Human Agency and Instrumental Rationality: Applying Human Capital to Gender Inequalities and Intergenerational Stratification



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Human Agency and Instrumental Rationality: Applying Human Capital to Gender Inequalities and Intergenerational Stratification

ABSTRACT

Background and Motivation

Existing literature highlights education's potential for reducing inequalities and fostering social mobility. However, our understanding of its precise role remains incomplete. This thesis contends that educational attainment, a form of human capital, can evolve differently based on human agency and instrumental rationality, influencing its effectiveness in mitigating inequalities and enhancing mobilities.

Objective and Methods

Drawing upon modern China as a case study, this theoretically driven thesis proffers broad implications. Leveraging data from the China Family Panel Studies (CFPS) and the Chinese General Social Survey (CGSS), it addresses three key questions: First, is there a human capital transfer between spouses, and what are the implications for inequalities and stratification? Second, is there a human capital transfer from mothers to children, and what are the implications for inequalities and stratification? Third, is there a transformation from human capital into social capital, and what are the implications for inequalities and stratification?

Main Findings

Human Capital Transfer Between Spouses: Within marital relationships, a transfer of human capital exists. When married women underutilize their education-based human capital, their husbands benefit from this underutilization, effectively compensating for potential family income loss on average. This phenomenon is strongly influenced by traditional gender ideologies, and notably, these ideologies become reinforced when a wife's underutilization of her education aligns with a growth in family income.

Lack of Human Capital Transfer from Mothers to Children: Contrary to expectations, there is no significant transfer of education-based human capital from mothers to their children. In situations where mothers underutilize their education-based human capital, not only do their children's educational outcomes fail to benefit from this underutilization, but they also suffer as a result. Consequently, advocating for mothers to make labor income or career sacrifices for their children's education may not be a wise course of action.

Transformation from Human Capital into Social Capital: Educational attainment plays a pivotal role in increasing individuals' awareness of utilizing and their willingness to use social connections for instrumental purposes. Furthermore, the relationship between educational attainment and the awareness of leveraging social connections for

instrumental purposes is moderated by gender and one's experience of educational upward mobility.

Contributions

Theoretically, this thesis contributes to linking human agency and instrumental rationality to the persistence and transformation of structural inequalities; it also sheds light on education's potential and limitations as an equalizer. Practically, it offers policy insights for addressing gender income disparities and promoting intergenerational mobilities.

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CHAPTER 1: INTRODUCTION AND OUTLINE OF THE STUDIES

Abstract

The introductory chapter comprises four main sections. The first section outlines the motivations behind this thesis, namely, the exploration of education's potential and limitations in mitigating gender inequalities and intergenerational stratification. The second section provides an overview of the key theoretical concepts underpinning this exploration, including human agency, structure, and instrumental rationality, and formulates theoretical propositions. The third section offers a summary of the three empirical chapters, demonstrating how these theoretical concepts and propositions are applied to the empirical studies. Finally, this chapter concludes by presenting the contemporary context of China and justifying the selection of this context.

1.1 MOTIVATION: EDUCATION, GENDER INEQUALITIES, AND INTERGENERATIONAL STRATIFICATION

The examination of inequalities and stratification lies at the core of sociology's intellectual history. Within this broad field, gender inequalities and intergenerational stratification are two pivotal areas of concern. A substantial body of literature suggests that education holds significant potential for shaping and mitigating gender inequalities while enhancing intergenerational mobility.

In the context of gender inequalities, as education and human capital increasingly shape modern societies, the narrowing of educational attainment gaps between women and men is expected to reduce gender income disparities. Indeed, a promising trend is evident in many Global North and Global South countries, where women, on average, attain higher levels of education than men (see, e.g., Becker, 2012; Becker et al., 2010a, 2010b; Buchmann & DiPrete, 2006; DiPrete & Buchmann, 2013; Goldin et al., 2006; Quadlin, 2018; Rosin, 2012).

Regarding intergenerational mobility, education's role has been a central focus of social stratification literature for decades (e.g., Alon, 2009; P. M. Blau & Duncan, 1967; Lareau & Weininger, 2003; Sewell et al., 1969, 1970; Sewell & Hauser, 1975). A prevailing argument in this literature posits that once individuals attain a certain level of education, it can attenuate the influence of their family background on their personal achievements (Goldthorpe, 2014; Hout, 1984; Torche, 2011).

However, despite education's promising role as an equalizer, the full picture remains complex. In this thesis, I aim to present a more comprehensive view in two

ways. First, I demonstrate the pivotal role of human agency in determining the extent to which education can function as an equalizer. This is rooted in the idea that educational attainment, as a form of human capital, can evolve in diverse ways. It can increase, remain stable, or change in quantity, and it can be forgone, transferred, or transformed in terms of its form of evolution. Crucially, human agency plays a decisive role in determining the direction of this evolution.

The importance of human agency in addressing inequalities and stratification, as well as in shaping the evolution of human capital, stems from certain assumptions about human behavior. Taking gender inequalities as an example, when highly educated women decide to forego their labor income in favor of caregiving responsibilities, the extent to which they make economically rational choices and conform to societal norms will determine whether their human capital is forgone or transferred to other family members. Similarly, these assumptions about human behavior dictate the extent to which individuals consciously and strategically exploit the structural opportunities provided by education and build social connections at educational institutions, utilizing these connections to enhance their circumstances.

Second, I explore different forms of evolution and consequently uncover previously overlooked mechanisms that underlie education's potential and limitations as an equalizer. Specifically, I focus on two forms of evolution: the transfer of human capital between family members and the transformation of human capital into social capital.

As these motivations suggest, my thesis primarily addresses theoretically driven

questions rather than specific questions pertaining to any particular society or country. Although I have chosen modern China as the empirical context, this choice serves the purpose of using China as a case study to derive implications that extend beyond the boundaries of a single society. Indeed, some caution and additional considerations may be needed for interpreting the results within the constraints of Chinese society, especially regarding the agency within the structures of this society. For this purpose, I will present a detailed description of the relevant societal norms and institutions in modern China at the end of this chapter.

The overall structure of this thesis is as follows: In the first chapter, I will (a) clarify the concept of human agency, (b) theorize and conceptualize the relationships between agency and rationality, and (c) formulate theoretical propositions. I will then provide an overview of the three empirical chapters, illustrating how I apply the clarified concepts and theoretical propositions to these empirical studies. Finally, I will conclude the first chapter by describing the context of modern China and justifying my selection of this context.

Chapters 2 to 4 comprise the empirical sections, each addressing distinct and specific research questions. These chapters are structured in accordance with peer-reviewed journal articles, featuring typical elements such as abstracts, introductions, theoretical frameworks, methods, and discussions. As independent studies that are unified by a common theme and share datasets, some minor overlap between these empirical chapters and/or between the empirical chapters and the introduction chapter is inevitable.

In the final chapter, I will summarize the main findings from the empirical chapters and emphasize the collective implications arising from this thesis.

1.2 THEORETICAL ASSUMPTIONS AND PROPOSITIONS: HUMAN AGENCY, STRUCTURE, AND RATIONALITY

The concept of human agency, central to the intellectual history of social science and sociology, often perplexes researchers for several reasons. Firstly, it has been explored by numerous theorists, each offering subtly or significantly different perspectives. Consequently, students and researchers may either (a) adopt the first perspective they encounter, leading to divergent viewpoints based on their initial exposure, or (b) grapple with a dilemma when faced with a multitude of compelling yet distinct perspectives. Additionally, the term "agency" encompasses various issues, further contributing to the complexity of the concept.

This section serves two primary purposes. Firstly, it provides a theoretical overview of human agency, explicitly distinguishing between a structurally informed concept and a psychologically informed one. The structurally informed concept defines human agency in relation to social structures, while the psychologically informed concept regards agency as a set of personal traits possessed by individual actors. Secondly, it explores the interplay between these two types of agency, incorporating the closely related concept of rationality.[1]

[1] I have not incorporated the concept of “norms” when discussing agency, intentionally avoiding complicating the theorization. However, a summary of my position is as follows: Social norms affect individual behaviors in two ways: serving as pressure and setting values (Elster, 1989). The former influences behaviors via a reward-and-punishment mechanism

As a thesis primarily exploring individual decisions regarding the division of labor and individual cognition of social connections, it inherently places more emphasis on human agency than on structure. However, discussing human agency without considering structure is challenging, if not impossible. Therefore, a brief overview of structure precedes a detailed examination of each type of human agency.

What is structure? Despite subtle differences in terminology, scholars commonly view structure as consisting of two dimensions: virtual and actual. Giddens defines them as rules and resources (Giddens, 1984), while Sewell conceptualizes them as schemas and resources (Sewell, 1992). In turn, structure influences individual actors through both virtual cultural beliefs and actual resource distribution.

For the former, rules and schemas provide actors with knowledge, termed as "structured knowledge." This knowledge often leads individual actors to act in ways that reproduce the structure, though the extent of this contention varies among scholars. Bourdieu suggests that schemas are so powerful that actors internalize them as practices and end up reproducing the structure (Bourdieu, 1977a, 1984, 1990). Giddens argues

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whereas the latter influences behaviors via an internalization mechanism. The former entails a higher degree of instrumental rationality and a lower degree of embeddedness, whereas the latter is close to habitual actions and practices.

To elaborate, when analyzing habitus, Emirbayer and Mische (1998, p. 978) describe habitus as “inarticulate, naturalized, and taken for granted”. Similarly, Sewell (1992, p. 22) asserts that “deep structural schemas are also pervasive…they are taken-for-granted mental assumptions or modes of procedure that actors normally apply without being aware that they are applying them.” An essential nature of internalized social norms is that people feel natural and taken-for-granted to do something (Elster, 1989).

When social norms affect behaviors through the mechanism of social pressure, many seemingly irrational actions caused by social pressure are a tradeoff between economic/financial benefits and sociopsychological benefits for individuals and between economic/financial benefits and social benefits for organizations. As a result, we can analyze the former from the perspective of a special case of rational choice and the latter from the traditional perspective of structured knowledge or cultural beliefs.

that actors are "knowledgeable", but their actions are guided by structured knowledge (Giddens, 1976, 1979, 1981, 1984). Sewell (1992) claims that "knowledgeable actors" not only possess structured knowledge but also the capacity to act with or against existing structured knowledge. The dual-process model of culture, proposed by Haidt (2001, 2006) and Vaisey (2009), implies that actors are primarily driven by deeply internalized schematic processes ("the elephant"/practical consciousness/habitus) yet are also capable of deliberation and justification ("the rider"/discursive consciousness) when required by the demands of social interaction (Vaisey, 2009, p. 1687). Granovetter (1985) differentiates the extent to which actors are influenced by structured knowledge, acknowledging that oversocialized individuals can be overwhelmingly influenced by social relationships in structures, internalize the opinions, norms, and values in these relationships and structures, and feel natural and taken-for-granted to obey the opinions, norms, and values.

For the latter, the influence of resource distribution on actors' behaviors operates by rewarding or penalizing actors based on whether they align with or resist the structure. This can be illustrated by the example of new institutionalism (e.g., DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Tolbert & Zucker, 1983; Zucker, 1977, 1987). A central argument by neoinstitutionalists is that organizations, due to normative obligations derived from public opinions and society broadly, take actions that are not necessarily economically rational to show compliance with public opinions and to become culturally legitimate. An involved trade-off is between effectiveness and legitimacy: an effective organizational structure enhances productivity, whereas a

formal structure consistent with external expectations is beneficial in accessing support and resources from various stakeholders in society (Meyer & Rowan, 1977). The same applies to the increasingly prevalent corporate social responsibilities (CSR): CSR usually does not bring direct financial benefits, but firms benefit from CSR because of social approval in a broad sense (e.g., Ioannou & Serafeim, 2015).

Finally, this section concludes with the "two outcomes" of structure. In analyzing structure, two outcomes are considered: structural reproduction and transformation. As discussed above, structure tends to be reproduced due to the substantial influences of both structured knowledge and resource distribution on individual actors. Bourdieu sees the chance of structural transformation as negligible (see discussions in, e.g., Elder-Vass, 2007; Hitlin & Johnson, 2015; Vaisey, 2009); Giddens's structure depends on unintended consequences of individual agents' actions for transformation (e.g., Emirbayer & Mische, 1998; Vaisey, 2009); Sewell's structure allows transformation when “enough people or even a few people who are powerful enough act in innovative ways” (Sewell, 1992, p. 4); Archer (1998) suggests that inconsistency between the emergent properties of structures and the actual experiences of agents may promote structural transformation.

1.2.1 Structurally Informed Agency

It is a consensus that there is no consensus about the concept of agency (e.g., Emirbayer & Mische, 1998; Fuchs, 2001; Hitlin & Elder, 2007). However, it will not be surprising if a random reader who has no expertise in human agency perceives some association

between human agency and terms such as “selfhood, motivation, will, purposiveness, intentionality, choice, initiative, freedom, and creativity” (Emirbayer & Mische, 1998, p. 962). In this section, I focus on agency in relation to social structure and will cover agency concerning personal characteristics in Section 1.2.2.

The predominant discourse in the agency literature revolves around agency concerning social structure. I'll begin by referencing two influential papers that significantly contribute to this discussion: Sewell (1992) and Emirbayer and Mische (1998). Emirbayer and Mische (1998, p. 970) define human agency as "the temporally constructed engagement by actors of different structural environments—the temporal-relational contexts of action—which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures in interactive response to the problems posed by changing historical situations." In simpler terms, this definition implies that human agency involves actions with dual outcomes: reproducing and transforming structures.

To comprehend Sewell's (1992) perspective on agency, one must first grasp his definition of structure, which he modifies from Giddens (1984). For Sewell, a structure comprises schemas (virtual) and resources (actual). He defines agency as "the actor's capacity to reinterpret and mobilize an array of resources in terms of cultural schemas other than those that initially constituted the array" (Sewell, 1992, p. 19). He further elaborates that being an agent means having some degree of control over one's social relations, implying the ability to transform these relations to some extent. Sewell's view underscores an agent's capacity and ability to apply knowledge to new contexts,

highlighting the freedom and options that agents possess to act either with or against structures.

A common thread in both Sewell (1992) and Emirbayer and Mische (1998) is that actions taken by agents can lead to both the reproduction and transformation of structures. However, one may wonder why actions resulting in structural reproduction can be considered forms of agency.

This question has two answers: one straightforward and one nuanced. The straightforward answer lies in the fact that agency, as conceptualized by Emirbayer and Mische (1998), encompasses all actions and reactions to structural environments. However, they differentiate between agency and "agentic orientations", which measure the potential for individual actions to transform structures (Emirbayer & Mische, 1998, p. 1004). According to their framework, agency comprises three dimensions: iteration, projectivity, and practical evaluation, each corresponding to past, future, and present orientations, respectively. The extent of agentic orientations varies, with iteration having smaller agentic orientations and being more likely to reproduce structures, while the other two dimensions have larger agentic orientations and are more likely to transform structures.

Sewell's (1992) perspective centers on an agent's capacity as a measure of agentic orientations. It's not the outcome that determines the degree of agency but rather the extent to which actors can produce outcomes different from the initial constitutions. In other words, agency involves the ability to act either in line with or against structures.

The nuanced answer lies in the fact that some perspectives within the field tend to

emphasize agency's association with the reproduction of structures. Pierre Bourdieu, for example, characterizes human agency as habitual, repetitive, and taken for granted (Bourdieu, 1977b, 1984, 1990). Sewell describes Bourdieu's theory as lacking agency, as actions undertaken by agents in this framework invariably reproduce the structure (1992, pp. 14–15). Emirbayer and Mische (1998) also make it explicit that even habitual actions are considered agentic but are largely unreflective and taken for granted.

Another influential theorist, Anthony Giddens, also associates agency with reproduction but allows for occasional structural transformation due to unintended consequences of actions (Sewell, 1992; see more discussions on Giddens's conceptualization and critique by others in Appendix A).

To sum up the relationships between agency, reproduction, and transformation in plain language, Bourdieu's theory lacks agency or alternatively put, Bourdieu's agency is associated with reproduction. Giddens's agency is mostly associated with reproduction but occasionally associated with transformation. In Sewell's treatment, agency differs in extent, knowledge and resources determine the extent, and different extent corresponds to "different possibilities for transformative action" (Sewell, 1992, p. 21). For Emirbayer and Mische (1998), although their agency does not differ in extent, their "agentic orientation" follows the same logic as Sewell's treatment of agency. When discussing the structurally informed agency, my thesis aligns more closely with the perspectives of Sewell (1992) and Emirbayer and Mische (1998), emphasizing the probabilities of taking transformative actions as indicative of agency.

1.2.2 Psychologically Informed Agency

Returning to the list of keywords mentioned earlier, whereas structurally informed agency is closely associated with concepts like "choice, initiative, freedom, and creativity," the discussion that follows is more aligned with the remaining terms, namely "selfhood, motivation, will, purposiveness, intentionality." While the concept of human agency relative to social structure has greatly influenced our comprehension of societal structures and their transformations, laying the groundwork for many qualitative studies (e.g., Frye, 2012; Tomlinson et al., 2013), it is essential to note that the theoretical discourse provides limited guidance on how to measure "agency" at the individual level. As Hitlin and Johnson (2015, p. 1430) contend, "empirical treatments of agency have not caught up with theoretical explication."

Instead of following the theoretical discussion on human agency in the context of social structure within sociology, most empirical investigations into human agency are grounded in a psychological framework (Hitlin & Johnson, 2015). Before the work of Hitlin and Johnson (2015), a psychologically informed model of human agency typically encompassed concepts related to self-efficacy, mastery, and personal control. Hitlin and Johnson (2015, pp. 1436–1437) provide a concise summary of these concepts (but also see Bandura, 1992; Gecas, 2003; Mirowsky & Ross, 2007; Pearlin et al., 1981; Seligman et al., 2013):

> Personal control and mastery apply a similar notion of personal belief in potential causality in one's environment… Mastery refers to the belief that life chances are under one's own control rather than being predetermined or determined by external sources… while personal control refers to a belief that individuals can shape and direct their own lives.

Expanding on these dimensions within psychologically informed models, Hitlin

and Johnson (2015) introduce an additional dimension—life course expectations, which relates to optimism regarding future life prospects. They assert that human agency comprises two primary dimensions: a sense of mastery/efficacy/personal control and life expectations.

This approach to viewing human agency as personal characteristics or traits differs significantly from the structural approach in one crucial aspect—human agency is inherently a variable with a continuous spectrum. The more agency a person possesses, the greater their perceived control over life, positive expectations regarding life chances, optimism in achieving life goals, and so forth. Human agency, in this psychological sense, aligns more closely with Campbell's typology of type 1 agency, which relates to "the power that individuals possess that enables them to realize their chosen goals" (Campbell, 2009, p. 408). In simple terms, human agency, in this psychological context, represents "positive" and "desirable" personal traits, whereas human agency relative to social structure is more of a "neutral" concept when used to denote the ability to transform social structures (arguably, whether social transformation is inherently positive is a subject of axiological debate).

Despite this notable distinction, the psychological approach shares a commonality with the structural perspective. While the psychological treatment is egocentric and does not explicitly reference social structures, it implicitly addresses the duality between human agency and structure. This is evident in the idea that the sense of mastery/efficacy/personal control and life expectations are shaped by individual life experiences and socialization, which, in turn, are influenced by one's position within

social structures (Marshall, 2005; Mirowsky & Ross, 2007). Furthermore, the sense of mastery/efficacy/personal control and life expectations have a significant impact on life outcomes (e.g., wealth, reputation) and determine an individual's position within social structures.

1.2.3 Relationships between the Two Types of Agency

The preceding discussion highlights the distinction between two types of human agency: one is grounded in the interaction between individual actions and social structures, while the other represents inherent traits possessed by individual actors. In clearer terms, one type of human agency is shaped by structures and requires an assessment based on the relationship between actions and structures, while the other type exists prior to actions and essentially dictates how actions will unfold.

However, how do these two types of human agency intersect? I propose that their relationship is contingent upon the context. In some scenarios, psychologically informed agency may reinforce existing structures, indicating a low level of structurally informed agency. In contrast, in other situations, psychologically informed agency may contribute to structural transformation, indicating a high level of structurally informed agency. To formally theorize these relationships, I will introduce another crucial concept, instrumental rationality, into the discussion.

What insights can rational choice theory and its core concept, instrumental rationality, provide about human agency? [2] Regarding psychologically informed

[2] For readers interested in broader discussions on rational choice theory, see Appendix B.

agency, the connection with instrumental rationality is evident from its conceptualization. Human agency and instrumental rationality are strongly positively correlated within this framework. Agentic individuals, when pursuing a goal, possess a clear understanding of their circumstances. This enhances their ability to calculate the expected probabilities of various options accurately. They also exhibit a stronger belief that their actions can lead to the desired goal. Furthermore, they have the capacity to adapt their means and objectives when the original plan proves ineffective (Hitlin & Johnson, 2015). This alignment is exemplified by studies by Hitlin and Johnson (2015), demonstrating that individuals with high psychologically informed agency during youth are more likely to achieve positive life outcomes in adulthood. Experimental studies further support this correlation, as individuals possessing personal traits associated with psychologically informed agency tend to display persistence in defending their confident, optimistic, and competent self-image when faced with threats and risks; this, in turn, motivates them to explore unconventional and innovative strategies and solutions (e.g., Anderson & Galinsky, 2006; Briñol et al., 2007; E. B. Smith et al., 2012).

However, it is essential to recognize that human agency encompasses a broader spectrum than instrumental rationality for several significant reasons. First, instrumental rationality solely pertains to the effectiveness of achieving a given goal, whereas human agency extends to the selection of goals themselves. Being agentic implies harboring more optimistic life goals (Hitlin & Johnson, 2015). Second, the sense of efficacy, mastery, and life control embodies beliefs that taking actions can lead

to desired outcomes and that these outcomes are determined by the self rather than external forces. These beliefs serve as the foundation and prerequisite for considering effective means of achieving goals. Third, instrumental rationality is primarily a static concept, focusing on the probabilities of various options. However, in dynamic, complex, and uncertain environments, effective decision-making necessitates not only precise calculation but also the ability to adapt strategies in response to evolving circumstances (Tan, 2020). As asserted by Hitlin and Johnson (2015), being agentic implies the capacity to receive feedback and adapt flexibly.

