)	-0.1391 (0.0998)
<i>sports group, hobby or leisure club</i>				
<i>group_1</i>	0.1949 (0.1281)	-0.2329 (0.4492)	-0.5807* (0.3386)	-1.6872 (1.7037)
<i>group_2</i>	-0.0387 (0.3827)	0.2794** (0.1096)	-0.0227 (0.0857)	0.1165** (0.0581)
<i>charitable organization or group</i>				
<i>group_1</i>	0.4774*** (0.1674)	-0.0258 (0.5215)	0.5764 (1.4661)	0.5920 (0.51517)
<i>group_2</i>	0.3214*** (0.1198)	-0.4246 (0.3848)	-0.0108 (0.094)	-0.2562* (0.1524)
<i>neighborhood association or group</i>				
<i>group_1</i>	0.2886** (0.1323)	0.5047 (1.2973)	0.2620 (0.2457)	0.0968 (0.0808)
<i>group_2</i>	0.0686 (0.0903)	0.1889* (0.1141)	-0.0347 (0.1220)	0.3001 (0.4267)
<i>other associations or groups</i>				
<i>group_1</i>	0.3833** (0.1507)	0.0327 (0.4611)	0.0901 (0.1900)	0.2688 (0.2007)
<i>group_2</i>	-0.4604 (0.4451)	0.1135 (0.5558)	0.1765* (0.1026)	0.0058 (0.0779)

Note: Standard errors enclosed in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.8: Joint significance tests (F tests) on social capital variables in Model III and social capital variables and interaction items in Model IV

F Tests	Philippines	Brazil	United States	Japan
Model III	F(9,729)=2.09**	F(9,1122)=1.36	F(9,757)=2.42**	F(9,906)=4.56***
Model IV	F(27,711)=1.72**	F(26,1104)=1.61**	F(26,739)=2.25***	F(26,888)=2.50***

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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