In contrast to the psychologically informed agency, the relationship between structurally informed agency and instrumental rationality is more nuanced. As discussed previously, structurally informed agency is contingent upon the impact of actions on social structures. The effect of rational choices or instrumental rationality on structures, whether they reproduce or transform, cannot be predicted without specifying the context. Therefore, I posit that the relationship between them depends on whether personal goals align with existing structures.

To elaborate, a person with high instrumental rationality is often associated with a higher likelihood of taking transformative actions when existing structures pose barriers to achieving personal goals. Conversely, if personal goals align with existing structures or are culturally determined, employing effective methods to pursue these goals may inadvertently reproduce those structures. Consequently, when applying the logic of rational choice and instrumental rationality in a culturally informed context, it is likely that instrumental rationality will reinforce cultural beliefs. Over time, these beliefs may

become self-reinforcing and self-fulfilling.

An exemplary illustration offered by Campbell (2009) involves Max Weber's analysis in "The Protestant Ethic and the Spirit of Capitalism." Campbell (2009, p. 412) cites Weber's (1965, pp. 68–69) observation that modern capitalist forms of enterprise require individuals with a "clarity of vision and ability to act" and “the strength to overcome the innumerable obstacles” and individuals who “had grown up in the hard school of life, calculating and daring at the same time, above all temperate and reliable, shrewd and completely devoted to their business”. These individuals, possessing traits associated with psychologically informed agency, are capable of breaking tradition and demonstrating transformative action by challenging existing social structures. Hence, they are the agents in the structurally informed concept.

However, in scenarios where social structures facilitate the achievement of personal goals, individuals are more likely to uphold and stabilize those structures. Emirbayer and Mische's (1998, pp. 1008–1009) "paradoxical observation" exemplifies this, describing actors in established occupational careers who, while exercising high personal agency in their professional lives (indicated by being highly future-oriented in formulating goals and objectives, being well-equipped with flexible communicative skills, and being able to creatively solve emergent problems in workplace), inadvertently contribute to the reproduction of larger temporal and relational patterns of action. Applying the psychologically informed agency, we know that the “paradoxical observation” in fact describes a process whereby actors with high psychologically informed agency are instrumental in achieving their personal goals

while resulting in reproducing structures.

Tomlinson et al. (2013) provide a more concrete example in the UK law industry for this scenario. The study reveals that gender and ethnic inequalities persist because entrants from these groups tend to assimilate into the culture established by the majority, reproducing existing structures. Specifically, when gender and ethnic minorities succeed in reaching powerful positions, they have internalized the culture and thus are unlikely to reform the structure; those who are not assimilated into the culture are unable to reach powerful positions and thus unable to take transformative actions.

Importantly, Tomlinson et al. (2013, p. 265) consider that the participants of their study, lawyers, are a group of "highly skilled, knowledgeable agents". The description is not incorrect, but to be more precise, these lawyers are a group of psychologically informed agents, based on the distinction made in this study. As Tomlinson et al. (2013) put it explicitly throughout their study, the goal of these lawyers is career progression. Towards this goal, the gender and ethnic minorities are highly instrumentally rational: They made great efforts to get themselves assimilated into the culture of the majorities. Therefore, this is an illustration of psychologically informed agency reproducing structures.

Considering these scenarios together, the relationship between psychologically informed human agency and structurally informed human agency hinges on the alignment between personal goals and structures. When personal goals align with structures, psychologically informed human agency tends to reproduce structures. Conversely, when personal goals conflict with structures, psychologically informed

human agency tends to facilitate structural transformation.

Proposition 1: The relationship between psychologically informed human agency and structurally informed human agency is contingent on the consistency between personal goals and structures. When personal goals are enabled by structures, psychologically informed human agency tends to reproduce structures, whereas when personal goals are impeded by structures, psychologically informed human agency tends to transform structures.

This proposition is substantiated by two supporting arguments:

Proposition 1a: Psychologically informed human agency is positively associated with individual instrumental rationality.

Proposition 1b: Instrumental rationality is positively associated with the probability of achieving personal goals, regardless of whether the personal goals are enabled or impeded by structures.

This section establishes the relationships between the two types of agency by integrating the concept of rationality. In the subsequent section, I will summarize the content of each empirical chapter and elucidate how the distinction between the two types of agency, along with Proposition 1, forms the theoretical and philosophical foundation for each chapter, offering novel insights into studies on gender inequalities and social capital.

1.3 OVERVIEW OF THREE EMPIRICAL CHAPTERS

In this section, I will provide an overview of each of the three empirical chapters and elucidate how the theoretical concepts and propositions are applied to address specific research questions.

1.3.1 Mutual Confirmation of Social Norms and Economic Benefits

Summary. In the first empirical chapter, I investigate gender inequalities and the evolution of human capital through the lens of human capital transfer between spouses. Specifically, I aim to answer the following questions: Why do highly educated women choose to forgo their labor income to care for the family, and do social norms, economic factors, or a combination of both contribute to this phenomenon? In particular, I reveal a pattern that gender ideology and economic gains mutually confirm each other and jointly shape gender inequalities in three steps: First, traditional gender ideology leads to married women's underutilization of education-related human capital; second, the underutilization enhances household income through the mediator of the husband's personal income; third, when women's individual choices that comply with traditional gender ideology are accompanied by greater economic benefits, the traditional gender ideology will be strengthened. Empirically, I focus on modern China—a society that has seen increased acceptance of traditional gender ideology—and use data from the China Family Panel Studies (CFPS). Academic and policy implications are discussed regarding gender ideologies revolution, gender inequalities, and the division of labor.

Theoretical foundations. In this empirical chapter, while recognizing the impact of embeddedness in structured cultural beliefs, my emphasis is on the alternative perspective, i.e., how psychologically informed agency perpetuates existing structures. This study extends prior research on gender inequalities, which primarily relies on structurally informed agency. To elaborate, the gender system theory, as articulated by Ridgeway and colleagues (Ridgeway & Correll, 2004; Ridgeway & Smith-Lovin, 1999), is a specific application of the principles of structurally informed agency. For instance, as stated in Ridgeway and Correll (2004, p. 524):

> While much feminist scholarship has focused on discriminatory demand-side processes, there has been less exploration of supply-side processes because they might appear to assign blame to the victims by suggesting that gender inequality stems from women's "voluntary" choices. Instead, feminists have argued that despite being agentic, women's (and men's) voluntary choices are socially constructed by the gender system and should be analyzed as such.

This perspective suggests that men and women are embedded in the structure (gender beliefs), and this embeddedness leads to "voluntary choices." Thus, embeddedness in structured cultural beliefs and the consequent lack of structurally informed agency are the primary obstacles to reducing gender inequalities.

Building upon this, I apply Proposition 1 and demonstrate that structured cultural beliefs and instrumental rationality jointly stabilize and maintain a system of gender inequalities. Specifically, the structure to focus on is the social norm of gender roles, i.e., male-breadwinning and female-homemaking gender ideology, while the personal goal to focus on is maximizing family income through this type of division of labor. If these norms align with economic rationality, it implies that the personal goal is enabled

by the existing structures. When social norms related to gender roles and economic rationality mutually reinforce each other, individuals with high instrumental rationality are more likely to act in ways that reinforce these gender norms, thereby perpetuating existing structures. This results in a stable gender system marked by inequalities. In essence, the confirmation between structured cultural beliefs and instrumental rationality is identified as the barrier to reducing gender inequalities.

As the identified barrier varies, so do the implied solutions. If we draw from the structurally informed agency and the transformation strategies suggested by Sewell (1992), the implied solution to gender inequalities would involve either many disadvantaged individuals or a few influential figures acting differently from what the existing gender system dictates. However, in this chapter, I propose solutions to gender inequalities based on harnessing the psychologically informed agency and raising awareness of economic irrationality where it exists. Once the social norms of gender roles and economic rationality are decoupled, individuals who are highly instrumental in their decision-making will alter their ideologies and behaviors.

However, in cases where social norms of gender roles and economic rationality are closely linked, as evidenced in this empirical chapter, I suggest that changing external environments is crucial for shifting people's acceptance of these gender norms. This is because new environments inherently imply the inadequacy, inefficiency, and irrationality of old methods. In these new environments, personal goals are impeded by the prevailing structures, prompting individuals driven by instrumental rationality to revise their ideologies and behaviors. For example, in a labor market characterized by

high gender equality, it becomes irrational for married women to underutilize their human capital and forego labor income for family care, especially when the goal is to maximize family income. Consequently, their acceptance of gender role norms declines, leading to corresponding changes in their behaviors.

1.3.2 Mother's Underutilized Human Capital and Children's Education

Summary. Complementary to the first empirical chapter where human capital transfer between spouses is the focus, I draw from the perspective of human capital transfer from mothers to children and study gender inequalities and intergenerational stratification. While motherhood is often implicated in social research as a driver of gender income disparity, economic literature posits that the income loss and specialization that often follow motherhood can be viewed as investments in children's human capital. This study tests the economic proposition that women's "underutilization" of human capital in education can yield benefits for children's educational outcomes. To measure this underutilization, I consider parental relative education and income and employ data from the China Family Panel Studies (CFPS). The findings reveal that not only does the underutilization of human capital by married women fail to transfer to their children's education, but children also bear the brunt of underutilization. Furthermore, I discover that (a) relative parental education and income differently influence children's educational outcomes after controlling for the total quantity of parental education and income, and (b) the influences exerted by mothers on their children's educational outcomes differ from those of fathers. Results are

discussed in terms of theoretical and policy implications for gender inequalities and intergenerational stratification.

Theoretical foundations. Since this empirical chapter is complementary to the first empirical chapter, they share many theoretical foundations. There are, however, two key differences. The first regards a difference in the goal to pursue. While the first empirical chapter focuses on the goal of maximizing family income, this chapter investigates the goal of cultivating children's human capital.

The second key distinction relates to the barrier to reducing gender inequalities. In the first empirical chapter, it is asserted that the confirmation between cultural beliefs and instrumental rationality serves as the barrier. However, in the second empirical chapter, the barrier lies in the lack of awareness regarding instrumental irrationality. Specifically, I demonstrate that if the objective is to enhance children's educational achievement, the norms surrounding gender roles, the idea of intensive mothering, and the notion of sacrificing a mother's career for the sake of children's education are all instrumentally irrational. The corresponding solution to address gender inequalities is much more straightforward in this context: raising awareness among individuals regarding the inherent instrumental irrationality involved.

1.3.3 Human Capital in the Creation of Social Capital

Summary. The first two empirical chapters focus on the specific evolution of human capital, namely transfer. When human capital is transferred from married women to

husbands and children, education can serve as an equalizer for gender inequalities in a broad sense, because women's educational advantages are subtly maintained as they are passed on to their family members. Conversely, when there is no transfer, these educational advantages are forgone. The final empirical chapter delves into the other form of evolution: human capital transformation. Here, I do not imply that human capital disappears as social capital is created; rather, social capital is generated by capitalizing on human capital. In this sense, the magnitude of equalizing potential through education might be underestimated if we do not consider the creation of social capital.

By amalgamating a structural perspective and an individual agentic perspective, this study introduces a novel model of social capital, which holds particular relevance for understanding stratification and inequalities. The model defines an individual's social capital as comprising both structural and individual agentic components. It further dissects these components by attributing (a) access to alters and (b) the ability of alters to the structural component, and attributes (c) awareness of using and (d) the willingness to use social connections to the individual agentic component. As a practical application of this model, the study examines how individual educational attainment impacts both components of social capital in the context of modern China. Using data from the China Family Panel Studies (CFPS) and the Chinese General Social Survey (CGSS), the analysis demonstrates that education enhances the agentic component of social capital, with gender and upward mobility moderating the effects. These results yield essential theoretical insights into the micro-foundations of social

capital, offer implications for inequalities and stratification, and provide an agenda for future research.

Theoretical foundations. A precise conceptualization of human agency and a clear distinction between the two types of human agency underpin this chapter's theoretical framework. From a theoretical standpoint, this study has a dual purpose.

First, it aims to synthesize the structural perspective and the individual agentic perspective to introduce a novel social capital model with particular relevance to stratification and inequalities. In the context of the "individual agentic perspective," the agency primarily falls under the category of structurally informed agency. As neatly expressed by E. B. Smith et al. (2020, p. 161), "The origin of social capital rests not only in the social structures surrounding us but also in our minds." In this context, agency in the agentic perspective primarily refers to the ability of individual actors to act independently of the network structure, aligning more with the concept of structurally informed agency. A clear distinction between the two types of human agency is the prerequisite for correctly synthesizing the two perspectives to create a novel model of social capital.

Furthermore, because the micro-foundation of the agentic approach is relatively under-conceptualized, the second theoretical goal of this study is to enhance this micro-foundation. It does so by dividing the individual agentic component into two distinct elements: awareness of using and willingness to use social connections for instrumental purposes. As elaborated in the third empirical chapter, this study utilizes the concept of

psychologically informed agency as a mechanism to explain how education may influence the awareness of using social connections for instrumental purposes.

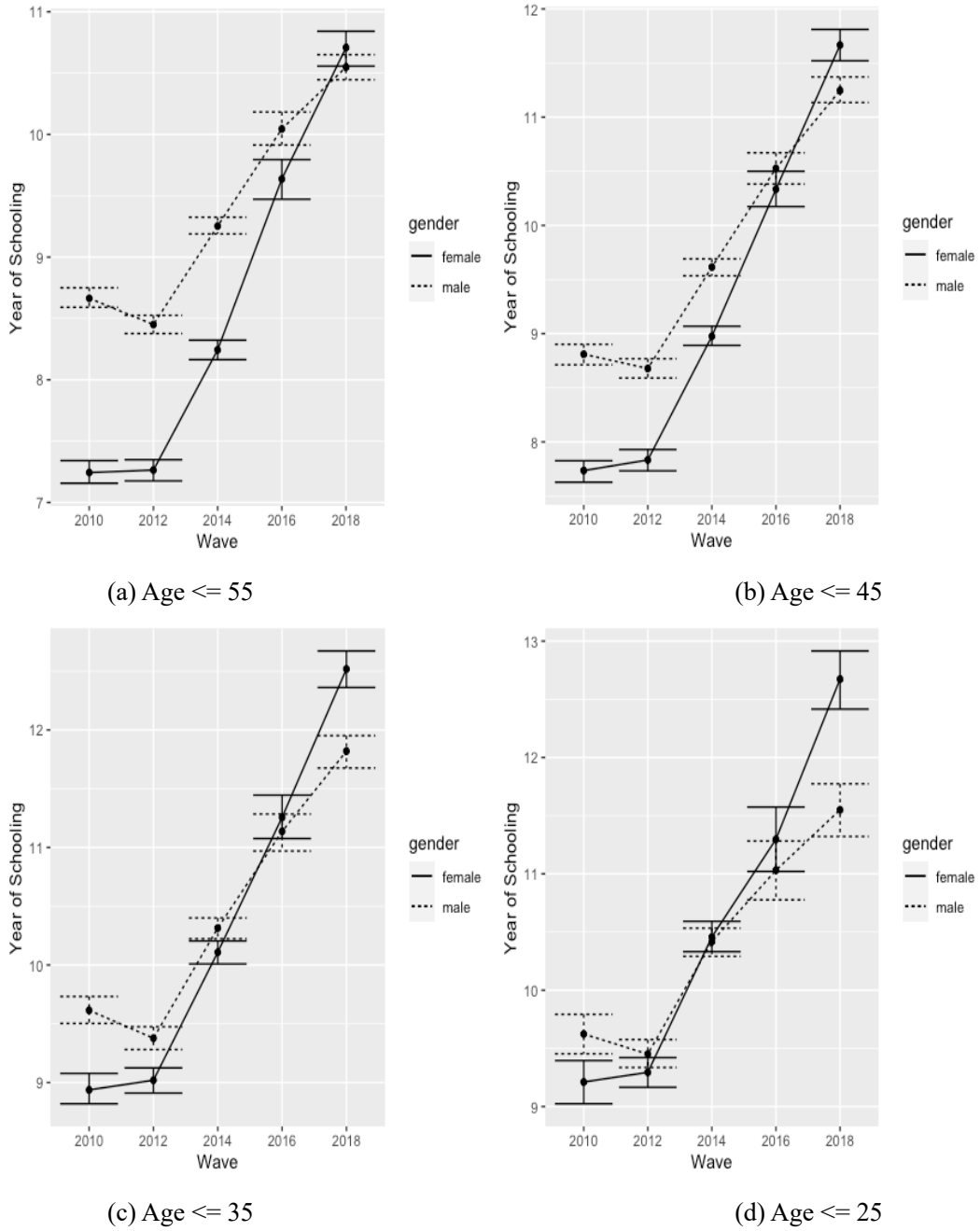
In summary, this empirical chapter's theoretical foundations rest upon a precise conceptualization of human agency, and a clear distinction between the two types of human agency is pivotal to avoid confusion.

1.4 THE CONTEXT OF MODERN CHINA

The studies in this thesis are theoretically driven and employ China as a case study, aiming to provide broad implications beyond a single society. China is considered an appropriate context because of several outstanding features, which I will elaborate on subsequently.

1.4.1 Women's Advantages in Educational Attainment and Disadvantages in the Post-education Periods

I chose modern China as the context to study gender inequalities and the evolution of human capital partly because modern China is characterized by important assumed patterns: Women can have advantages in educational attainment but are in disadvantageous positions in the post-education periods.



(a) Age <= 55

(b) Age <= 45

(c) Age <= 35

(d) Age <= 25

Figure 1-1. Educational Attainment by Gender, Age, and Wave

Note: Figures are calculated by the author aggregating data across survey waves of CFPS. Spiked lines represent 95% confidence interval based on bootstrap.

While women's education has been historically devalued in China relative to men's (Lee, 2015; Rawski, 1979; X. Zhou et al., 1998), as in most Global North countries and many Global South countries, women appear to have advantages in educational

attainment over men in modern China (see, e.g., Becker, 2012; Ji et al., 2017; Kan & He, 2018; W.-J. J. Yeung, 2013; J. Yu & Xie, 2011; J. Zhang et al., 2008; Y. Zhang et al., 2008; Y. Zhang & Hannum, 2015). Indeed, Figure 1-1 clearly presents that (a) the average educational attainment has rapidly grown, which is mainly due to China's two educational reforms—the Compulsory Education Law in 1986 and the University Enrollment Expansion in 1999 (C. Wu & Shi, 2020) and (b) although women are still disadvantaged in older generations, in younger generations, women are catching up with and have even begun to surpass men in educational attainment. Hence, one can confidently predict that women's educational attainment will generally be higher than men's attainment in the near future.

However, can we optimistically believe that the advantages of educational attainment will serve as an equalizer of gender income disparities? The answer is probably no, for two main reasons. First, at the macro level, the past half-century witnessed a regression of gender equality in the labor market. Gender parity in the labor market was high in the socialist era, with Chinese women's employment rate among the highest levels and the gender earnings gap among the lowest levels worldwide (Attané, 2012; Stockman, 1994; Whyte & Parish, 1984; Wolf, 1985). However, since the economic reform in the 1980s, a productivity-driven market without sufficient women-friendly policies has resulted in women's labor participation continuously declining and the gender earnings gap continuously growing (M. Chen, 2018; Ji et al., 2017; Kan & He, 2018). For instance, the urban employment rate dropped from as high as 90% in the socialist era to just above 60 % (Kan & He, 2018; OECD, 2015; Y. Wu

& Zhou, 2015). Moreover, the gender earnings ratio in urban areas dropped from above 85% in the 1980s to below 70% at the end of the 2000s (Appleton et al., 2005; Chi & Li, 2014; D. Davis & Wang, 2009; Gustafsson & Li, 2000; Ji et al., 2017; Y. Zhang et al., 2008).

Second, at the micro level, prior research posits that instead of progressing toward a more egalitarian gender ideology, Chinese society is continuously or even increasingly patriarchal and characterized by traditional gender ideology. A representative manifestation, particularly on the male side, is the "leftover women" (sheng nu) phenomenon: Women aged over 27 who are unmarried are derogatorily referred to as leftover women (Fincher, 2014). On the female side, many women explicitly express a preference for and comfortability with the traditional labor division in the post-reform period (e.g., M. Chen, 2018; Ji et al., 2017; Kim et al., 2010; J. Yu & Xie, 2015; Zuo, 2003; Zuo & Bian, 2001). This may relate to their wish to avoid financial pressure since married men today shoulder heavy financial burdens, from marriage expenses to subsequent costs such as decades-long housing mortgages (see more in Jin et al., 2013; May, 2010; Wei & Zhang, 2011; J. Yu & Xie, 2015).

Overall, the advantages in educational attainment and disadvantages in the post-education periods together provide an ideal background to explore and investigate education's potential and limitations as an equalizer.

1.4.2 Universal Marriage and Childbirth

Another reason why modern China is a suitable context for examining gender

inequalities, intergenerational stratification, and the evolution of human capital is the universal marriage and childbirth, which substantially reduce the room for women to exert agency to reduce economic penalties in this society. Universal marriage and childbirth imply that when women seek to compete with men in the labor market, they face greater family-related burdens than in alternative situations. Under these circumstances, it is worth investigating whether women's education-related human capital can be maintained in a more subtle manner, such as through the transfer of resources between family members.

Marriage in modern China is nearly ubiquitous. For recent cohorts, almost all Chinese women above the age of 30 are married, while 95% of men above the age of 33 are married; these percentages are notably high even compared to other Asian countries (W.-J. J. Yeung & Hu, 2016; also see Davin, 2007; Jin et al., 2013; Raymo et al., 2015).

The primary reason for universal marriage is linked to social norms, which are either internalized or serve as social pressures. For many Chinese people, marriage symbolizes not only social status and acceptance but also the fulfillment of family obligations, including extending the family line (Hesketh, 2009; Jin et al., 2013; X. Wu et al., 2014; W.-J. J. Yeung & Hu, 2016). To illustrate, more than one-third of people agree that being in the worst marriage is better than being single (W.-J. J. Yeung & Hu, 2016). Additionally, the recent marriage squeeze, caused by gender imbalance (i.e., a shortage of marriageable women), has left many men and their parents feeling desperate due to their deep adherence to the norm that "everyone should get married." With such

a norm in place, bachelors face severe social exclusion (Jin et al., 2013). The social pressure on women is even more intense, as demonstrated by the "leftover women" phenomenon mentioned earlier. Highly educated single women often complain that their career achievements are not celebrated by society solely because of their single status, and marital status seems to be the only standard for judging the success of women (Ji, 2015).

Table 1-1. Functions of Childrearing in Old-age Support and Extending Family Line

Degree of agreement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Total
Raising children is to get old-life security	1.0%	14.1%	2.1%	72.9%	9.8%	100%
Raising children is to carry on lineage	1.0%	23.5%	2.7%	65.4%	7.4%	100%

Degree of importance	1: Not at all	2	3	4	5: Highly important	Total
Having children to carry on the family name	5.0%	4.4%	20.0%	22.5%	48.1%	100%

Note: Figures are calculated by the author aggregating data across survey waves of CFPS.

Similarly, childbirth is also nearly universal in China (X. Wu et al., 2014). For instance, a study shows that less than 5% of Chinese people do not want to have children (W.-J. J. Yeung & Hu, 2016). This is partially due to the patrilineal tradition, which emphasizes childbirth as a means of extending the family line. Another reason is the expectation of old-age support. As the state shows no intention of heavily investing in building a social safety net in the post-reform era, most Chinese parents still rely on their children for old-age support (Fong, 2004; Whyte, 2003; W.-J. J. Yeung & Hu,

2016). The data from the CFPS, which I have employed in this thesis, strongly support the consensus among respondents regarding the functions of childbirth in old-age support and extending the family line: More than 80% of respondents agree or strongly agree with the importance of childrearing in securing their old-age, and more than 70% of respondents agree or strongly agree with the importance of childrearing in carrying on the family lineage (see Table 1-1). In addition, in a survey item regarding the most important thing in life, most respondents (about 40%) select "children being successful."

In summary, social norms in China make marriage and childbirth largely obligatory and essential. Getting married and starting a family is seen as a way for individuals to reduce social costs by avoiding negative judgments and obtain social gains by increasing their social acceptance and fulfilling family duties. The influence of social norms is further magnified by the practical need for old-age support.

Given that family status is widely believed to place burdens on women's participation in the job market, contributing to gender inequalities, a rational and instrumental solution might seem to be avoiding marriage and childbirth. However, in China, both social pressure and practical necessity impose external constraints, leaving limited room for women to exercise psychologically informed agency and become structurally informed agents. In this context, as some scholars argue, the institution of marriage in China is increasingly aligning with the rationality underlying Becker's specialization model (e.g., J. Yu & Xie, 2015). Therefore, it becomes particularly important to investigate the evolution of married women's human capital from the

perspective of human capital transfer between spouses, as explored in the first empirical chapter.

At the same time, the practical need for children's old-age support underscores an investment function, suggesting that a child's achievements in adulthood can be likened to rates of investment return. Consequently, when remaining childless is less feasible, effectively nurturing children's human capital appears to be one of the few rational options available for women to maintain their educational advantages. In this context, the economic notion that a mother's sacrifice of market earnings is an investment in her children's human capital holds more validity in China than in many other contexts. Thus, it becomes especially crucial to empirically investigate whether this holds true and intriguing to examine the evolution of married women's human capital from the perspective of human capital transfer between mothers and children, as explored in the second empirical chapter.

Finally, although not empirically examined in this thesis, the intergenerational support derived from the Confucian ideology also has implications for married women's agency in this post-Confucian society (Kan & Zhou, 2022; Raymo et al., 2015). Indeed, apart from the mentioned expectation for old-age support, it is also common for elderly parents to provide downward assistance in housework and childcare to adult children and children-in-law, which helps relieve the domestic burden of the female side of adult couples (Kan & Zhou, 2022; M. Zhou et al., 2022). In this sense, it seems that intergenerational ties increase the room for married women to exert their agency in career advancement. However, such downward assistance is not

available to all married women, such as those in nuclear families. Moreover, such downward assistance is often exchanged with upward caring support when the elderly parents become too old to take care of themselves, which imposes another domestic burden on the female side of adult couples (Gruijters, 2015; Gruijters & Ermisch, 2019; Kan & Zhou, 2022; M. Zhou et al., 2022). Taken together, although downward assistance in housework and childcare can to some extent relieve the work-family conflicts for married women living in multigenerational families, the resultant agency created for women is modest because of the underdeveloped social support system of eldercare and childcare.

1.4.3 Profound Influence of Social Capital

While the first two empirical chapters explore human capital transfer between family members., the final empirical chapter delves into the interplay between human capital and social capital. The distinctive educational system and the profound influence of social capital in modern China make it an ideal context for this investigation.

In the case of the Chinese educational system, its pronounced emphasis on examinations often leads to questions about education's role beyond exam preparation (X. Wu, 2017). Therefore, it is worthwhile to investigate how education contributes to the accumulation of social capital, particularly in nurturing the agentic aspect of social capital.

For the latter, the significance of social capital in various facets of Chinese society is well-documented, including job search, entrepreneurship, organizational governance,

scientific progress, and politics (e.g., Bian, 2019; Burt & Burzynska, 2017; C. Chen et al., 2013; Nee & Opper, 2012; M. M. Yang, 1994). I synthesize prior research and identify three key factors contributing to the salience of social capital in China.

First, Chinese society is characterized by a lack of formal, transparent rules, favoring informal rules. For instance, personal relationships often take precedence over written contracts and procedures in management practices (Davies et al., 1995; Lovett et al., 1999). In the absence of well-defined formal rules, individuals resort to social connections as private channels for obtaining essential information (Bian, 2019; Xin & Pearce, 1996). This phenomenon can be attributed to historical factors: Under imperial rule and the Communist party-state, formal rules promoted idealized behaviors but often disregarded private rights and interests, and the resultant ideological idealism led to the emergence of informal norms that prioritize sharing, affection, favor exchange, and trust-loyalty bonds (Bian, 2019).

Second, within the two instrumental dimensions of social capital, i.e., exchanging information and exerting influence, its impact on influence is notably pronounced in China compared to many Western contexts. Bian (2019, p. 80) illustrates this by showing that jobs secured through influential contacts constitute 66% and comments on the high percentage of using influential contacts with “this qualitatively differs from the influence of social networks in market economies in a Western context, which predominantly relies on the sharing of information”. Bian (2019) further reveals that jobs obtained through influential contacts are associated with higher satisfaction and significantly higher long-term wage incomes than those secured through informational

contacts.

The substantial influence of power from social connections poses challenges in terms of equality and fairness, especially when combined with China's centralized and hierarchical resource distribution structure. Compared to information-sharing through social connections, direct influence on resource distribution can easily give rise to issues of bribery and corruption. Given the pronounced impact of social capital on influence, it becomes crucial for Chinese individuals, whether they seek to leverage social capital for favorable personal outcomes or contend with its implications for unfavorable ones, to possess a heightened awareness of the pivotal role social capital plays in achieving their goals.

Third, in China, social ties exhibit a unique combination of affective and instrumental functions, distinguishing China from European and Anglophone countries. On one hand, there is a substantial overlap between work and social relationships in professional connections in China (see Bond & Hwang, 1986; Chua et al., 2009; Easterby-Smith et al., 1995; Law et al., 2000; Sanchez-Burks et al., 2003; Yg & Huo, 1993).

On the other hand, even affection-driven relationships such as family bonds, kinship, and friendships often serve clear instrumental purposes. To illustrate, consider family relationships in China. Chinese familial collectivism means that family members rely on each other not only for emotional support but also for practical resources, including labor and finances (Chua et al., 2009). This concept extends to kinship networks that encompass core family members and relatives and to friendships, which

can be considered quasi-family relationships (Bian, 2019; Lin, 2001a). It is believed that economic resources are exchanged, both sought and provided, based on perceived emotional closeness, i.e., the closer the emotional bond, the more likely economic exchanges will occur (Chua et al., 2009). This fusion of affective and instrumental functions in Chinese social ties is deeply rooted in historical and cultural factors, particularly Confucianism (see more in Bian, 2019, pp. 1–42; Bond & Hwang, 1986; Chua et al., 2009; Hsu, 1971; Lin, 2001a; C.-F. Yang, 1988; M. M. Yang, 1994). This prevalent fusion differs from the cultures in European and Anglophone societies where family relationships primarily involve emotional aspects, and genuine friendships typically exclude instrumental benefits (Ingram & Roberts, 2000; Silver, 1990).

While some individuals may have positions or occupations that expose them to more professional relationships, almost all individuals are exposed to family, kinship, and friendship. Therefore, the awareness of the instrumental function of social capital (my primary focus) should be more widespread in Chinese society than in the European and Anglophone countries on average.

These factors imply that social capital plays a prominent role in achieving instrumental goals in China, and people's awareness of social capital should generally be higher in China than in European and Anglophone countries. However, it is not universally true that everyone in China seeks to attain personal goals through social capital. One of the primary reasons is the challenges associated with becoming adept at utilizing social connections. Chen (1995), Lovett, Simmons, and Kali (1999), and Yang (1994) have extensively documented these difficulties and the required skills. For

instance, unlike straightforward transactions, exchanges through social connections require expertise to signal the intent to engage in such exchanges diplomatically, choose the right individuals to connect with to secure advantageous positions within the social network, and engage in long-term calculations of gains and losses before deciding when to offer or request resources. These complexities and necessary skills mean that (a) the actual experiences of utilizing social capital vary among individuals, and (b) not everyone is willing to engage in leveraging social capital, either due to the perceived high learning costs or to avoid social awkwardness.

In summary, the Chinese context offers an intriguing empirical setting to examine how education might influence individual social capital. If the examination-oriented educational system can influence individual awareness of social capital in a society where social capital is highly significant, its effects should be even more substantial in other contexts. If not, it still leaves room for studying education's role in creating social capital in various settings.

Finally, I conclude this section with a brief note on "*guanxi*." There has been a longstanding debate about whether *guanxi* is unique to Chinese culture or whether *guanxi* practices are equivalent to networking in European and Anglophone countries (e.g., Hung, 2004; Lin, 2001a). Although this debate is intriguing, space constraints prevent me from delving into it further (for a more detailed discussion of my stance, refer to Appendix C). In essence, the most notable distinction between these two concepts lies in their emotional basis. In Chinese society, all social ties, regardless of their nature, tend to incorporate emotional elements, whereas this feature is less relevant

to this study, as the items in my third empirical chapter solely pertain to the instrumental function of social capital, rather than seeking emotional support. Additionally, the survey questions and corresponding items I utilize are designed to be comprehensible to researchers without specialized knowledge of Chinese *guanxi*.

CHAPTER 2 NORMS, INTEREST, OR BOTH? THE MUTUAL CONFIRMATION OF GENDER IDEOLOGY AND ECONOMIC GAINS IN CHINA

Abstract

Why do highly educated women choose to forgo their labor income in favor of family care responsibilities? Do social norms, economic realities, or a combination of both factors explain this phenomenon? This study uncovers a pattern where gender ideology and economic gains reinforce each other, jointly contributing to gender inequalities through three interconnected steps: First, traditional gender ideology leads to the underutilization of education-related human capital among married women; second, this underutilization indirectly boosts household income through the mediation of the husband's personal income. Third, when women's individual choices that comply with traditional gender ideology are accompanied by greater economic benefits, the traditional gender ideology is further entrenched. Empirically, we focus on modern China—a society witnessing an increasing embrace of traditional gender ideology—and utilize data from the China Family Panel Studies (CFPS). Results are discussed in terms of the academic and policy implications concerning the revolution of gender ideologies, gender inequalities, and the division of labor.

2.1 INTRODUCTION

Inequalities, in a broad sense, stem from two sources—the supply and demand sides (Stroube, 2022), and gender income inequalities are no exception. The demand side has received substantial attention from scholars, primarily through the lens of discrimination. while the supply side concerns individual choices influenced by cultural beliefs and social norms (e.g., Ridgeway & Correll, 2004). Social norms, on the supply side, play a pivotal role in shaping inequalities by influencing "axes along which inequalities occur and the factors and mechanisms that produce and maintain" (Horne & Mollborn, 2020, p. 468). Yet, integrating norms into explanations of inequalities can be challenging, as it sometimes leads to attributing inequalities to the voluntary choices of those affected (Ridgeway & Correll, 2004).

This study aims to shed new light on income disparities from the supply side, with a focus on married women. Why do highly educated women choose to forego their labor income to care for their families? Are social norms, economic realities, or both responsible for this phenomenon? We examine a specific category of social norm, namely gender ideology in labor participation, and investigate its intricate role in gender inequalities. We uncover a pattern wherein gender ideology and economic gains reinforce each other, jointly shaping gender inequalities in three key steps.

First, drawing on the influence of internalized social norms on individuals' division of labor within the family, we hypothesize that traditional gender ideology is associated with the underutilization of education-related human capital among married women. Second, adopting insights from the neoclassical approach, which emphasizes utility-

maximizing actions, we hypothesize that the underutilization of human capital among married women enhances their husbands' personal income, thereby contributing to overall household income. Finally, we illustrate how gender ideology is strengthened by economic gains: When women's choices align with traditional gender ideology and are accompanied by greater economic benefits, the traditional gender ideology becomes more entrenched.

Empirically, we examine these hypotheses in modern China—a society that, as previous research suggests, is experiencing a growing acceptance of traditional gender ideology (e.g., M. Chen, 2018; Ji et al., 2017; W.-J. J. Yeung & Hu, 2016). Using data from the China Family Panel Studies (CFPS), our analysis supports all three hypotheses: (a) traditional gender ideology is positively associated with several indicators of women's underutilization of human capital; (b) this underutilization enhances family total income through the mediation of husbands' income; and (c) gender ideology is less egalitarian when accompanied by an increase in family income, even with the same level of underutilization.

Our study makes several significant contributions. First, we introduce a two-dimensional framework of gender ideology revolution, building upon the mutual reinforcement between gender ideology and economic gains. Prior studies tend to classify the perspectives of gender ideology revolution into three: Macro researchers tend to optimistically believe in a rising tide of liberal egalitarianism with modernization (Inglehart & Norris, 2003), gender inequalities scholars have noted the persistence and the stalled revolution (England, 2010; Kan et al., 2022; Ridgeway &

Correll, 2004), and research on gender norms and ideologies notes the divergence of gender ideology (Begall et al., 2023; Grunow et al., 2018; Hu & Scott, 2016; Knight & Brinton, 2017). Unlike studies only adopting one of three perspectives, our framework synthesizes insights from all three and serves as a versatile tool for analyzing the progression of gender ideologies within various institutional contexts, such as labor market environments, gender inequalities in workplaces, and work/family policies. Our "general" framework, as demonstrated later, offers valuable policy implications for addressing gender inequalities in different scenarios with varying gender ideologies and institutional factors.

Second, our study contributes to the growing literature that utilizes internalized social norms to explain gender inequalities (e.g., Cech, 2013a, 2013b). While prior studies in this domain offer crucial insights into how norms influence individual career decisions, we provide empirical evidence of human capital underutilization and its implications for the perpetuation of gender-based income disparities.

Third, by critiquing household production theory (e.g., Becker, 1981) and drawing inspiration from alternative perspectives (e.g., Folbre, 1982; Kuhn & Wolpe, 2013; Pearse & Connell, 2016), we contend that economically rational decisions regarding the division of labor can contribute to gender inequalities. In turn, we call for a balance in gender and family studies between highlighting individual rationality at the micro level and proposing structural changes at the macro level.

2.2 THEORY AND HYPOTHESES

2.2.1 Supply Side and Gender Inequalities

The supply-side approach to understanding gender income disparities, while encompassing various contexts and outcomes, begins with the premise that individual choices are at the root of these disparities. Nevertheless, the implications of individual choices for inequalities can vary significantly, depending on the underlying assumptions about individuals.

On one hand, the sociological perspective places a strong emphasis on the socialization and cultural influences that shape individual choices (Bittman et al., 2003; Ridgeway & Correll, 2004; Ridgeway & Smith-Lovin, 1999). Central to this approach is the idea that internalized values and external social pressures influence individual decisions, leading to gender disparities (Cech, 2013b, 2016; Horne & Mollborn, 2020; Seron et al., 2016).

In contrast, the neoclassical approach, while also attributing gender disparities to individual choices, views these choices as utility-maximizing actions (Becker, 1981). According to this perspective, when a woman chooses to forego personal income, she must derive compensatory benefits elsewhere. These benefits might manifest as increased household wealth, personal satisfaction derived from fulfilling family responsibilities, or happiness derived from caregiving work (Folbre, 1995). When these benefits manifest as a household's overall wealth, it implies that women forgo their personal interests to maximize household utilities.

Our study integrates both perspectives by demonstrating the mutually reinforcing

nature of cultural beliefs and economic gains. We accomplish this through three main steps. First, applying the sociological approach, we hypothesize that traditional gender ideology is associated with the underutilization of education-related human capital by married women and the resulting loss in value. Second, drawing from the neoclassical approach, we hypothesize that this forgone value, when translated into benefits, contributes to the husband's personal income and, consequently, the household income. Finally, we illustrate how economic gains reinforce gender ideology: When individual choices that comply with traditional gender ideology are accompanied by greater economic advantages, this traditional gender ideology becomes more entrenched.

2.2.2 Gender Ideology, Division of Labor, and Underutilization of Human Capital

Social norms influence individual behavior through two primary mechanisms: internalization and sanctions (Horne & Mollborn, 2020). In simpler terms, people adhere to norms either because they have internalized the associated values or because they seek to avoid social consequences by conforming to others' opinions and judgments. When norms are in effect, they dictate what people should do but often do not provide a clear rationale for why those actions are necessary. To borrow Elster's terminology, norms typically address "Do X" or "If you do Y, then do X" rather than offering guidance on "If you want to achieve Y, do X" (Elster, 1989, p. 113).

In the context of this study, the focus is on the internalized aspect of norms, because we aim to investigate gender ideology. While we recognize the multidimensionality of gender ideology (which will be discussed in the methods section), we align with Davis

and Greenstein (2009, p. 87), who define gender ideology as "individuals' levels of support for a division of paid work and family responsibilities based on the belief in gendered separate spheres." When traditional gender ideology strongly influences decisions regarding the division of labor within households, it is likely to result in married women underutilizing their education-related human capital. More specifically, under the influence of a gender ideology that emphasizes male breadwinning and female homemaking, spouses may become indifferent to opportunity costs and fail to recognize the comparative advantages of education-related human capital. On the female side, alongside marriage and motherhood, a wife's disproportionate share of childcare and household responsibilities may lead to the underutilization of her education-related human capital, when compared to her unmarried status or an equally educated husband. Consequently, we propose:

Hypothesis 1 (H1): Married women's underutilization of human capital and forgone value in income are positively associated with traditional gender ideology.

2.2.3 Underutilization of Human Capital and Household Economic Gains

When married women make choices that lead to the underutilization of their human capital—such as reducing working hours, taking up low-paying jobs, or leaving the labor market—husbands may benefit from this underutilization, whether it results from neoclassical rationality or socialization. In the former case, these benefits are expected outcomes, while in the latter case, they are more like unintended by-products of the spouses' decisions regarding the division of labor. Regardless of the motives behind

these actions, let's delve into the mechanisms that underlie the underutilization of a wife's human capital and the potential economic gains for her husband and the household.

The most well-established explanation for economic gains arising from a wife's underutilization is specialization—specifically, the allocation of time between spouses (Becker, 1965, 1981). Traditional gender ideology encourages women to take on more unpaid housework while men focus more on paid labor. Numerous studies demonstrate that upon marriage, women increase their time spent on housework, while men are relieved of these duties to specialize in the labor market (e.g., Gupta, 1999; Hersch & Stratton, 2002; Vernon, 2010). Given the demands of childrearing within a family, couples inevitably spend more time on unpaid labor. Nevertheless, a mother's disproportionate childcare responsibilities result in her personal economic loss but may mitigate or even prevent the father's economic loss (Killewald & Gough, 2013).

While specialization is undoubtedly a crucial mechanism, it is increasingly recognized that other equally important mechanisms come into play. First, despite the traditional view of specialization emphasizing the distribution of time between household and labor market production, evidence suggests that when the wife devotes more time to labor market production, the husband tends not to compensate for the reduction in unpaid labor; instead, it is the overall level of domestic production that declines (Killewald, 2011). Indeed, previous studies demonstrate that a husband's domestic labor participation is largely unaffected by the wife's labor market participation (e.g., Gough & Killewald, 2011). In such cases, the husband's personal

productivity and income are expected to decline due to a lower quality of life as the wife increases her labor market participation, even though the husband does not reduce his paid labor participation.

Furthermore, a growing body of literature suggests that the "father premium" does not arise solely from reduced unpaid labor (and thereby more time for paid labor) but rather from the father's motivation to increase economic gains (Killewald, 2013). This motivation is rooted in the father's newly established or reinforced identity as the household's primary financial provider and the perceived greater financial responsibility for the household (Kmec, 2011; Townsend, 2002). In practice, fatherhood can motivate men to change their habits (such as quitting drug use, reducing alcohol consumption, and increasing social integration), resulting in increased productivity (Knoester & Eggebeen, 2006; Percheski & Wildeman, 2008; Townsend, 2002). Additionally, this reinforced identity can lead fathers to make career decisions aimed at maximizing household wealth (Killewald, 2013; Millimet, 2000).

Lastly, employer discrimination also plays a role in transferring the economic consequences of a wife's underutilization to the husband's advantage. Since our study focuses on the supply side, we are not interested in the general discrimination against women in the workplace; rather, what we refer to here is that employers recognize their employees differently based on their division of labor: Employers tend to provide greater recognition to fathers whose spouses specialize in unpaid labor than to dual-earner fathers (Hodges & Budig, 2010; Killewald, 2013).

All these mechanisms predict that married women’s forgone value can to some

extent transfer to and be compensated by their husband's economic gains. Considering together, we contend that married women's underutilization of human capital indirectly increases household income through the mediation of the husband's personal income. Formally:

Hypothesis 2 (H2): Family income is positively associated with married women's underutilization of human capital and forgone value through the mediator of enhanced husband's income.

2.2.4 Gender Ideology: Reality and Meaning

Previous studies have identified numerous factors that shape individual gender ideology (e.g., Cotter et al., 2011), which can ultimately be categorized into two broad types: experience-based and interest-based factors (Bolzendahl & Myers, 2004; Grunow et al., 2018).

The experience-based perspective suggests that individuals form their beliefs about gender roles and the division of labor based on their life experiences (Bolzendahl & Myers, 2004). For example, women who participate in the workforce and pursue higher education often encounter situations that stimulate feminist and egalitarian attitudes. They are exposed to feminist ideas and encounter people who hold egalitarian beliefs (N. J. Davis & Robinson, 1991; Rhodebeck, 1996). These experiences, or the absence thereof, contribute to the development of different gender ideologies.

In contrast, the interest-based perspective posits that individuals' gender ideologies align with their self-identified interests, such as economic gains, prestige, and personal

fulfillment. When egalitarian ideology aligns with personal goals, individuals are more likely to support such ideology, and vice versa (Bolzendahl & Myers, 2004; N. J. Davis & Robinson, 1991).

While the role of personal interests in shaping gender ideology is well-recognized, there is limited theoretical exploration of how instrumental responses to societal institutions can influence gender ideology. Instead of assuming a static alignment between an individual's identified interests and gender ideology, we emphasize a dynamic process where the success of maintaining and increasing personal interests, within the context of existing institutions, reinforces or reshapes gender ideologies. In other words, gender ideology can be seen as a means to an end in the static case, while the availability of effective means for achieving one's goals determines the extent to which individuals adhere to a particular gender ideology in the dynamic case.

Applying this dynamic perspective to predict that women's underutilization reinforces gender ideology, we hypothesize that married women are more likely to adopt traditional gender ideology if they believe that their underutilization benefits their family economically. It is less important whether underutilization directly causes an increase in household income; rather, what matters is whether these women perceive that their underutilization contributes to the family's well-being. This perception is expected to be stronger when family income is higher, even when the level of underutilization remains the same. Building upon the connections between gender ideology, underutilization, and forgone income, we propose the following hypothesis:

Hypothesis 3 (H3): Growth of family income positively moderates the association

between gender ideology and married women's underutilization of human capital and forgone value such that women's gender ideology is more traditional when family income grows.

2.3 METHODS

2.3.1 Data

This study utilized data from the China Family Panel Studies (CFPS), specifically incorporating data from the CFPS 2010, 2012, 2014, 2016, and 2018 waves. The selection of respondents adhered to several criteria. We focused exclusively on female respondents aged between 25 and 65, encompassing those who were married and had the requisite information concerning their husbands. Subsequently, we further refined the sample to encompass only female respondents and their husbands who held employment status. Since differential analytic strategies were employed to examine different hypotheses, the specific sample sizes varied across hypotheses, which will be elaborated on shortly in Section 2.3.3.

2.3.2 Variables

Income. Our analysis considered three key categories of income-related variables: personal income, family income, and family income changes. Personal income was derived from the annual total income for each wave, and unless otherwise stated, we used the natural logarithm of personal income for subsequent analyses.

We utilized two indicators for family income: annual family net income and annual family net income per capita. Similar to personal income, we applied the natural

logarithm to these variables for subsequent analysis.

Additionally, the CFPS 2012-2018 Waves provided data on annual family net income and annual family net income per capita that were comparable to the 2010 Wave. We referred to these comparable indicators as "comparable family income." To calculate family income changes for a specific wave, we subtracted the natural logarithm of the comparable family income in that wave from the family income in the 2010 Wave. For instance, the family income changes in 2014 were calculated by comparable family income in 2014 minus family income in 2010.

Relative Income. This variable was computed as the percentage of personal income relative to the combined income of the individual and their spouse (all income values were considered absolute values).

Underutilization of Human Capital and Forgone Value. Conceptually, when educated women engage in fewer labor market activities due to household and childcare responsibilities compared to their unmarried counterparts, it constitutes the underutilization of human capital. However, empirically quantifying this underutilization is challenging. One intuitive way is to compare the married self with the hypothetical unmarried self. Technically, matching-based methods can be used. However, matching-based methods cannot function well if the society of interest is characterized by universal marriage, and this is the case in China (e.g., Qian & Sayer, 2016; W.-J. J. Yeung & Hu, 2016). Therefore, unmarried women are a special group and likely to have unobservable characteristics.

Instead, this study used the other method that often appears in studies on marital

power, i.e., using the couple's relative resources (e.g., Bittman et al., 2003; Gupta, 2007; Kanji & Schober, 2014). Unlike the first method that compares women's actual self with the hypothetical self, relative resources compare the wife with the husband. Our rationale is intuitive: When the wife and the husband have equal human capital, but the wife has a lower income, her initial human capital is underutilized (we will discuss issues such as market discrimination shortly). This method has two-fold advantages: It is not only more applicable to societies with universal marriage and childbirth but also inherently suitable for studying gender inequalities.

Practically, the underutilization of human capital was calculated based on relative education and relative income, as Equation 1 shows. In an ideal world, when relative education equals relative income, the wife fully utilizes her human capital, and so does the husband, whereas a discrepancy between relative education and relative income implies underutilization. While the degree of underutilization is a helpful indicator, it cannot quantify the forgone labor income because the same amount of underutilization substantially differs in value between a nine-year schooling wife and a 16-year schooling wife, for instance. Hence, we calculated the forgone value by multiplying the degree of underutilization by the wife's education.

$$Underutilization = \frac{Self\ Education}{Self\ Education + spouse's Education} - \frac{Self\ Income}{Self\ Income + spouse's Income} \quad \text{(Eq.1)}$$

$$Forgone\ Value = Underutilization \times Self\ Education \quad \text{(Eq.2)}$$

Indeed, a key issue in this ideal world is the neglect of market discrimination against women: In other words, even when a married woman fully utilizes her human capital, relative education need not equal relative income because the market does not reward education equally. Two considerations are relevant. First and conceptually, we did not assume the underutilization is entirely due to individual willingness; rather, we considered it to consist of both individual choices and exogenous factors such as market discrimination against women. Second and empirically, the society-wide discrimination will not affect our analysis regarding cross-family comparisons. Indeed, the average underutilization is expected to be zero in the ideal world, whereas the average underutilization will differ from zero in reality due to systematic market discrimination. However, the value of the average underutilization, mathematically, will not affect the results of our analysis.

Gender ideologies. In the recent decade, an important development within family sociology and gender literature is the increasingly recognized multi-dimensional gender ideologies (e.g., Begall et al., 2023; Cotter et al., 2011; Grunow et al., 2018; Knight & Brinton, 2017). Instead of considering traditional ideology and egalitarian ideology as the two ends of a continuous spectrum, research has shown that people can simultaneously hold traditional and egalitarian attitudes in different aspects of paid market labor participation, unpaid housework participation, childrearing, and so forth, and simultaneously hold traditional and egalitarian attitudes for the role of mother and father respectively (Grunow et al., 2018; Knight & Brinton, 2017). While the literature on multi-dimensional gender ideologies is still growing, the general pattern is to treat

people's attitudes towards the following aspects: (a) women's role in the labor market, (b) women's role in housework, (c) meanings of marriage and children for women, (d) men's role in the labor market, (e) men's role in housework, and (f) meanings of marriage and children for men.

There are four items in CFPS related to gender ideologies, including "men should focus on career, while women should focus on family", "for women, marrying well is more important than doing well (in career)", "women should have at least a child", "men should do half of the housework". All items have five Likert sales, from 1 = extremely disagree to 5 = extremely agree. While four items are insufficient to conduct an exploratory factor analysis (i.e., extracting more than one factor), we can evaluate what each of the items is about based on the literature: The first item is pertinent to women's and men's roles in the labor market, the second item is partly about women's role in the labor market and partly the meaning of marriage for women, the third item is about the attitude towards children, and the last item is about men's role in housework. In this sense, the first item is central to our study, and the second item can be relevant, but the last two items are less relevant to this study. Therefore, we employed the first two items and termed them "labor role" and "marriage over career" respectively.

Other variables. Other covariates include education, age, educational assortative mating types, the number of children, residential location (urban vs. rural), Chinese Communist Party (CCP) membership, and occupational status. These covariates were included in our models due to their potential association with women's underutilization and gender ideology.

Educational assortative mating types were measured as a categorical variable with three categories: hypergamy, homogamy, and hypogamy, corresponding to when the husband of a female respondent has a higher educational level, has an equal level, and has a lower level. CFPS offers different measures of occupational status, and we employed the Standard International Occupational Prestige Scale (SIOPS). Since the occupational status is only available in the 2010 and 2016 Waves, we applied the value in 2010 to 2012 whereas applied the value in 2016 to both 2014 and 2018 for each respondent. For respondents in the 2014 Wave, if their occupational status is not available in the 2016 Wave, we used the value in the 2010 Wave.

2.3.3 Analytic Strategies

While most of the variables mentioned above are available across all waves, the key variable, gender ideology, is only available in the 2014 Wave. To leverage the panel data, we need to construct the dataset strategically.

Since H1 suggests that traditional gender ideology leads to married women's underutilization of human capital and forgone value, we employed ordinary least squares (OLS) regression and used gender ideology data from 2014 to predict underutilization indicators in 2014 and subsequent waves. As we emphasize mutual confirmation in this paper, we do acknowledge both the effects of ideology on materials and the effects of materials on ideology. However, in H1, we are interested in the effects of ideology on materials; to capture such effects, we, on the one hand, take advantage of the temporal order (i.e., ideology in 2014 and underutilization indicators in 2014 and

onward) and on the other hand control a potential confounder, i.e., the previous underutilization indicators in 2012. Instead of employing a balanced panel from Wave 12 to Wave 18 for all regressions, we used panel samples in accordance with the underutilization indicators in specific waves: To predict the indicators of Wave 14, a balanced panel from Wave 12 to Wave 14 was employed; To predict the indicators of Wave 16, a balanced panel from Wave 12 to Wave 16 was employed; To predict the indicators of Wave 18, a balanced panel from Wave 12 to Wave 18 was employed.

H2 posits that forgone value benefits the household through the husband's personal income as a mediator. To test this hypothesis, we conducted a bootstrapped mediation analysis using the PROCESS tool (Hayes, 2012). Specifically, we employed Model 4 in PROCESS (simple mediation) with indicators of a wife's underutilization as predictors, her husband's personal income as the mediator, and family income indicators as outcome variables. We also included other relevant control variables. This analysis utilized a cross-sectional and pooled sample consisting of all five waves due to the relatively prompt dynamics and interactions between these variables, which underlie the hypothesized mechanism.

In contrast to our approach for H1, we tested Hypothesis 3 (H3) by using underutilization indicators to predict gender ideologies. Here, we focused on the interactive term with family income and expected positive interactive effects. To do this, we utilized comparable family income data from 2012 and 2014 to calculate Family Income Change 2012 and Family Income Change 2014. We then regressed gender ideology on the interaction between these family income changes and underutilization

indicators. A balanced panel from Wave 10 to Wave 14 was employed for this analysis because the outcome variable, gender ideology, was only measured in Wave 14. Table 2-1 provides an overview of the sample construction strategies for all three hypotheses.

Table 2-1. Summary of Samples and Key Measures in Hypotheses

Hypotheses	Outcome Variables	Main Predictors	Samples and Waves
H1	Underutilization indicators (14, 16, and 18 Waves)	Gender ideology (14 Wave)	Longitudinal samples from 12, 14, 16, and 18 Waves [a]
H2	Family income indicators (10, 12, 14, 16, and 18 Waves)	Underutilization indicators (10, 12, 14, 16, and 18 Waves), husband's income (10, 12, 14, 16, and 18 Waves)	Cross-sectional and pooling samples from 10, 12, 14, 16, and 18 Waves
H3	Gender ideology (14 Wave)	Family income change (12-10), family income change (14-10), Underutilization indicators (12, 14 Waves)	Longitudinal samples from 10, 12, and 14 Waves

Note: a. When examining H1, we regress outcome variables in 14, 16, and 18 Waves on gender ideology measured in 14 Wave. However, important control variables, i.e., the previous underutilization indicators, are measured in the 12 Wave.

2.4 RESULTS

2.4.1 Gender Ideology and Underutilization

H1 predicts that women's underutilization of human capital and forgone value are positively associated with traditional gender ideology, which receives support from our results. Table 2-2 summarizes the results that are generated by the Waves 14, 16, and 18. Specifically, Model 1 in Table 2 first shows that the traditional ideology of labor roles is negatively associated with the wife's personal income (b_1 = -.2355, $p < .01$ in Wave 14; b_1 = -.1101, $p < .05$ in Wave 16), although the association becomes

insignificant in Wave 18. Similarly, Model 2 indicates that the traditional ideology of labor roles is constantly significantly and negatively associated with the wife's relative income (b_1 = -.0194, p < .01 in Wave 14; b_1 = -.0188, p < .001 in Wave 16; b_1 = -.0173, p < .01 in Wave 18).

For the key dependent variables in this hypothesis, degree of underutilization and forgone value, Models 3 and 4 consistently show positive associations between the traditional ideology of labor roles and underutilization (b_1 = .0244, p < .001 in Wave 14; b_1 = .0267, p < .001 in Wave 16; b_1 = .0228, p < .001 in Wave 18) and forgone value (b_1 = .2264, p < .001 in Wave 14; b_1 = .1767, p < .001 in Wave 16; b_1 = .1575, p < .01 in Wave 18) respectively.

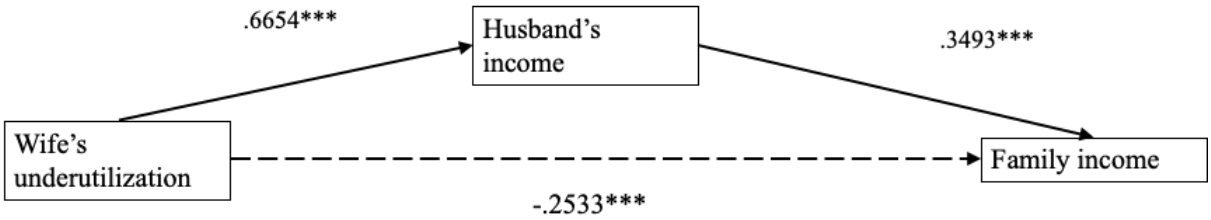
Consistent with our conjecture that the "labor role" item is more relevant to the division of labor and the core of our research question than the "marriage over career" item, we cannot find much evidence for the association between "marriage over career" *item* and the underutilization indicators. Taken together, the results provide strong support for H1.

Table 2-2. OLS Regression Predicting Underutilization Indicators by Gender Ideologies

Outcome Variables in:	Independent Variables	Model 1 Personal income	Model 2 Relative income	Model 3 Underutilization	Model 4 Forgone Value
2014 Wave					
	Labor role	-.2355**	-.0194**	.0244***	.2264***
		(.0797)	(.0071)	(.0074)	(.0673)
	Marriage over career	.1114	.0028	-.0037	-.0082
		(.0729)	(.0065)	(.0067)	(.0616)
	Personal income-12	.3734***			
		(.0202)			
	Relative income-12		.3647***		
			(.0227)		
	Underutilization-12			.4158***	
				(.0215)	
	Forgone value-12				.3559***
					(.0229)
	R squared	.3700	.2111	.2603	.1767
	Observations	1,804	1,804	1,804	1,804
2016 Wave					
	Labor role	-.1101*	-.0188***	.0267***	.1767***
		(.0548)	(.0049)	(.0056)	(.0427)
	Marriage over career	.0707	.0053	-.0066	-.0032
		(.0489)	(.0044)	(.0050)	(.0382)
	Personal income-12	.1066***			
		(.0135)			
	Relative income-12		.1212***		
			(.0148)		
	Underutilization-12			.2148***	
				(.0152)	
	Forgone value-12				.1553***
					(.0142)
	R squared	.1960	.0781	.3531	.2274
	Observations	1,758	1,758	1,758	1,758
2018 Wave					
	Labor role	-.0384	-.0173**	.0228***	.1575**
		(.0358)	(.0053)	(.0061)	(.0569)
	Marriage over career	.0599+	.0050	-.0095+	-.0409
		(.0337)	(.0050)	(.0057)	(.0536)
	Personal income-12	.0456***			
		(.0095)			
	Relative income-12		.1024***		
			(.0186)		
	Underutilization-12			.1795***	
				(.0194)	
	Forgone value-12				.1255***
					(.0189)
	R squared	.2082	.1262	.2768	.1504
	Observations	790	790	790	790

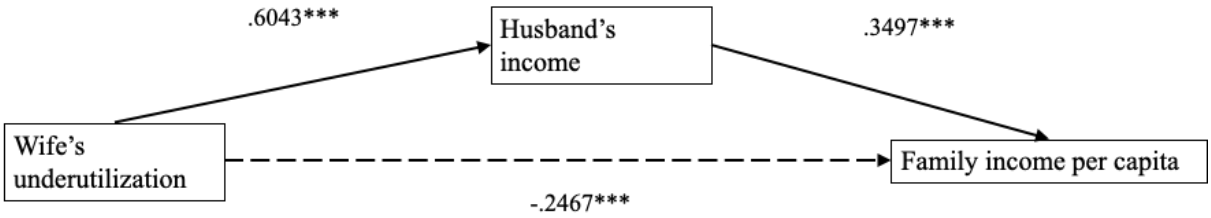
Note: Standard errors in parentheses. All models control educational assortative mating types, education (no. year), age, age squared, number of children, urban residents (versus rural), CCP members (versus not), and occupational status. Predictors (labor role and marriage over career) are measured in the 2014 Wave.

† P < .1; * P < .05; ** P < .01; *** P < .001. Two-tailed tests.



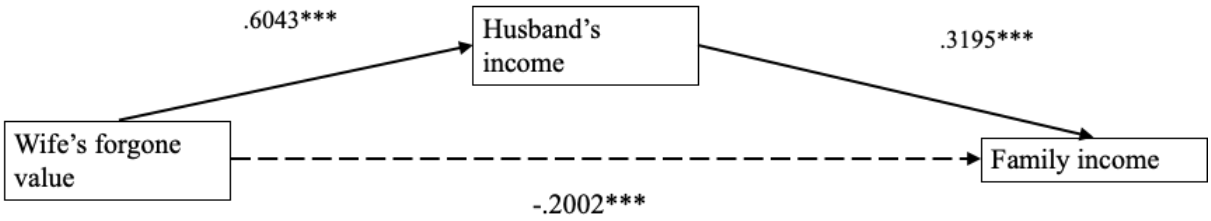
Indirect effect: B = .2324 ; 95% CI : {.2172, .2476}

(a) Predicting Family Income by Underutilization



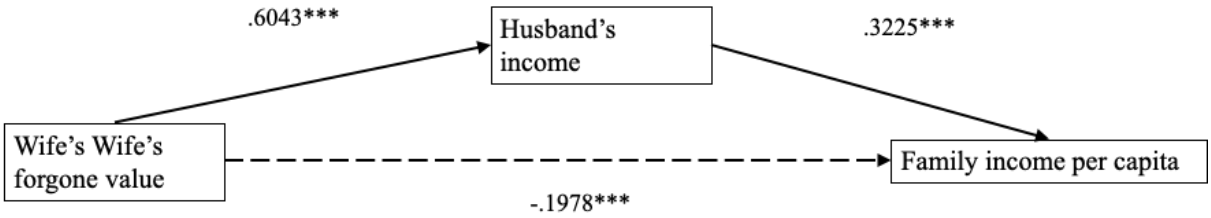
Indirect effect: B = .2327; 95% CI : {.2182, .2470}

(b) Predicting Family Income per capita by Underutilization



Indirect effect: B = .1930 ; 95% CI : {.1782, .2080}

(c) Predicting Family Income by Forgone Value



Indirect effect: B = .1949; 95% CI : {.1804, .2091}

(d) Predicting Family Income per capita by Forgone Value

Figure 2-1. Mediation Analysis of Underutilization Indicators and Family Income Indicators

Note: † P < .1; * P < .05; ** P < .01; *** P < .001. Two-tailed tests.

Table 2-3. Mediation Analysis Predicting Family Income by Underutilization and Forgone Value

Effects	B	b	95% CI	SE	*t* value	*p* value
Model 1						
Total effect of underutilization on family income	-.0210	-.0571	(-.1025, -.0117)	.0232	-2.4636	.0138
Direct effect of underutilization on family income	-.2533	-.6891	(-.7454, -.6327)	.0287	-23.9686	.0000
Indirect effect of underutilization-husband's income-family income	.2324		(.2172, .2476)	.0078	NA. 95% CI and SE are based on bootstraps	
Model 2						
Total effect of underutilization on family income per capita	-.0140	-.0386	(-.0832, .0060)	.0228	-1.6962	.0899
Direct effect of underutilization on family income per capita	-.2467	-.6810	(-.7362, -.6258)	.0282	-24.1858	.0000
Indirect effect of underutilization-husband's income-family income per capita	.2327		(.2182, .2470)	.0074	NA. 95% CI and SE are based on bootstraps	
Model 3						
Total effect of forgone value on family income	-.0071	-.0026	(-.0084, .0032)	.0029	-.8743	.3819
Direct effect of forgone value on family income	-.2002	-.0735	(-.0805, -.0664)	.0036	-20.4484	.0000
Indirect effect of forgone value-husband's income-family income	.1930		(.1782, .2080)	.0076	NA. 95% CI and SE are based on bootstraps	
Model 4						
Total effect of forgone value on family income per capita	-.0027	-.0010	(-.0067, .0046)	.0029	-.3555	.7222
Direct effect of forgone value on family income per capita	-.1978	-.0737	(-.0806, -.0668)	.0035	-20.9463	.0000
Indirect effect of forgone value-husband's income-family income per capita	.1949		(.1804, .2091)	.0073	NA. 95% CI and SE are based on bootstraps	

Note: B = standardized coefficients; b = original coefficients; CI = confidence interval; SE = standard errors; NA = not available. For total and direct effects, values in 95% CI and SE are based on original coefficients. Number of bootstraps: 5000. Covariates in all models include gender ideology (both labor role and marriage), assortative mating types, education, age, age squared, urban residents (versus rural), CCP members (versus non-CCP), number of children, occupational status, and survey waves. N = 12295 in all models.

2.4.2 Underutilization and Family Income

H2, which predicts that a wife's underutilization of human capital and forgone value are positively associated with family income through the mediator of the husband's income, was examined through a mediation analysis. Four models were constructed as illustrated in Figure 2-1, using the wife's underutilization and forgone value as predictors and family income and family income per capita as outcome variables.

Results from the PROCESS mediation analysis provide support for H2. Table 2-3 summarizes the findings. The total effects of underutilization and forgone value on family income are found to be marginal or negligible (B_1 = -.0202, p = .0172 in Model 1; B_1 = -.0130, p = .1140 in Model 2; B_1 = -.0063, p = .4305 in Model 3; B_1 = -.0019, p = .8105 in Model 4). However, their indirect effects through the mediator of the husband's income are substantial and positive (B_3 = .2346, 95% confidence interval (CI) = {.2191, .2505} in Model 1; B_3 = .2349, 95% CI {.2202, .2506} in Model 2; B_3 = .1945, 95% CI {.1798, .2094} in Model 3; B_3 = .1964, 95% CI {.1816, .2115} in Model 4). Considered together, the results suggest that a wife's underutilization of education-related human capital can be partially compensated by an increase in the husband's personal income, which is consistent with the established wisdom in family economics. Interestingly, the results in this study imply that a wife's underutilization of education-related human capital can be largely compensated by an increase in the husband's personal income: Depending on the indicators, although one standard deviation (SD) of underutilization is directly associated with .20-.25 SD family income loss, one SD

underutilization is only associated with .00-.02 SD family income loss in total, and this is because one SD underutilization is indirectly associated with .19-.23 SD family income gain through the mediator of the husband's income.

However, it is important to consider the possibility of self-selection, where women who intend to underutilize their human capital may be more likely to marry high-income men, or women with high-earning husbands may be more inclined to underutilize their human capital. To address this issue, a robustness check was conducted using individual fixed effect analysis. To elaborate on the sample construction, only married women (and their husbands) appearing in at least two survey waves were included. Therefore, the individual fixed effect analysis addresses changes in predictors and outcome variables in the post-marriage period and helps rule out selection issues in the pre-marriage period.

Conceptually, the individual fixed effect analysis aims to examine the relationship between a change in a wife's underutilization and a change in her husband's income. However, based on the measurement of underutilization in the main analysis, a change in the husband's income necessarily results in a change in a wife's underutilization, holding education and the wife's personal income constant. To avoid any artificial association, we created two new variables, education return rates for both the husband and wife, defined as the reciprocal of education divided by income. In this case, mathematically, a change in the wife's education return rate will not necessarily affect the change in the husband's education return rate. When personal education remains constant, a decrease in the education return rate indicates greater underutilization for

the wife, whereas an increase in the education return rate indicates higher income for the husband. Regression analysis revealed that a change in the wife's education return rate was negatively associated with a change in the husband's education return rate (details available in Appendix D). This suggests that the association between a wife's underutilization and her husband's income cannot be solely attributed to self-selection. In conclusion, Hypothesis 2 is supported.

2.4.3 Reinforced Gender Ideology

H3 suggests that increased benefits at the family level reinforce traditional gender ideology, leading to positive interaction effects of family income changes and underutilization indicators on traditional gender ideology. The results presented in Table 2-4 pertain to family income changes from 2010 to 2012, while Table 2-5 concerns changes from 2010 to 2014. Both tables provide support for H3.

Specifically, in Table 2-4, underutilization and forgone value are consistently positively associated with the traditional ideology of labor roles (see b_1 in Models 1, 2, 5, and 6), as expected. Importantly, there are also consistent positive interactive effects of family income changes and underutilization ($b_3 = .2705$, $p < .01$ in Model 3; $b_3 = .2364$, $p < .05$ in Model 7) and forgone value ($b_3 = .0381$, $p < .01$ in Model 4; $b_3 = .0321$, $p < .05$ in Model 8) respectively. A similar pattern is observed in Table 2-5, with even stronger effects for underutilization ($b_3 = .3276$, $p < .01$ in Model 3; $b_3 = .2521$, $p < .05$ in Model 7) and forgone value ($b_3 = .0421$, $p < .01$ in Model 4; $b_3 = .0369$, $p < .01$ in Model 8).

These findings collectively suggest that when a certain level of underutilization coincides with an increase in family income, it reinforces the ideology that aligns with the underutilization. This provides strong support for Hypothesis 3. To illustrate this pattern more effectively, we have generated a graph depicting the predicted ideology of labor roles (see Figure 2-2). Specifically, we first created two new binary variables of family income growth by differentiating families with income growth from others in Wave 12 and Wave 14 respectively; we then conducted regression analysis based on Models 7 and 8 in Table 2-4 and Table 2-5; the only difference regards that we replaced the continuous variables of family income change in Table 2-4 and Table 2-5 with the newly created binary variables. Figure 2-2 shows that, regardless of the indicators of underutilization and family income growth, the effects of underutilization on traditional gender ideology are stronger for married women with family income growth than their counterparts.

Table 2-4. OLS Regression Predicting Traditional Labor Role by Family Income Changes in 2012

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Underutilization 12	.3210**		.2605*		.3198**		.2709*	
	(.1041)		(.1061)		(.1040)		(.1057)	
Forgone value 12		.0272*		.0226+		.0271*		.0241*
		(.0122)		(.0122)		(.0122)		(.0122)
Family income change per capita (12-10)	-.0186	-.0147	-.0253	-.0278				
	(.0446)	(.0448)	(.0445)	(.0447)				
Family income change (12-10)					-.0141	-.0111	-.0224	-.0239
					(.0433)	(.0122)	(.0433)	(.0435)
Underutilization 12 * Family income change per capita (12-10)			.2705**					
			(.1016)					
Forgone value 12 * Family income change per capita (12-10)				.0381**				
				(.0127)				
Underutilization 12 * Family income change (12-10)							.2364*	
							(.0996)	
Forgone value 12 * Family income change (12-10)								.0321*
								(.0125)
Good marriage over career	.3559***	.3585***	.3560***	.3591***	.3561***	.3586***	.3561***	.3595***
	(.0299)	(.0300)	(.0298)	(.0298)	(.0299)	(.0300)	(.0298)	(.0299)
Hypergamy	-.0700	-.0922	-.0692	-.0927	-.0708	-.0928	-.0703	-.0943
	(.1065)	(.1063)	(.1061)	(.1058)	(.1065)	(.1063)	(.1062)	(.1059)
Hypogamy	-.2561*	-.2444*	-.2730**	-.2683**	-.2581*	-.2460*	-.2693**	-.2643*
	(.1030)	(.1034)	(.1028)	(.1031)	(.1028)	(.1031)	(.1026)	(.1030)
(Homogamy omitted)								
Education (no. year)	-.0611***	-.0565***	-.0625***	-.0586***	-.0610***	-.0564***	-.0625***	-.0585***
	(.0130)	(.0130)	(.0130)	(.0130)	(.0130)	(.0130)	(.0130)	(.0130)
Age	.0197***	.0201***	.0194***	.0201***	.0197***	.0201***	.0196***	.0203***
	(.0052)	(.0052)	(.0052)	(.0052)	(.0052)	(.0052)	(.0052)	(.0052)
Children number	.1311*	.1390*	.1241*	.1252*	.1310*	.1389*	.1253*	.1274*
	(.0569)	(.0570)	(.0567)	(.0509)	(.0569)	(.0570)	(.0568)	(.0052)
Urban *(rural omitted*)	-.0763	-.0960	-.0572	-.0726	-.0758	-.0955	-.0608	-.0781
	(.0230)	(.0903)	(.0904)	(.0901)	(.0905)	(.0902)	(.0904)	(.0902)
CCP *(non-CCP omitted)*	3185*	.3005+	.3030+	.2675+	.3183*	.3003+	.3070*	.2785+
	(.1559)	(.1561)	(.1554)	(.1557)	(1559)	(.1561)	(.1555)	(.1558)
Occupational status	-.0048	-.0047	-.0047	-.0045	-.0048	-.0047	-.0047	-.0045
	(.0036)	(.0037)	(.0036)	(.0036)	(.0036)	(.0037)	(.0036)	(.0036)
Constant	2.3251***	2.2604***	2.3417***	2.2612***	2.3230***	2.2589***	2.3355***	2.2548***
	(.3423)	(.3437)	(.3410)	(.3420)	(.3426)	(.3441)	(.3416)	(.3428)
R squared	.3292	.3253	.3353	.3331	.3292	.3253	.3340	.3310
Observations	790	790	790	790	790	790	790	790

Note: Standard errors in parentheses. Except for variables with specified years, all variables are measured in the 2014 Wave.

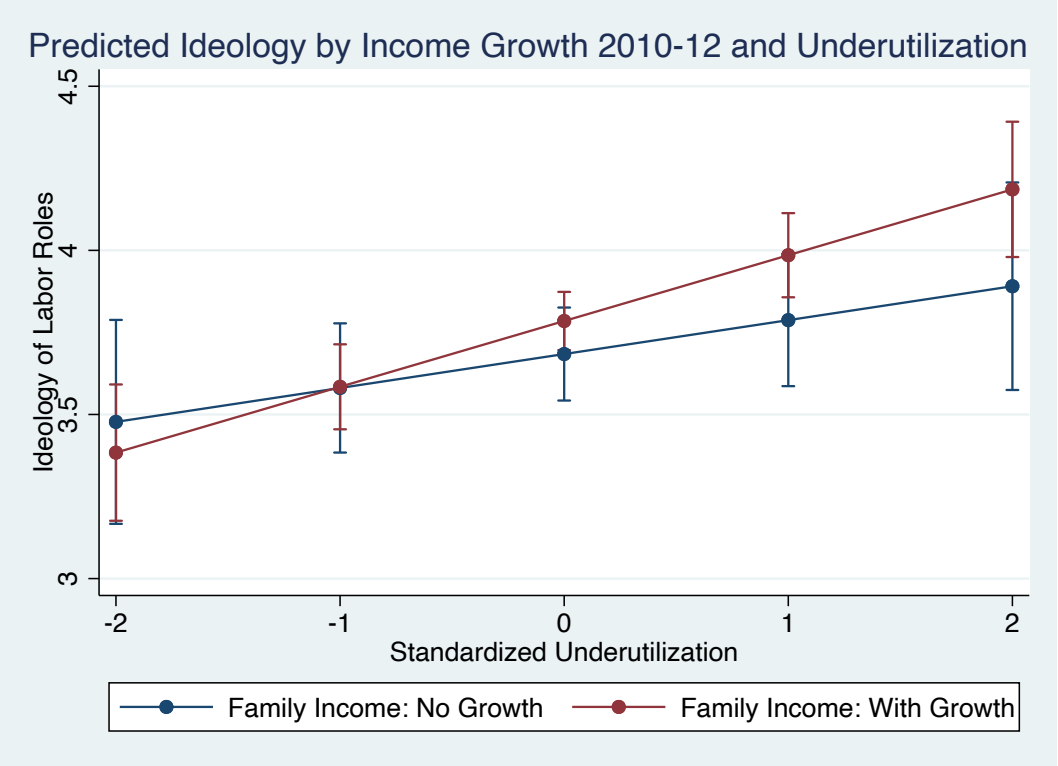
† P < .1; * P < .05; ** P < .01; *** P < .001. Two-tailed tests.

Table 2-5. OLS Regression Predicting Traditional Labor Role by Family Income Changes in 2014

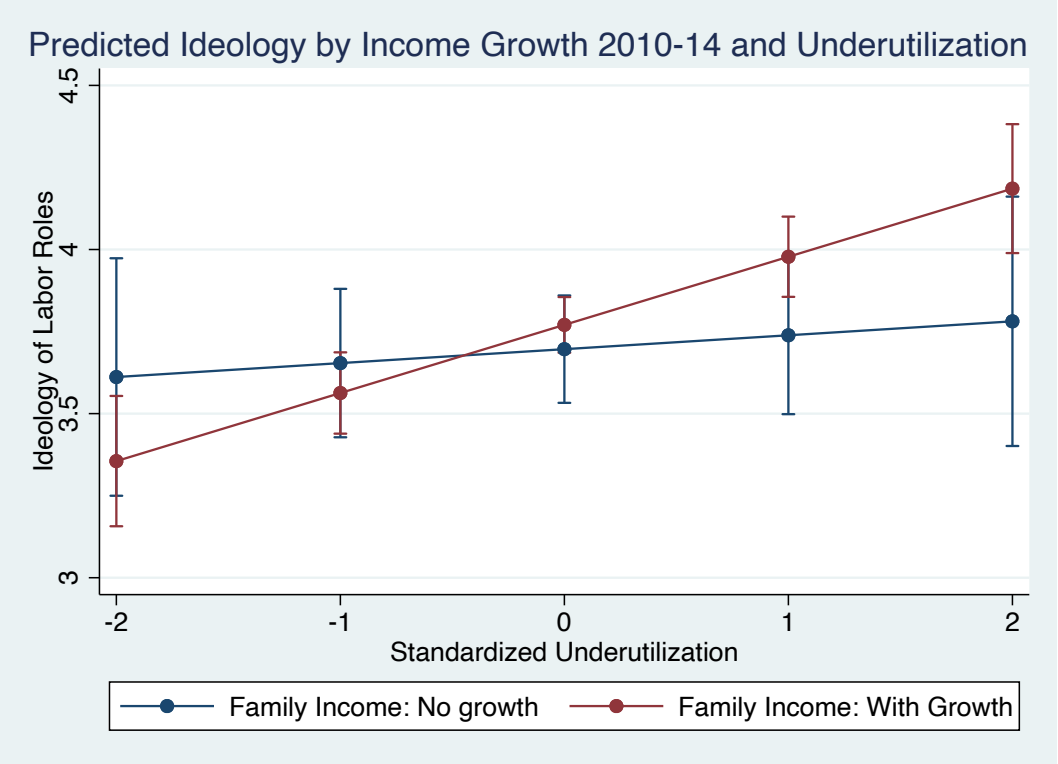
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Underutilization 14	.4456***		.2646*		.4456***		.3118*	
	(.1047)		(.1249)		(.1047)		(.1225)	
Forgone value 14		.0414***		.0236+		.0414***		.0270*
		(.0116)		(.0130)		(.0116)		(.0128)
Family income change per capita (14-10)	.0055	.0068	-.0258	-.0336				
	(.0494)	(.0496)	(.0507)	(.0511)				
Family income change (14-10)					.0088	.0091	-.0139	-.0247
					(.0476)	(.0478)	(.0487)	(.0493)
Underutilization 14 * Family income change per capita (14-10)			.3276**					
			(.1242)					
Forgone value 14 * Family income change per capita (14-10)				.0421**				
				(.0140)				
Underutilization 14 * Family income change (14-10)							.2521*	
							(.1207)	
Forgone value 14 * Family income change (14-10)								.0369**
								(.0141)
Good marriage over career	.3627***	.3650***	.3642***	.3685***	.3627***	.3650***	.3624***	.3656***
	(.0297)	(.0299)	(.0296)	(.0297)	(.0297)	(.0299)	(.0297)	(.0298)
Hypergamy	-.0770	-.0824	-.0749	-.0846	-.0769	-.0824	-.0781	-.0878
	(.1051)	(.1055)	(.1047)	(.1050)	(.1051)	(.1055)	(.1048)	(.1051)
Hypogamy	-.2408*	-.2253*	-.2496*	-.2455*	-.2406*	-.2251*	-.2437*	-.2378*
	(.1011)	(.1013)	(.1007)	(.1010)	(.1011)	(.1013)	(.1008)	(.1010)
(Homogamy omitted)								
Education (no. year)	-.0627***	-.0567***	-.0643***	-.0578***	-.0626***	-.0567***	-.0644***	-.0579***
	(.0130)	(.0130)	(.0130)	(.0129)	(.0130)	(.0130)	(.0130)	(.0129)
Age	.0198***	.0200***	.0197***	.0198***	.0198***	.0200***	.0197***	.0199***
	(.0051)	(.0052)	(.0051)	(.0052)	(.0052)	(.0052)	(.0051)	(.0051)
Children number	.1209*	.1275*	.1155*	.1188*	.1207*	.1274*	.1168*	.1214*
	(.0569)	(.0570)	(.0567)	(.0568)	(.0568)	(.0569)	(.0567)	(.0568)
Urban *(rural omitted*)	-.0315	-.0631	-.0095	-.0391	-.0310	-.0629	-.0120	-.0400
	(.0915)	(.0908)	(.0915)	(.0907)	(.0913)	(.0907)	(.0916)	(.0907)
CCP *(non-CCP omitted)*	.3150*	.2936+	.3252*	.2985+	.3153*	.2938+	.3185*	.2885+
	(.1548)	(.1552)	(.1543)	(.1544)	(.1548)	(.1552)	(.1545)	(.1546)
Occupational status	-.0051	-.0052	-.0058	-.0059	-.0050	-.0052	-.0055	-.0057
	(.0036)	(.0036)	(.0036)	(.0036)	(.0036)	(.0036)	(.0036)	(.0036)
Constant	2.2903***	2.2303***	2.3391***	2.2768***	2.2860***	2.2271***	2.3313***	2.2722***
	(.3431)	(.3446)	(.3423)	(.3432)	(.3433)	(.3449)	(.3433)	(.3440)
R squared	.3365	.3320	.3424	.3396	.3365	.3320	.3402	.3378
Observations	790	790	790	790	790	790	790	790

Note: Standard errors in parentheses. Except for variables with specified years, all variables are measured in the 2014 Wave.

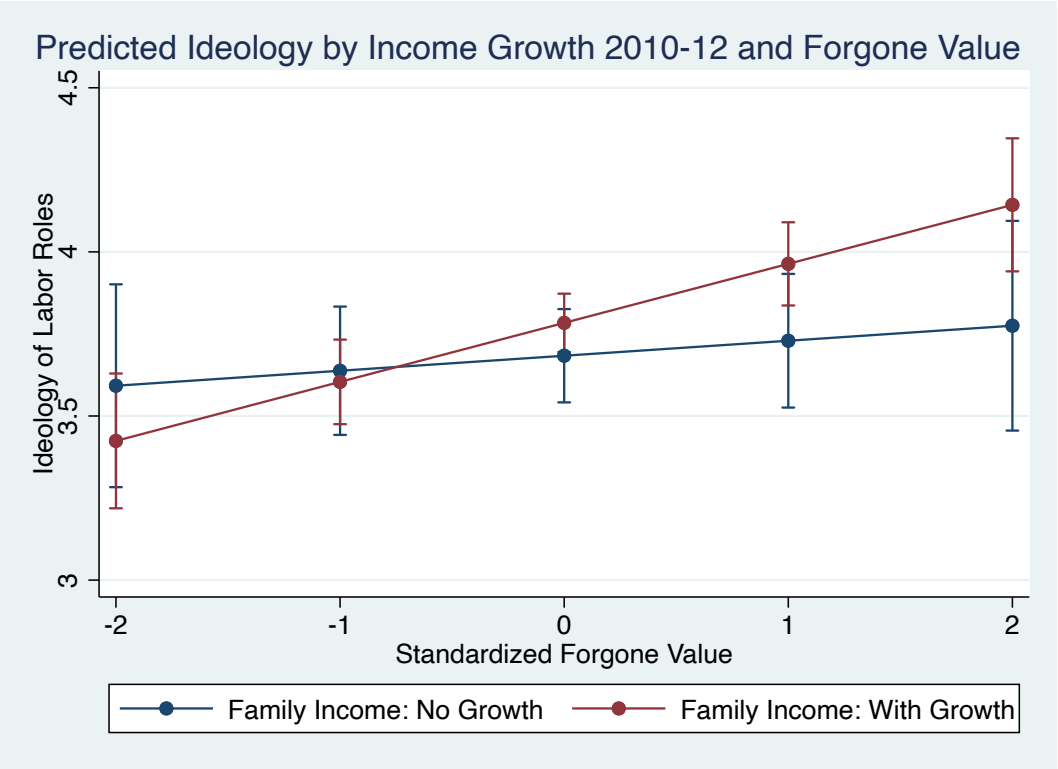
† P < .1; * P < .05; ** P < .01; *** P < .001. Two-tailed tests.



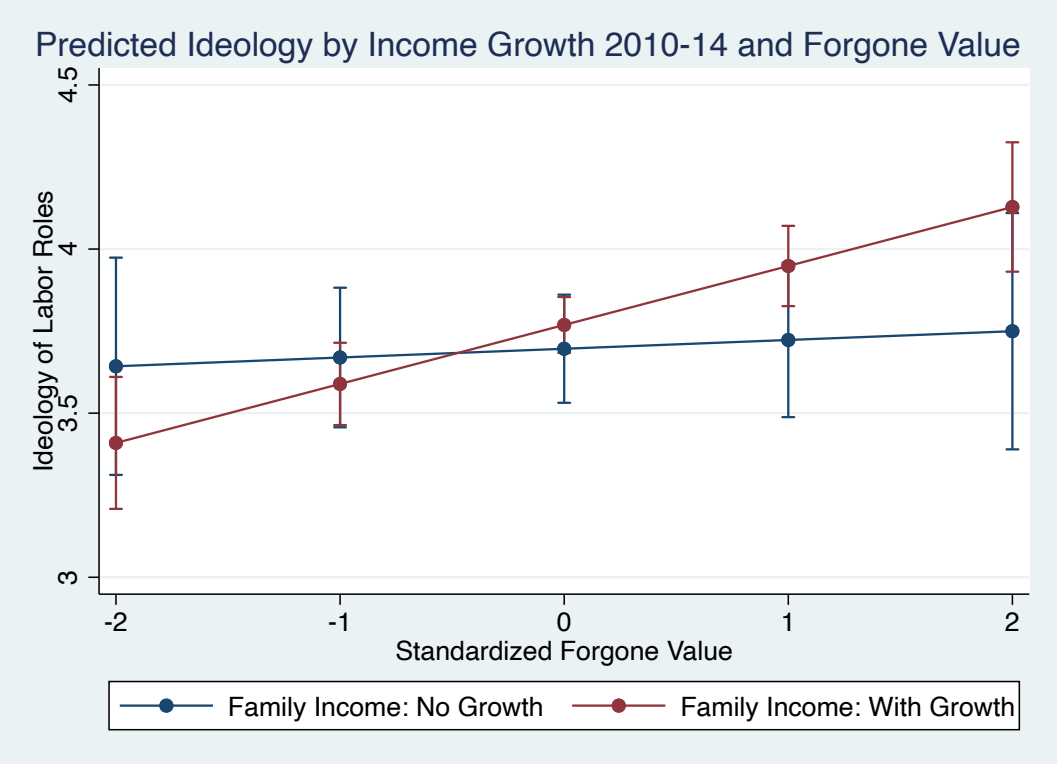
(a) Ideology of Labor Roles and Underutilization, Grouped by Family Income Growth 2010-12



(b) Ideology of Labor Roles and Underutilization, Grouped by Family Income Growth 2010-14



(c) Ideology of Labor Roles and Forgone Value, Grouped by Family Income Growth 2010-12



(d) Ideology of Labor Roles and Forgone Value, Grouped by Family Income Growth 2010-14

Figure 2-2. Predicting Ideology of Labor Roles by Underutilization Indicators and Family Income Growth

Note: Spiked lines represent 95% confidence interval

2.5 DISCUSSIONS

Our study engages with both sociological and neoclassical economic approaches to demonstrate the mutual confirmation of cultural beliefs and economic gains. We accomplish this through three main steps. First, we employ a sociological approach to hypothesize and demonstrate that traditional gender ideology correlates with married women's underutilization of education-related human capital and the resulting forgone income. Second, using a neoclassical economic framework, we propose and confirm that married women's underutilization of education-related human capital and forgone income can boost household earnings, mediated by the husband's increased personal income. Lastly, we illustrate how economic gains further strengthen gender ideology, showing that traditional gender beliefs are more pronounced when the same level of underutilization and forgone income coincides with an increase in family income.

Our findings emphasize that these two perspectives are not mutually exclusive but can interact and reinforce each other. Consequently, we aim to develop a new framework that disentangles the intricate relationships between internalized norms and instrumental rationality within gender ideologies.

2.5.1 An Integrated Framework of Gender Ideology Revolution

Based on our findings, we propose a two-dimensional framework that is particularly relevant to understanding the evolution of gender ideologies (Figure 2-3). The horizontal dimension represents the goals suggested by various gender ideologies. Examples include whether a woman should give priority to helping her husband’s

career rather than her own career, whether a woman's happiness lies in the family, whether a mother should give priority to childrearing rather than her own career, whether a mother should simultaneously take the role of a mother and a worker. In other words, it includes the goals that assorted gender ideologies suggest, such as egalitarianism, essentialism, intensive mothering, egalitarian essentialism, feminism, socialist feminism, and so forth. On the contrary, the vertical dimension represents instrumental rationality, indicating the effectiveness of achieving a given goal. In our context, while gender ideologies suggest certain goals, institutional factors determine whether these goals can be effectively realized.

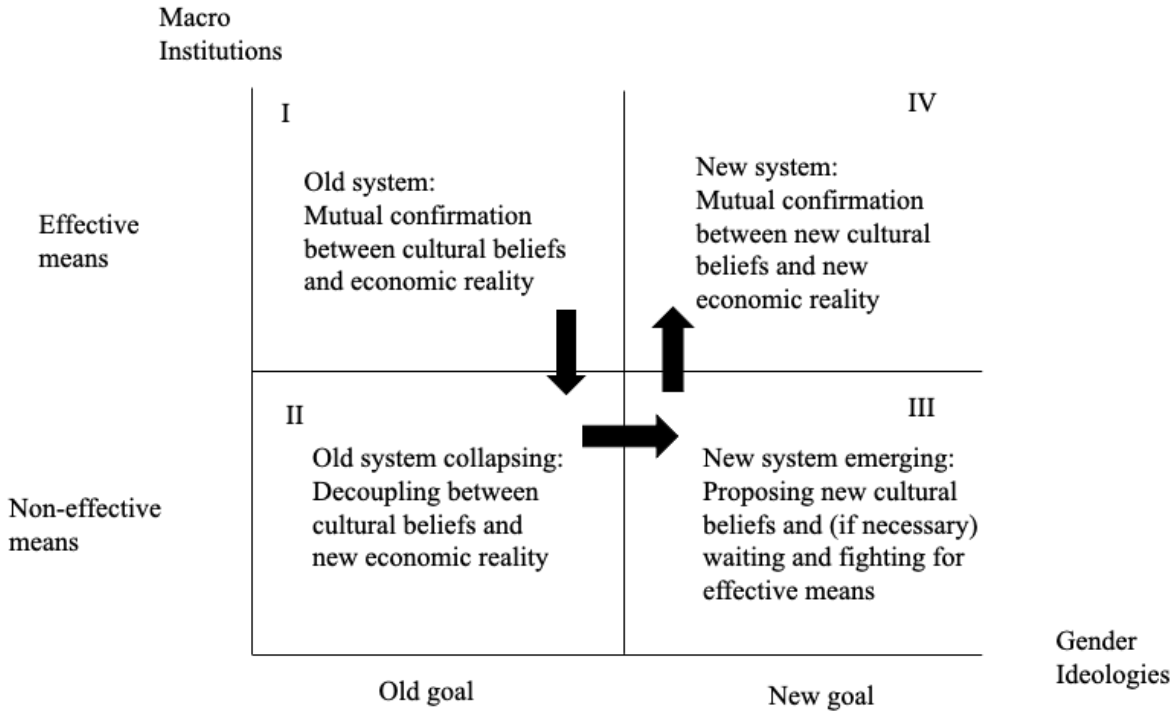


Figure 2-3. A Framework of Gender Ideology Revolution

This framework holds significant implications for understanding the evolution of gender ideologies and for conditioning gender inequalities. In Quadrant I, where

effective means exist to pursue the goals suggested by gender ideologies, the gender system remains stable. Here, the reality and meaning of gender ideologies, or economic gains and cultural beliefs, are intertwined, and internalized norms and cultural beliefs tend to be self-fulfilling, even from the perspective of instrumental rationality.

In Quadrant II, the reality and meaning of gender ideologies are decoupled due to a lack of effective means to achieve the proposed goals. As a result, these goals become somewhat unrealistic or aspirational.

Quadrant III reflects a situation where the reality and meaning of the original gender ideology have decoupled. Individuals in this quadrant exercise agency to revise their gender ideology, incorporating new goals that are accompanied by suggested effective means. Depending on the availability of these means to achieve the new goals, individuals may directly transition to a new stable gender system in Quadrant IV or engage in efforts to bring about this change.

Notably, if gender ideologies shift when effective means for pursuing the new goals already exist, a direct transition from the old gender system (Quadrant I) to the new gender system (Quadrant IV) is possible. However, when effective means are lacking, identifying instrumental irrationality becomes essential for driving a gender ideologies revolution, involving a transition through Quadrants II and III. Subsequently, we will apply our framework to analyze various scenarios of gender ideologies revolution and can inform policy discussions aimed at addressing gender inequalities.

2.5.2 Stable Traditional Gender Ideology of the Breadwinning Role

Applying our proposed framework and integrating insights from previous research along with the empirical findings of this study, we contend that the gender ideology in modern China aligns with Quadrant I. In Quadrant I, the reality and meaning, or economic outcomes and cultural beliefs, are closely intertwined, and gender ideology tends to be self-fulfilling even from the perspective of instrumental rationality.

In terms of reality or economic outcomes, the past half-century has witnessed a regression in gender equality within the Chinese labor market. Gender equality in employment was relatively high during the socialist era, with Chinese women experiencing one of the world's highest employment rates and one of the lowest gender earnings gaps (Stockman, 1994; Whyte & Parish, 1984; Wolf, 1985). However, since the economic reforms of the 1980s, a productivity-driven market without sufficient work-family policies has led to a continuous decline in women's labor force participation and a widening gender earnings gap. For example, the urban employment rate for women dropped from over 90 percent in the socialist era to just above 60 percent (Kan & He, 2018; Y. Wu & Zhou, 2015). Additionally, the gender earnings ratio in urban areas decreased from over 85 percent in the 1980s to below 70 percent by the end of the 2000s (Chi & Li, 2014; Gustafsson & Li, 2000).

In terms of cultural beliefs, previous research suggests that instead of progressing towards more egalitarian gender ideology, Chinese society remains or even becomes more patriarchal and characterized by traditional gender ideology. A representative manifestation in society (and particularly the male side) is the “leftover women” (*sheng*

nu) phenomenon: Women over the age of 27 who remain unmarried are often derogatorily labeled as "leftover women" (Fincher, 2014). On the female side, many women themselves express a preference for and comfort with traditional gender roles in the post-reform era, often driven by the desire to alleviate financial pressures, as married men today typically bear significant financial burdens (M. Chen, 2018; Ji et al., 2017).

Combining economic outcomes and cultural beliefs, an implication from these studies is that institutional factors are unfavorable to women, particularly married women, which makes it economically rational for women to prioritize their husbands' careers and their own homemaking roles. Without denying the potential rationality in the counterfactual situations where male-homemaking and female-breadwinning or egalitarian division is pervasive, the findings of this study illustrate the economic rationality of the traditional division of labor. It shows that once the enhanced income of the husband is taken into account, the underutilization and forgone value of married women only have a negligible impact on family income. Furthermore, the study demonstrates that higher family income reinforces women's acceptance of traditional gender ideology, given the same quantity of underutilization and forgone value.

For policy implications, it is crucial to decouple economic outcomes and cultural beliefs by changing exogenous factors that render underutilization and forgone value harmful to family income. For instance, if the market environment becomes more favorable to women, and the forgone value for women significantly affects family

income negatively, then it would become instrumentally irrational for women to sacrifice their careers for their husbands' careers and homemaking. If both husbands and wives recognize the importance of a dual-earning family, underutilization would be less likely.

In fact, modern China has seen economic realities reshape cultural beliefs, as exemplified by the issue of childbirth. For the first time in 60 years, China recorded a population decline in 2022, with rising costs of childrearing cited as a key reason for reducing parents' willingness to have children (McCarthy, 2023). This explanation aligns with findings in studies of other societies (Folbre, 1983, 1986). While childbirth carries significant cultural meanings related to extending the family line and prospering the family in Confucianism (Chu & Yu, 2009; Slote & DeVos, 1998), economic reality prevails if having children and raising them actually lowers a family's standard of living.[3]

Meanwhile, although decoupling economic rationality and cultural beliefs is the first step, it is also crucial to provide available means to pursue the (new) goals at the institutional level. For instance, if childcare services are widely accessible, it is much easier to resolve the conflict between childrearing duties and a mother's career and to mitigate a mother's underutilization. This, in turn, facilitates the progression into a new and stable system with greater gender equality.

[3] Indeed, the lower fertility can also be attributable to Chinese women's growing awareness that childbirth and childrearing cause barriers to their careers.

2.5.3 An Agenda for Studies on Gender Ideology Revolution

While the empirical findings in this paper primarily align with Quadrant I, the framework we've proposed can serve as an analytical tool for understanding gender ideology revolution in various contexts. We call for future studies to explore these areas. Here are two examples. First, the prevalence of the overwork culture can be seen as an example of gender ideology changes across Quadrants I-II-III-IV. Initially, before the overwork culture became widespread, the economic reality of dual-earner families and egalitarian gender ideology in terms of labor participation were mutually reinforcing, placing them in Quadrant I.

Gender ideology transitions from Quadrant I to Quadrant II when the overwork culture limits the time and energy married women can dedicate to homemaking (Cha, 2010, 2013; Cha & Weeden, 2014). This decouples the economic reality of dual-earner families from egalitarian gender ideology due to the lack of effective means to achieve egalitarianism. People exert agency to re-interpret reality (Emirbayer & Mische, 1998) and begin adopting a new gender ideology. In the case of the overwork culture, this new gender ideology—non-egalitarian in labor participation—is supported by the economic reality, leading to the establishment of a new and stable gender ideology system.

A key policy implication from this framework is the need to recouple the reality and meaning of egalitarian gender ideology in labor participation. One solution is to reduce working hours. Interestingly, we have seen that many employers in the UK show interest in reducing five working days to four days a week (Simpson, 2022). Other solutions include flexible work arrangements and increased opportunities for remote

work. These non-traditional work arrangements have gained traction, particularly after the Covid-19 pandemic. Future studies could investigate whether these novel work arrangements provide economic reality to shift gender ideologies.

Second, socialist and neoliberal feminism provide two other examples of gender ideology revolution. Applying our framework, socialist and neoliberal feminism can be viewed as two alternative gender ideologies in Quadrant III. Both depart from non-egalitarian gender ideology in labor participation with the aim of empowering women, but they have different goals and effective means at their disposal.

Socialist feminism goes beyond equal opportunities between men and women in the labor market; it seeks equal economic outcomes while considering women's roles as wives and mothers, or concisely, revaluing gender difference (Folbre, 1995; Fraser, 2009; Kuhn & Wolpe, 2013). An effective means of achieving this goal is to transform women's unpaid domestic labor into paid labor, and practically, this can involve calculating, measuring, and compensating for the currently unpaid housework and caregiving responsibilities (Brenner, 2014; Folbre, 2006; Fraser, 2009). While it is still a far way to go for the market to entirely compensate the currently unpaid labor at home conducted by women, expanding welfare such as paid fertility leave, parenting leave, and caregiving service is critical to enhancing gender equality within married couples and parents (Grunow et al., 2018; Ray et al., 2010). Future studies could draw on this perspective and explore the relationship between the availability of welfare policies and support for socialist feminism using longitudinal data.

Neoliberal feminism, on the other hand, emphasizes equality of opportunity and individualism (Folbre, 1995, 2006). It argues that women should have equal chances as men in labor outcomes, but the choice of whether to pursue the same career outcomes as men is an individual decision. Practically, if women aim to be on par with men in labor outcomes, women can remain single or childless to prevent related economic penalties; if women give priority to family, marriage, and children, they trade gender parity with men in labor outcomes. An important policy implication is to ensure equal opportunities by further reducing workplace discrimination, and future studies, in turn, can examine the dynamics between encountering workplace inequalities and the support for neoliberal feminism.

2.6 CONCLUSIONS

Why do highly educated women forgo their labor income to look after the family, and do social norms, economic reality, or both play a role in this phenomenon? This study shows that social norms and economic reality can be intertwined in forming a stable system. In turn, our study contributes to several lines of literature.

First, we make a substantial contribution to the burgeoning literature on social norms and inequalities. Sociologists have long recognized that norms can perpetuate and maintain inequalities, often enduring due to the self-fulfilling nature of norms (Horne & Mollborn, 2020). However, integrating internalized norms into explanations of inequalities is intricate, given the complex, idiosyncratic, and long-term processes

by which norms are formed and operate. While prior studies have offered valuable insights into how cultural beliefs evolve through daily experiences, interactions, and socialization (Cech, 2013a; Seron et al., 2016), our focus on the effects of economic reality illustrates how economic gains can reinforce gender ideology.

The integration of internalized norms with explanations of inequalities also presents challenges due to the role of agency in individual choices. It is not uncommon for feminist and gender scholars to grapple with the concept of agency in the context of gender inequalities, as attributing inequalities to the voluntary choices of victims can be uncomfortable (Ridgeway & Correll, 2004). Through our study, which highlights the mutual confirmation between gender ideology and economic gains, we illustrate how an agentic approach to studying norms and inequalities can be undertaken without placing blame on victims.

An agentic actor is not necessarily an instrumental actor, nor an economically rational actor. An agentic actor may intentionally choose to withdraw from the labor market despite her human capital underutilization, but she is likely to be an economically *irrational* actor. Similarly, a female graduate student can exercise agency in selecting a "fitting" occupation, even if it happens to be female-dominated and low-paid (Cech 2013a; Seron et al. 2016). In contrast, an instrumental actor may exploit female underrepresentation as an advantage to lower the standards for women and enhance competitiveness in an "unfitting" occupation. However, when macro conditions and norms mutually reinforce each other, being instrumental and

economically rational leaves little room for individuals to exert agency—for instance, when prioritizing the role of homemaking and avoiding male-dominated occupations are economically rational. In such cases, individual "choices" are constrained, and thus, it is not the agency in choices that should be blamed, but rather the macro conditions.

Second, our framework offers a valuable tool for analyzing gender ideology revolution. In recent years, an increasing number of studies have recognized that individualism and self-expression can contribute to gender inequalities, because, as neoliberal feminism suggests, women are encouraged to pursue their preferences, even if their goals are considered "non-egalitarian" (Cech, 2013a; Charles & Bradley, 2009; Cotter et al., 2011). It is indeed not tenable to challenge this autonomous choice framing by claiming the “non-egalitarian” but agentic choices as regressive whereas claiming the “egalitarian” but universal choice as progressive in gender ideology revolution. In this sense, it is essential to avoid framing the revolution as progressing unilaterally from traditional to liberal ideologies or from non-egalitarian to egalitarian ones.

Instead, our framework only distinguishes between "old" and "new" ideologies, recognizing that both old and new ideologies can encompass either egalitarian or non-egalitarian beliefs. Accordingly, our research focuses on examining the effectiveness of means rather than specific goals. As demonstrated by our empirical findings and proposed agenda, our framework possesses significant potential to serve as a general tool for analyzing gender ideology revolution.

Third, we contribute to discussions surrounding economic self-interest and norms

in the division of labor within households. Economic self-interest suggests that, from the supply side, differences in income within households are voluntary, and any individual loss experienced by married women should be compensated elsewhere (Becker, 1981). In contrast, sociological norms propose that, from the supply side, differences in income within households are also voluntary, but the individual loss incurred by married women can be a pure loss, as behaviors need not be explained in economically rational terms (Ridgeway & Correll, 2004; Ridgeway & Smith-Lovin, 1999). As Folbre (1995) notes, determining whether norms are right, proper, or optimal is challenging. Nevertheless, we can assess whether norms align with economic rationality. Through empirical examination of the economic consequences of gender ideology in China, we find little to no economic irrationality associated with traditional gender ideology on average. In other words, economic self-interest and norms are interwoven in the division of labor within households.

Meanwhile, the mutual confirmation provides a critique of household production theory, and in turn, we call for a balance in gender and family studies between highlighting individual rationality at the micro level and proposing structural changes at the macro level. When highlighting utility maximization at the family level, household economic theories understate the gender inequalities within the family and the economic dependency that results from economic rationality under the macro institutions. While bargaining models and Marxian approaches acknowledge the exploitation and oppression within the family (Folbre, 1986), our paper furthers the

critique by incorporating the roles of social norms and ideology. Specifically, our empirical findings indicate that under the macro institution, underutilizing married women's human capital largely complies with economic rationality at the family level, and economic rationality also reinforces traditional gender ideology and perpetuates gender inequalities by shaping gender ideology. This leads us to consider the importance of structural changes at the macro level.

As is customary, this study has certain limitations. First, we conducted an additional analysis with individual fixed effects to address the possibility of self-selection in H2. While this approach mitigates the risk of findings being entirely attributable to assortative mating by the husband's income, it remains plausible that a wife adjusts her labor participation in response to changes in her husband's income. Future studies can delve deeper into the mechanisms underlying income dynamics between spouses by specifying the causes of underutilization. Second, our study relies on the assumption that norms and ideologies guide individual decisions and actions. This assumption serves as a boundary condition of our study since it implies that people, on average, do not act in contradiction to their internalized norms, especially in significant decisions such as labor participation. Subsequent studies can explore the extent to which this assumption holds true concerning labor participation.

CHAPTER 3 DOES WOMEN'S UNDERUTILISED HUMAN CAPITAL BENEFIT THEIR CHILDREN'S EDUCATION? EVIDENCE FROM CHINA

Abstract

In social research, the intergenerational transmission of socioeconomic advantages is widely recognized, especially the substantial influences of parental socio-economic status on children's educational attainment. However, two key aspects in this intergenerational transmission remain largely unexplored. First, it remains unclear whether a mother brings additional benefits to her children's education if she underutilizes her education-related human capital in the labor market and dedicates more time to childcare. Second, while parental total resources are crucial in shaping children's education, few studies have systematically investigated parental relative resources.

Using data from the China Family Panel Studies and treating China as a case study, the analysis reveals that not only does the underutilization of married women's human capital fail to translate into improved educational outcomes for their children, but it may also negatively affect them. Furthermore, the findings indicate: (a) When the total quantity of parental income and education is controlled, the relative levels of these factors have distinct effects on children's educational outcomes. (b) The influence of mothers' resources on their children's educational outcomes differs significantly from that of fathers'. Results are discussed in terms of the implications for gender inequalities and intergenerational stratification with relevance beyond a single society.

3.1 INTRODUCTION

In social research, intergenerational transmission of socioeconomic advantages is extensively acknowledged, particularly the considerable influences of parental socioeconomic status (SES) on children's educational attainment (e.g., Davis-Kean et al., 2021; Duncan et al., 2012; Harding et al., 2015; Hsin & Xie, 2017; Ichou, 2014; Roksa & Potter, 2011). While all aspects of SES are believed to influence educational outcomes, their distinct impacts have been well-documented (e.g., Davis-Kean, 2005; Davis-Kean et al., 2019; Erikson, 2016; Klebanov et al., 1994; J. R. Smith et al., 1997). This study specifically delves into how parental education and income shape children's educational achievements.

Prior research has outlined three prominent perspectives regarding how family background affects an individual's educational attainment: human capital, social capital, and cultural capital perspectives (Farkas, 2003). The human capital perspective underscores how high-SES parents invest financially in their children's education, thereby positively impacting their educational outcomes (Becker, 1964; Haveman & Wolfe, 1994; Mincer, 1958; Mincer & Polachek, 1974; Schultz, 1960, 1981). The social capital perspective considers high-SES parents as the social capital of their children and underscores both (a) the participation of parents in educational activities and (b) parental social connections that enable them to access educational information and resources (Coleman, 1988; Pong et al., 2005; Teachman et al., 1997). The cultural capital perspective asserts that high-SES parents cultivate skills, habits, and knowledge

characteristic of "high culture," aiding their children's success in school (Bourdieu, 1977a; DiMaggio, 1982; Lareau & Weininger, 2003; Roksa & Potter, 2011; Swidler, 1986).

While the existing literature offers significant insights into the advantages high-SES parents provide for educational outcomes, two key aspects in this intergenerational transmission remain largely unexplored. First, maternal education plays a pivotal role in shaping educational outcomes (Bradley & Corwyn, 2002; Choi et al., 2008; Harding et al., 2015; Holmlund et al., 2011; Reardon, 2011; Sirin, 2005), but it remains unclear whether children's educational achievements benefit more from a highly educated mother with a high personal income or from a highly educated mother with a lower personal income. Central to this question is whether a highly educated mother brings additional benefits to children's education if she underutilizes her education-related human capital in the labor market and dedicates more time to childcare.

Both the social capital and cultural capital perspectives previously mentioned suggest that parenting activities are crucial in intergenerational transmission. From this, two corresponding implications can be drawn. Firstly, within parenting activities, it's the level of education rather than income that notably influences the quality of the parenting provided. Secondly, the time parents spend with their children is crucial for the children's educational outcomes. Thus, as long as a family has sufficient financial resources to engage in parenting activities, children might benefit more from a highly educated mother with a lower personal income, as this mother would have more time

resources compared to a highly educated, highly-paid mother. This prediction aligns with a notion in economic literature suggesting that income loss and specialization following motherhood can be seen as investments in children's human capital (Mincer & Polachek, 1974). Therefore, the primary aim of this study is to empirically examine the “mothers’ underutilized human capital transferring to children” hypothesis, termed the “human capital transfer” hypothesis.

The second aspect to explore within the intergenerational transmission is the differential effects of mothers and fathers on children’s educational outcomes. While numerous studies have highlighted the significance of familial and parental resources in determining children's outcomes (e.g., Davis-Kean, 2005; Erikson, 2016; Haveman & Wolfe, 1995; Hsin & Xie, 2017; Klebanov et al., 1994; Reardon, 2011; Roksa & Potter, 2011; J. R. Smith et al., 1997; W. J. Yeung et al., 2002), few have systematically investigated parental relative resources. For example, when holding parental education constant (e.g., one high-school-educated parent and one college-educated parent), would children’s educational outcomes benefit more from the combination of a high-school-educated mother with a college-educated father, or vice versa? The same question pertains to parental income. Hence, the second aim of this study is to examine how parental relative resources affect children’s educational outcomes, and particularly, we do so by drawing on the lens of family systems theory.

Utilizing data from the China Family Panel Studies and considering modern China as a case study, this research reveals that the underutilization of human capital by

married women not only fails to transfer to their children's educational outcomes but also has a detrimental effect on them. Additionally, the relative distribution of parental resources, encompassing education and income, significantly impacts children's educational outcomes when total quantity is controlled for. Lastly, the influence of mothers on their children's educational achievements differs significantly from that of fathers.

By addressing these questions, this study contributes to the research on gender inequalities and intergenerational stratification. Firstly, it makes contributions to the field of gender inequalities by examining the concept of motherhood penalties within a capital transfer framework. While motherhood is often considered a cause of gender income disparity, the norm of “intensive motherhood” (Cotter et al., 2011), a rational investment perspective (Guryan et al., 2008; Mincer & Polachek, 1974), and the parenting mechanisms involved in intergenerational transmission all imply that the economic penalties resulting from motherhood might actually be investments in the human capital of the next generation. I expand this scholarly discourse by showing evidence against the human capital transfer hypothesis and emphasizing the crucial role of a mother's relative resources in shaping children’s educational outcomes.

Secondly, this study contributes to the field of intergenerational stratification from a gender perspective. While research on children’s educational outcomes often overlooks parental relative resources, a small body of research underscores the pivotal role of gender inequalities between parents in the persistent cycle of poverty across

generations, particularly regarding children's health, nutritional status, and susceptibility to disease (e.g., Delisle, 2008; Osmani & Sen, 2003; L. C. Smith et al., 2003). This study complements this line of work by shifting the focus to children's educational achievements.

3.2 THEORY AND HYPOTHESES

3.2.1 Capital Transfer

Will children's educational outcomes benefit if a mother underutilizes her education-related human capital in the labor market? This idea finds support in various bodies of literature. The economics literature widely asserts that parental resources transform into different forms of capital, transmitted to the next generation through various channels (e.g., Black et al., 2005). This concept of fungibility and transferability suggests that possessed resources do not disappear easily; instead, they may transform and transfer. In this context, when a highly-educated mother underutilizes her education-related human capital, the underutilization can be seen as an investment in building the human capital of children (Mincer & Polachek, 1974). Numerous empirical studies support this notion. For instance, Bernal (2008) emphasizes that maternal employment and the use of childcare services significantly and negatively affect children's early-year ability test scores (see more in D. M. Blau, 1999; NICHD Early Child Care Research Network, 1999; Ruhm, 2004; Schildberg-Hoerisch, 2011).

While the economics literature is rooted in rational assumptions about individuals, the parenting literature offers valuable insights into potential mechanisms behind the

transfer. Existing literature broadly categorizes parenting mechanisms related to parental education and children's educational outcomes into two groups: shaping educational expectations/aspirations and parental involvement/participation in educational activities (e.g., Davis-Kean et al., 2019, 2021; Duncan et al., 2003). Parental involvement/participation can be further classified based on activities within and outside the home (Davis-Kean & Sexton, 2009) or based on their relevance to human, cultural, and social capital (Harding et al., 2015).

An example of parenting at home is language use. Highly educated mothers tend to engage in more frequent, complex, and extensive communication with their children (Bergman, 2019; Hoff, 2003). Beyond direct parent-child communication, children's exposure to discussions between parents and others also influences their vocabulary abilities (Harding et al., 2015; Hoff-Ginsberg, 1991). Educated mothers also provide more and higher-quality engagement in intellectually stimulating parenting practices, such as reading, storytelling, singing, painting, aiding with homework, monitoring academic progress, and so forth (Bergman, 2019; De Graaf et al., 2000; Harding et al., 2015; Sullivan, 2001). Outside the home, these enrichment activities encompass visits to libraries, theaters, museums, and other cultural institutions (Lareau, 2011). Regardless of location, time spent with children offers more opportunities for them to be influenced by their parents, allowing highly educated parents to model and instill the value of educational attainment in their children (Harding et al., 2015).

In addition to time spent with children, highly educated parents possess better skills

in interacting with schools and teachers, providing advantages for their children in educational settings (Lareau, 1987; Roksa & Potter, 2011). Moreover, highly educated parents have improved access to educational information, enhancing their decision-making regarding education (Portes, 2000).

In summary, parenting activities are both labor-intensive and cognitively demanding. The former requires significant time and energy from parents, while the latter implies that varying levels of parental education result in different parenting qualities. Considering the mentioned parenting activities collectively, it's evident that time is central to both in-home and outside-home parenting activities. If time spent is held constant, highly educated parents can deliver higher-quality parenting. Consequently, a highly-educated mother with a low personal income is likely to have more time for parenting than a highly-educated, well-paid mother, and their parenting quality might be similar due to their shared educational level.

Building upon the rational transfer concept in the economics literature and insights from parenting studies, I posit that the more a mother underutilizes her education-related human capital, the more significant her investment in her children's human capital. When I refer to "underutilization", I conceptually denote the difference between a mother's actual earnings while involved in childcare responsibilities and the potential income she could have earned without those responsibilities. Practically, I use relative parental education and income to gauge the extent of a mother's underutilization and posit that the greater the difference between a mother's relative education and relative

income, the more pronounced her underutilization of human capital. While I will detail the operationalization of underutilization later, in conceptual terms, I hypothesize:

Hypothesis 1 (H1): Children's educational outcomes are positively influenced by the underutilization of a mother's human capital.

3.2.2 Parenting and Marital Quality: Interplay between Spouse Subsystem and Parent-children Subsystem

While the positive impact of parental total resources on children's educational outcomes is well-documented, the influence of parental relative resources remains relatively unexplored. I aim to investigate this aspect by leveraging family systems theory. Recognized as one of the most influential theories in child development, family systems theory suggests that the family comprises various subsystems (see Kerr et al., 1981; Minuchin, 1985). These subsystems include the spouse subsystem, the parent subsystem, the parent-child subsystem, the father-child subsystem, and the mother-child subsystem, among others, leading to a "child's simultaneous membership in varied subsystems" (Minuchin, 1985, p. 291). The first perspective drawn from family systems theory centers on the interaction between the spouse subsystem and the parent-children subsystem (see a similar treatment in Rauscher, 2020).

It is widely recognized that a positive marital relationship plays a crucial role in child development (e.g., Belsky, 1981; Belsky & Fearon, 2004). A nurturing home environment and effective parenting, often stemming from harmonious marital relationships, significantly contribute to children's cognitive, emotional, and behavioral

development (Bornstein, 2005; Brooks-Gunn & Markman, 2005). Among various contributing factors, educational homogamy is commonly believed to enhance marital quality and improve parenting practices. Educational homogamy implies similarities between spouses in terms of culture, norms, and social status (DiMaggio & Mohr, 1985; Mare, 1991; Schwartz & Mare, 2005). Equally educated parents tend to experience fewer conflicts in their marriage, demonstrate aligned decision-making preferences, and engage in more effective communication (Beck & González-Sancho, 2009; Belsky & Fearon, 2004). This fosters a positive environment for child development, enhancing the effectiveness of parenting, as well as coordination and collaboration in nurturing children's human capital (Beck & González-Sancho, 2009; Rauscher, 2020). Drawing from insights on educational homogamy, I propose:

Hypothesis 2 (H2): Children's educational outcomes are positively influenced by the similarity in educational attainment between parents.

Unlike the effects of educational similarity, the influence of income similarity on children's outcomes is more nuanced. Nonetheless, there are at least two reasons to suggest the positive effects of income similarity between parents. Firstly, echoing the earlier logic, parents with similar personal incomes are prone to share common values, norms, tastes, and preferences. Since workplace experiences can shape values and norms (Bolzendahl & Myers, 2004; N. J. Davis & Robinson, 1991; Grunow et al., 2018; Rhodebeck, 1996), a mother with a similar income to her husband will be more likely

to share experiences, values, and norms. Moreover, within their social networks, it is reasonable to expect that parents with comparable incomes are connected with individuals of similar economic standing (Granovetter, 1973; Homans, 1961), further reinforcing their shared similarities. This shared common ground reduces the potential for marital conflicts and enhances effective and efficient communication regarding children's human capital development.

Secondly, research consistently indicates that a couple's relative income significantly influences marital power dynamics (G. W. McDonald, 1980; Safilios-Rothschild, 1970; Shu et al., 2013). Income similarity suggests a more balanced distribution of marital power, reducing potential exploitation between spouses and fostering increased marital stability. These aspects are known to improve children's educational outcomes, as extensively evidenced in studies on divorce and family structure (e.g., Bernardi & Radl, 2014; Brand et al., 2019). Marital stability contributes to enhanced parental mental health and improved parenting practices (Downey & Coyne, 1990; Lovejoy et al., 2000; Mclanahan & Percheski, 2008; L. C. Smith et al., 2003), consequently benefiting children's educational outcomes. Thus, I raise:

Hypothesis 3 (H3): Children's educational outcomes are positively influenced by the similarity in personal income between parents.

3.2.3 Power and Preference: Distinction between Mother-child Subsystem and Father-child Subsystem

Apart from the interaction between the spouse subsystem and the parent-children

subsystem, family systems theory offers another crucial insight: the distinction between the father-child subsystem and the mother-child subsystem. Extensive developmental literature robustly details the differential influence of mothers and fathers on child development (for a survey, see Belsky, 1981). Moreover, many studies underscore the varied significance of maternal and paternal education in shaping children's human capital (e.g., Black et al., 2005; Davis-Kean, 2005; Plug, 2004). Viewing parental resources from this perspective reveals that the combined influence of maternal and paternal resources on child outcomes is more intricate than the mere sum of each component. Consequently, I employ this viewpoint to formulate hypotheses regarding how parental relative education and income affect children's educational outcomes.

Financial investment's significant role in shaping children's educational outcomes is extensively documented as it exposes children to enriching environments and experiences like family trips and extracurricular activities (Haveman & Wolfe, 1994; W. J. Yeung et al., 2002). Holding family income constant, the actual investment amount becomes crucial, but the subsequent question arises: will children's educational outcomes benefit more from a highly-paid mother or a highly-paid father?

Previous research suggests that mothers often exhibit a higher degree of altruism concerning family expenditure compared to fathers (e.g., Alfano et al., 2011; Haddad & Hoddinott, 1994). Conversely, men's traditional gender role as the primary breadwinner predisposes them to prioritize the financial aspects over mundane and child-related aspects of family affairs (Shu et al., 2013). This aligns with gender

stereotype theory—women are more communal, while men are more agentic (Eagly & Steffen, 1984; Eagly & Wood, 1991).

Consequently, if a mother has a higher personal income, she will likely have more resources available to spend on educational resources and enriching experiences. Although there exists a conceptual distinction between personal income's contribution to households and control over the corresponding share of familial financial resources, both the bargaining model and the exchange theory support the expectation of an association between personal income and the freedom to allocate it at one's discretion (Cook, 1987; Lundberg & Pollak, 1993). Therefore, I propose:

Hypothesis 4 (H4): Children's educational outcomes are positively (negatively) associated with the mother's (father's) relative income.

While a highly-educated mother is expected to positively impact her children's educational outcomes compared to a less-educated mother, there is less clarity on whether a highly-educated mother or a highly-educated father has a more significant influence on their children's educational achievements. Drawing upon an investment awareness mechanism, I anticipate children benefiting more from a highly-educated father than a highly-educated mother.

The rationale behind this is as follows. Since both highly-educated mothers and fathers tend to allocate a larger share of their budget towards educational resources and enrichment-related experiences such as family trips, books, school supplies, and

recreational activities (Davis-Kean, 2005; Kaushal et al., 2011), the difference between mothers and fathers in the baseline level of awareness regarding investment and the inclination to invest in children's education plays a crucial role here. On average, fathers typically spend less time caring for children compared to mothers (Bradley & Corwyn, 2002; Harding et al., 2015) and are more inclined to prioritize resource allocation in other areas over children (Alfano et al., 2011; Haddad & Hoddinott, 1994; Shu et al., 2013). It follows that fathers are expected to be more sensitive to the impact of their education on investments in their children's education. While mothers, irrespective of their education, demonstrate awareness and willingness to invest in children's education, fathers exhibit a wider variance in awareness and willingness, significantly influenced by the father's education.

From an instrumental perspective, when a father possesses higher educational qualifications than the mother, he is more likely to recognize the importance of education in acquiring socioeconomic resources. Consequently, he is more aware of the significance of investing in his children's education. From an emotional and psychological standpoint, it is reasonable to assume that a father with higher educational attainment places a premium on his achieved status and, by extension, on the value of education. This attachment to educational achievement is likely to be reflected in his attitude toward his children's education.

Finally, considering the high average awareness and willingness of a mother, the high awareness and willingness of a father suggests consistency between parents, while

a lower awareness and willingness of a father implies conflicts. As a result, children's educational outcomes are expected to benefit more from a highly-educated father and a less-educated mother than the reverse scenario. Hence:

Hypothesis 5 (H5): Children's educational outcomes are negatively (positively) associated with the mother's (father's) relative education.

Table 3-1 summarizes all the hypotheses, each of which predicts how a mother's relative education and income will impact children's educational outcomes in distinct ways. Less explicit is Hypothesis 1 where underutilization is determined by the interaction of a mother's relative education and income. Specifically, the larger the difference between a mother's relative education and relative income, the more significant the underutilization, ultimately leading to improved children's educational outcomes.

Hypothesis 1 is based on an economically rational logic that treats each individual family member as independent, considers individual resources as transferable, and assumes family resources to be constant. This assumption arises from the belief that economically rational agents would not trade their owned resources for "nothing". Thus, the economic penalties caused by motherhood are anticipated to be offset by an increase in children's human capital. The essential role of time and education (as opposed to income) implied in the parenting literature provides specific mechanisms to support this rational transfer notion.

Table 3-1. Summary of the Theoretical Perspectives

Theoretical perspectives	Mechanisms	Predicted relationships between mother's relative education and relative income in influencing children's education
Economical rationality	Mother's human capital transfer	Interaction
Family systems theory	Interplay between spouse subsystem and parent-child subsystem	Addition (same direction)
	Distinction between mother-child subsystem and father-child subsystem	Offset (opposite direction)

In contrast, family systems theory introduces a different perspective that emphasizes the complex interconnections and dynamics among individual family members. In this view, each member serves a unique function within the system, and the prosperity of the system depends on the diverse yet collaborative contributions of its members.

3.3 DATA AND METHODS

3.3.1 Data

This study draws on data from the China Family Panel Studies, specifically incorporating five waves of data spanning the years 2010, 2012, 2014, 2016, and 2018. The selection of respondents proceeded in two main steps. First, heterosexual couples served as the starting point, with a focus on including those who possessed information

on both spouses. Subsequently, within the identified couples, individuals without children of an age eligible for post-compulsory education were excluded. Consequently, each identified family comprises a pair of parents and at least one child of an age suitable for post-compulsory education. As Table 3-2 shows, after excluding those with missing values in relevant variables, a total of 3,732 mothers have been identified in these families, and because a mother can have more than a child at an age eligible for post-compulsory education, 4,777 mother-child units were obtained. Post-compulsory education in my operationalization consists of two stages, i.e., senior high school and higher education. In turn, since one child could appear in the survey at different waves at different post-compulsory education stages (e.g., transitioning from senior high school to higher education), 6,075 mother-child-stage units were obtained. Finally, for each mother-child-stage unit, the educational outcome in different waves can be the same or different, and in either case, each outcome will be counted as an observation, resulting in 7, 460 mother-child-stage-wave observations. Summary statistics of variables for these observations are available in Table 3-2, with further elaborations on the measurements to follow.

3.3.2 Dependent Variables

Educational outcomes. The educational outcomes of children in this study are assessed based on their participation in post-compulsory education, specifically encompassing senior high school (9-12 years of schooling) and higher education. For senior high school, if a child falls within the eligible age range (below 20 years), is registered as a

non-student, and possesses the highest educational level of junior high school or below, a value of *zero* is assigned to the variable of educational outcome. Conversely, if a child falls within the eligible age range (below 20 years) and is registered as a student, a value of *one* is assigned.

The same procedure is applied to higher education, albeit with a different range of highest educational levels (i.e., senior high school or below) and an eligible age range (i.e., between 18 and 25 years).

Table 3-2. Summary Statistics of Variables

Variables	N	Mean	S.D.
Maternal age	7460	45.36	4.75
NO. Children	7460	1.87	.84
Maternal education	7460	6.38	4.31
Paternal education	7460	8.44	3.35
Parental education	7460	14.82	6.20
Maternal relative education	7460	.39	.26
Maternal income (Chinese yuan)	7460	11049.36	26897.34
Paternal income (Chinese yuan)	7460	23881.39	30926.77
Parental income (Chinese yuan)	7460	34930.74	47654.59
Maternal relative income	7460	.31	.31
Maternal human capital underutilization	7460	.08	.39
Child gender	7460		
Male	4259	57.09%	
Female	3202	42.91%	
Educational outcome	7460	.46	.50

Observations	
Mother-child-stage-wave	7460
Mother-child-stage	6075
Mother-child	4777
Mother	3732

Note: S.D. = Standard deviation.

3.3.3 Independent Variables

Parental education. The educational attainment of both fathers and mothers is quantified in terms of the total years of formal schooling they have completed. Additionally, parental relative education is operationalized as the ratio of a mother's or father's years of schooling to the combined sum of both parents' years of schooling.

Parental income. To gauge personal income, the study utilizes the measure of personal yearly income from all sources. Additionally, parental relative income is calculated as the ratio of a mother's or father's personal income to the combined sum of both parents' personal income.

Underutilization of human capital. Conceptually, underutilization of human capital occurs when a mother assumes a disproportionate share of household and childcare responsibilities, leading her to engage in fewer labor activities compared to a hypothetical scenario in which she does not experience motherhood. However, measuring this underutilization of human capital poses empirical challenges. An intuitive approach, in an ideal world, would involve comparing an individual's circumstances with motherhood to those without. This could technically be achieved through matching-based methods. However, applying such methods may not be beneficial in a society characterized by universal marriage and childbirth, as is the case in China (X. Wu et al., 2014; W.-J. J. Yeung & Hu, 2016). In such a society, married women without children constitute a unique group with likely unobservable characteristics.

Instead, this study adopts an alternative method commonly employed in research

on bargaining power within marriage or marital power, which involves assessing relative resources within the couple (Bittman et al., 2003; Gupta, 2007; Holden & Smock, 1991; Kanji & Schober, 2014; Munsch, 2015; Sørensen & McLanahan, 1987). Unlike the first method which compares a woman's actual circumstances with a hypothetical scenario, the relative resources approach centers on a comparison between the wife and the husband. The rationale is straightforward: when the wife and the husband possess equivalent human capital but the wife earns a lower income, her initial human capital is underutilized (although this method must account for other factors like market discrimination, which will be discussed shortly). This approach offers a twofold advantage: it is not only more applicable to societies characterized by universal marriage and childbirth but is also inherently suited for the examination of gender inequalities.

In practice, the underutilization of human capital is calculated based on relative education and relative income, as detailed in Equation 1. In an ideal scenario where relative education equals relative income, both the mother (wife) and the father (husband) fully utilize their human capital. Conversely, any disparity between relative education and relative income signifies underutilization.

$$Underutilization = \frac{Self\ Education}{Self\ Education + spouse's\ Education} - \frac{Self\ Income}{Self\ Income + spouse's\ Income} \quad (1)$$

However, it is essential to acknowledge a critical concern within this ideal

framework, which is the omission of market discrimination against women. In other words, even when a mother achieves educational parity with the father and fully utilizes her human capital, her income contribution may not reach an equal 50% share because the labor market does not always reward education equitably. Another important aspect is that, even in the absence of discrimination, the returns on education can vary significantly across different sectors of the economy. It is plausible that women with children may find themselves disproportionately concentrated in lower-paid sectors.

In light of these complexities, it is crucial to recognize that underutilization is not solely the result of individual choices but also encompasses exogenous factors such as market discrimination against women. However, it's important to note that these exogenous factors do not impact the analysis concerning cross-family comparisons once society-wide exogenous factors have been accounted for. For instance, one can assume that, on average, a married woman's underutilization of her human capital is 10 percent in China. Regardless of the specific average percentage, adjusting this figure within the operationalization will not affect the results of our analysis.

3.3.4 Analytical Strategies

The analytical strategies employed in this study are encapsulated by the following equations:

$$log\left(\frac{P(Ed)_i}{1-P(Ed)_i}\right) = a_0 + b_1 Underutilize_i + \boldsymbol{b_2 Covari}_i + e_i \quad (2)$$

$$log\left(\frac{P(Ed)_i}{1-P(Ed)_i}\right) = a_0 + b_1 MoterRelaIncome_i + b_2 MoterRelaIncome_i^2 + b_3 MoterRelaEd_i + b_4\, MoterRelaEd_i^2 + \boldsymbol{b_5 Covari}_i + e_i \quad (3)$$

$$log\left(\frac{P(Ed)_i}{1-P(Ed)_i}\right) = a_0 + b_1 MoterRelaIncome_i + b_2 MoterRelaEd_i + \boldsymbol{b_3 Covari}_i + e_i \quad (4)$$

Equation 2. This equation outlines the approach for assessing Hypothesis 1. In this binary logistic regression model, *P(Ed)* signifies the probability of children attending post-compulsory education, while *Underutilize* represents a mother's underutilization of human capital. The model incorporates several covariates, including parental income (the combined income of both the mother and father), parental education (the total years of schooling of both the mother and father), children's gender, the number of children in the household, and residential types (urban versus rural).

Equation 3. To investigate Hypotheses 2 and 3, Equation 3 is employed. This equation pertains to assessing how the similarity of parental education and personal income influences children's educational outcomes. Specifically, $MoterRelaIncome$ signifies a mother's income contribution, and $MoterRelaEd$ represents a mother's relative education. The same set of covariates as in Equation 2 is considered.

Equation 4. The examination of Hypotheses 4 and 5 is guided by Equation 4. This equation focuses on how children's educational outcomes are influenced by the mother's income contribution and the father's relative education. Like Equation 3, the model considers the same covariates.

In Hypotheses 2 and 3, I expect to find symmetric inverted U-shaped relationships between parental relative education/income and children's educational outcomes, as

reflected in Equation 3. Conversely, Hypotheses 4 and 5 predict linear relationships between parental relative education/income and children's educational outcomes, as indicated in Equation 4.

3.4 RESULTS

3.4.1 Examining the Capital Transfer Hypothesis

Hypothesis 1 posits that a mother's underutilization of human capital should lead to positive transfers to their children's educational outcomes. Practically, I expected that the probability of attending post-compulsory education is positively associated with underutilization. Surprisingly, the results provide little support for this hypothesis; instead, they suggest an opposing trend.

Model 1 in Table 3-3 includes only control variables and reveals the expected positive relationship between parental resources (income and education) and the likelihood of children attending post-compulsory education. Model 2 adds the variable of interest, maternal human capital underutilization. Contrary to the expectation, underutilization is associated with a lower likelihood of attending post-compulsory education (b_1 = -.2663, $p < .001$). Therefore, the findings do not lend support to Hypothesis 1, which suggests that a mother's underutilization of human capital transfers positively to their children's educational outcomes.

Table 3-3. Binary Logistic Regression Predicting Children's Educational Outcomes

Variables	Model 1	Model 2	Model 3	Model 4
Maternal relative education squared				1.5858***
				(.3914)
Maternal relative income squared				-1.6784***
				(.2946)
Maternal relative education			-.3685***	-1.7400***
			(.1117)	(.3586)
Maternal relative income			.2126**	1.7072***
			(.0821)	(.2734)
Maternal underutilization		-.2663***		
		(.0674)		
Parental education	.0894***	.0920***	.0939***	.1132***
	(.0048)	(.0049)	(.0052)	(.0072)
Parental income	.2275***	.2385***	.2361***	.1942***
	(.0242)	(.0245)	(.0245)	(.0251)
Child gender: Female	.5720***	.5731***	.5723***	-.5725***
(male omitted)	(.0521)	(.0521)	(.0521)	(.0523)
NO. children	-.2150***	-.2152***	-.2167***	-.2053***
	(.0330)	(.0329)	(.0330)	(.0330)
Urban	.3259***	.3196***	.3242***	.3071***
(rural omitted)	(.0537)	(.0538)	(.0539)	(.0542)
Constant	-3.3927***	-3.5054***	-3.4548***	-3.3262***
	(.2506)	(.2532)	(.2568)	(.2569)
Wave fixed effect	Yes	Yes	Yes	Yes
Observations	7,460	7,460	7,460	7,460
Log likelihood	-4,523.5210	-4,515.6620	-4,514.9980	-4,490.3840
AIC	9,067.0420	9,053.3240	9,053.9970	9,008.7680

Note: AIC = Akaike information criterion. Standard errors in parentheses.
† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$.

3.4.2 Influences of Parental Relative Resources

Hypotheses 2 and 3 are rooted in the concepts of marital quality and parenting practices, postulating that symmetric parental resources have a positive impact on children's educational outcomes. In practical terms, we should anticipate an inverted U-shaped relationship between children's educational outcomes and parental relative education/income, respectively. Hypotheses 4 and 5 draw from the distinction between the father-child subsystem and the mother-child subsystem, positing a positive linear relationship between children's educational outcomes and a mother's relative income

and a negative linear relationship with a mother's relative education.

Models 3 and 4 in Table 3-3 show results regarding the four hypotheses, while Figure 3-1 illustrates the patterns. In general, Hypothesis 3, Hypothesis 4, and Hypothesis 5 receive support from the results, while Hypothesis 2 has not received support.

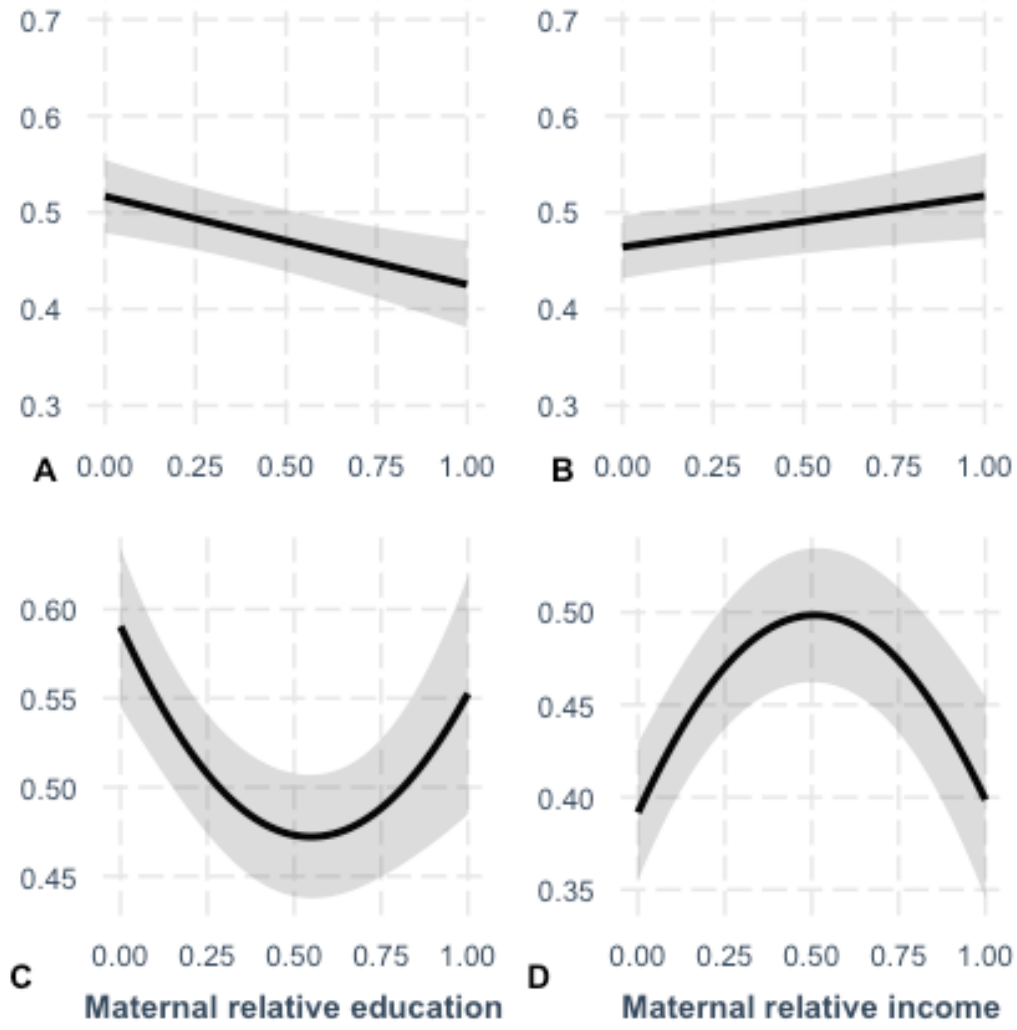


Figure 3-1. Maternal Relative Education, Maternal Relative Income, and Probability of Children Attending Post-Compulsory Education

Note: Graph A and Graph B are based on Model 3 in Table 3-3, whereas Graph C and Graph D are based on Model 4 in Table 3-3. To generate the predicted probabilities, all non-focal predictors are mean-centered. Interval indicates 95% confidence.

More specifically, Model 3 demonstrates that even after accounting for the total quantity of parental education and income, a mother's relative income has a positive impact on children's educational outcomes (b_2 = .2126, p < .01). Conversely, the mother's relative education negatively influences educational outcomes (b_1 = -.3685, p < .001). Thus, Hypotheses 4 and 5 receive support from the results.

Also, in accordance with Hypothesis 3, there is an inverted U-shaped relationship between parental relative income and children's educational outcomes. Importantly, the likelihood of children attending post-compulsory education peaks at around symmetric income contribution, with the mother's relative income being 50.86% $=\left[b_4 \times 100\% \Big/ -(2 \times b_2)\right]$. Thus, H3 is supported.

However, H2 has not received support from the results. Instead, the quadratic model produces unexpected results for parental relative education: Instead of an inverted U shape, it shows a U-shaped relationship between parental relative education and children's educational outcomes.[4] This is surprising because educational homogamy is generally believed to lead to high marital quality and improved parenting practices. One possible explanation is that in China, parents with similar educational attainment tend to form dual-earning families where both sides of parents need to spend

[4] To further confirm the unexpected U-shaped relationship between parental relative education and children's educational outcomes, I created a categorical variable by converting the existing continuous maternal relative education to four quartiles: first quartile (0-25% relative education), second quartile (25.1-50% relative education), third quartile (50.1-75% relative education), and fourth quartile (75.1-100% relative education). Then I ran an additional analysis based on Model 4 in Table 3-3. The analysis generated the same pattern as the main analysis: Maternal relative education in the second (b_1 = -.4190, p < .001) and third quartiles (b_2 = -.3997 p < .001) are associated with lower probabilities of attending post-compulsory education than the first quartile. Although the fourth quartile (b_3 = -.1542, p = .2198) is also associated with lower probabilities than the first quartile, the difference is not significant.

substantial time in the labor market. As a result, either grandparents assist with childcare or childcare is outsourced, which, compared to childcare from parents, results in worse human capital building.

In summary, these findings highlight clear distinctions between the mother-child subsystem and the father-child subsystem, as well as varying influences of parental relative education and relative income on children's educational outcomes.

Table 3-4. Binary Logistic Regression Predicting Children's Educational Outcomes by Forgone Value

Variable	Model 1 Unmatched	Model 2 Manually Matched	Model 3 1:1 Matched
Forgone value	-.0200*	-.0407**	-.0136**
	(.0097)	(.0137)	(.0044)
Parental education	.0898***	.0510***	.0890***
	(.0048)	(.0105)	(.0048)
Parental income	.2323***	.3041***	.2162***
	(.0244)	(.0535)	(.0244)
Child gender: Female *(male omitted)*	.5722***	.5303***	-.5696***
	(.0521)	(.1013)	(.0521)
NO. children	-.2151***	-.1226+	-.2107***
	(.0330)	(.0664)	(.0330)
Urban	.3229***	.3400**	.3173***
(rural omitted)	(.0537)	(.1066)	(.0538)
Constant	-3.4182***	-3.8877***	-3.3057***
	(.2514)	(.5330)	(.2518)
Wave fixed effect	Yes	Yes	Yes
Observations	7,460	1,984	7,460
Log likelihood	-4,521.3870	-1,192.0750	-4,518.6650
AIC	9,064.7740	2,402.1490	9,059.3310

Note: AIC = Akaike information criterion. Standard errors in parentheses.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$.

3.4.3 Robustness

3.4.3.1 Forgone Value and Matched Samples

In this section, I aim to strengthen the evidence for the negative effects of a mother's

underutilization of human capital on children's educational outcomes. To do this, I introduce the concept of "forgone value," calculated by multiplying a mother's underutilization by her education, capturing the potential loss associated with underutilization. Model 1 in Table 3-4 demonstrates the negative effects of forgone value on the probability of children attending post-compulsory education.

For a further robustness check, I employed matching-based methods to measure forgone value. While universal childbirth in society presented challenges for rigorous matching, I utilized the results of "loose" matching methods to provide complementary evidence.

Manual Matching Approach. I classified married women without children into groups based on age, education, residential types, and survey waves. Specifically, I focused on married women aged below 60 and categorized them into six groups by age range and six groups by education level. I also distinguished between urban and rural respondents and considered survey waves. This process resulted in 25 average values representing the counterfactual income of mothers with corresponding characteristics.[5] The hypothetical forgone value of these mothers was derived by subtracting their actual

[5] Specifically, I focused on married women without children aged below 60 and divided them into six groups based on age ranges: 30-35, 36-40, 41-45, 46-50, 51-55, and 56-60. Additionally, I categorized married women without children into six groups based on their education levels: elementary school or below, junior high school, senior high school, junior college, a bachelor's degree, and a master's degree or above. Then, I distinguished urban respondents from rural respondents. Finally, I classified respondents by survey waves. Hence, theoretically, I would obtain 360 $(= 6 \times 6 \times 2 \times 5)$ groups, but practically, I obtained 204 groups because groups with certain combinations were missed in the current sample. Furthermore, I included only groups with a frequency above 50 in the analysis. In total, I obtained 25 average values representing the counterfactual income of mothers with corresponding ages, educational levels, residential types, and survey waves.

income from the corresponding counterfactual income.

Propensity Score Matching. I used the 3,732 mothers in the main analysis as the "treatment" group and identified a "control" group from married women without children. Matching is based on four variables: age, education, residential types, and survey waves. I employed a one-to-one matching, utilizing a "nearest neighbor" approach (see the summary balance of matched samples in Appendix E). The control group's personal income served as the counterfactual income of mothers. By subtracting mothers' actual income from the corresponding counterfactual income, I calculated the hypothetical forgone value of mothers.

It is essential to note that, regardless of matching methods, the treatment group (mothers) has higher average personal income than the control group (women without children): The difference in income (in natural logarithm) is .6162 (t (1983) = 7.2513, p <. 001) in the manual matching and 1.2421 (t (5716) = 15.357, p <. 001) in the one-to-one propensity score matching. This observation calls for caution in solely relying on match-based methods to draw conclusions due to potential confounding factors between low income and childlessness.

Despite these considerations, results from both "manual" matching and propensity score matching provide suggestive evidence that forgone value is negatively associated with children's educational outcomes (see Models 2 and 3 in Table 3-4). This pattern aligns with the results in the main analysis and underscores the absence of capital transfer from mothers to children, further supporting the notion that underutilization of

human capital has detrimental effects on children's educational outcomes.

3.4.3.2 Repeated Observations

As mentioned in Section 3.3.1, I handle situations where a child's educational outcome appears in more than one survey wave and remains the same across waves by repeatedly counting the educational outcome. While this approach addresses issues related to school dropouts, I also conducted a robustness test by excluding the repeatedly counted educational outcomes. Specifically, when a child's educational outcome remains the same across waves, I only used the data (including dependent, independent, and control variables) from the first wave. Although this reduced the observation size from 7,460 to 6,176, Table 3-5 demonstrates that the regression results remain qualitatively consistent with the results in the main analysis.

3.4.3.3 Difference between Senior High School and Higher Education

Finally, I also conducted an analysis of the two stages of post-compulsory education separately, as senior high school and higher education. Regarding H1, maternal underutilization is negatively associated with both the probability of attending senior high school (b = -.2974, $p < .01$) and participating in higher education (b = -.3309, $p < .001$; other coefficients available in Appendix F). As for the remaining hypotheses, although there are qualitatively similar patterns for both stages, it is important to note that the effects of parental relative resources are more pronounced on higher education

than on senior high school, as illustrated in Figure 3-2 and Figure 3-3.

Table 3-5. Binary Logistic Regression Predicting Children's Educational Outcomes, Repetition Excluded

Variables	Model 1	Model 2	Model 3
Maternal relative education squared			1.4254***
			(.4302)
Maternal relative income squared			-1.3786***
			(.3237)
Maternal relative education		-.2987*	-1.5294**
		(.1206)	(.3936)
Maternal relative income		.2630**	1.4821***
		(.0914)	(.2989)
Maternal underutilization	-.2758***		
	(.0743)		
Parental education	.0887***	.0891***	.1068***
	(.0054)	(.0057)	(.0080)
Parental income	.2607***	.2601***	.2262***
	(.0271)	(.0272)	(.0278)
Child gender: Female *(male omitted)*	.5029***	.5028***	.5049***
	(.0572)	(.0572)	(.0573)
NO. children	-.2220***	-.2224***	-.2139***
	(.0360)	(.0360)	(.0360)
Urban	.3418***	.3428***	.3263***
(rural omitted)	(.0592)	(.0593)	(.0596)
Constant	-3.7068***	-3.6952***	-3.6004***
	(.2783)	(.2824)	(.2831)
Wave fixed effect	Yes	Yes	Yes
Observations	6,171	6,171	6,171
Log likelihood	-3,738.5210	-3,738.4920	-3,723.8520
AIC	7,499.0420	7,500.9840	7,475.7050

Note: AIC = Akaike information criterion. Standard errors in parentheses.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$.

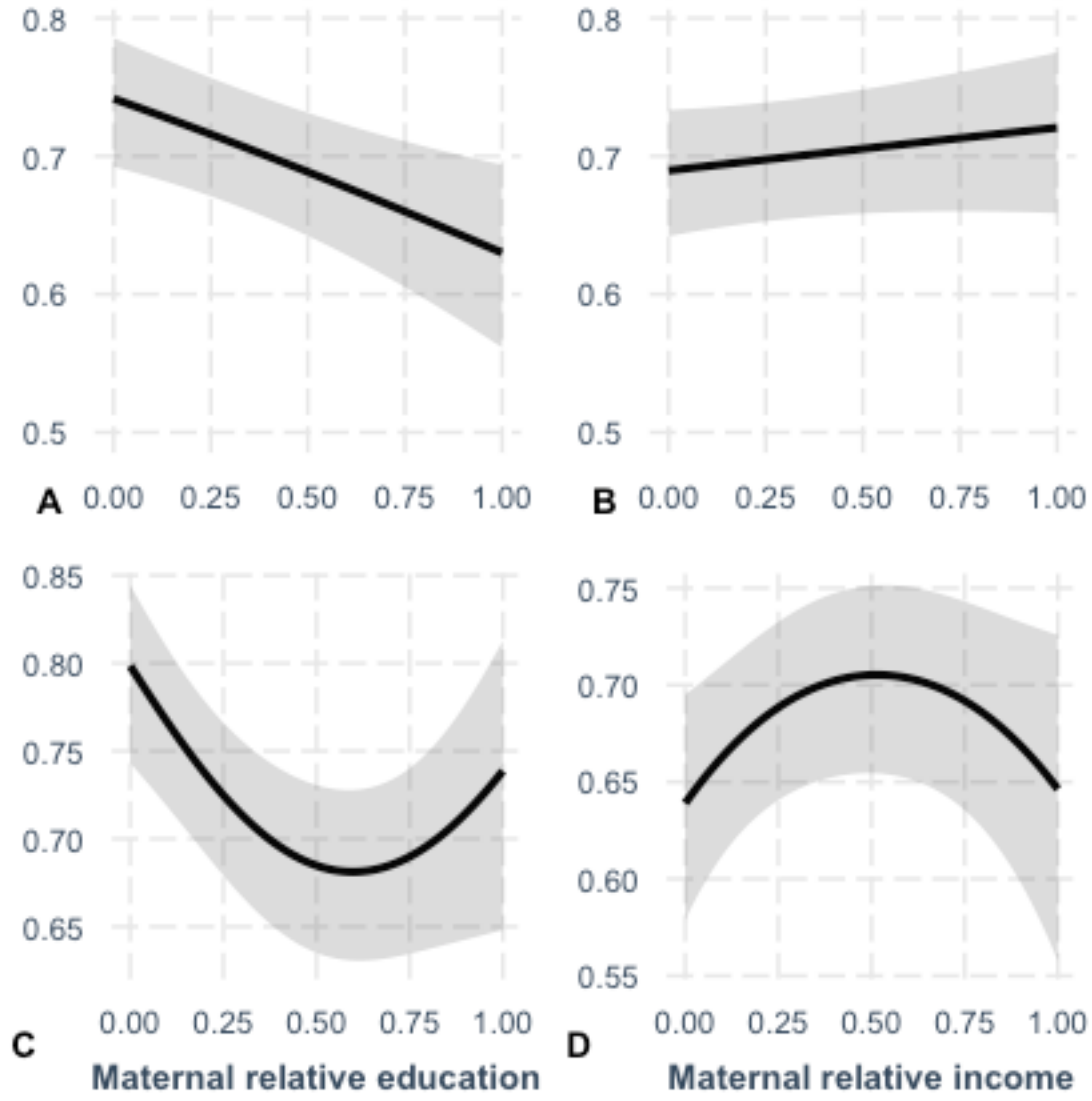


Figure 3-2. Maternal Relative Education, Maternal Relative Income, and Probability of Children Attending Senior High School

Note: Interval indicates 95% confidence.

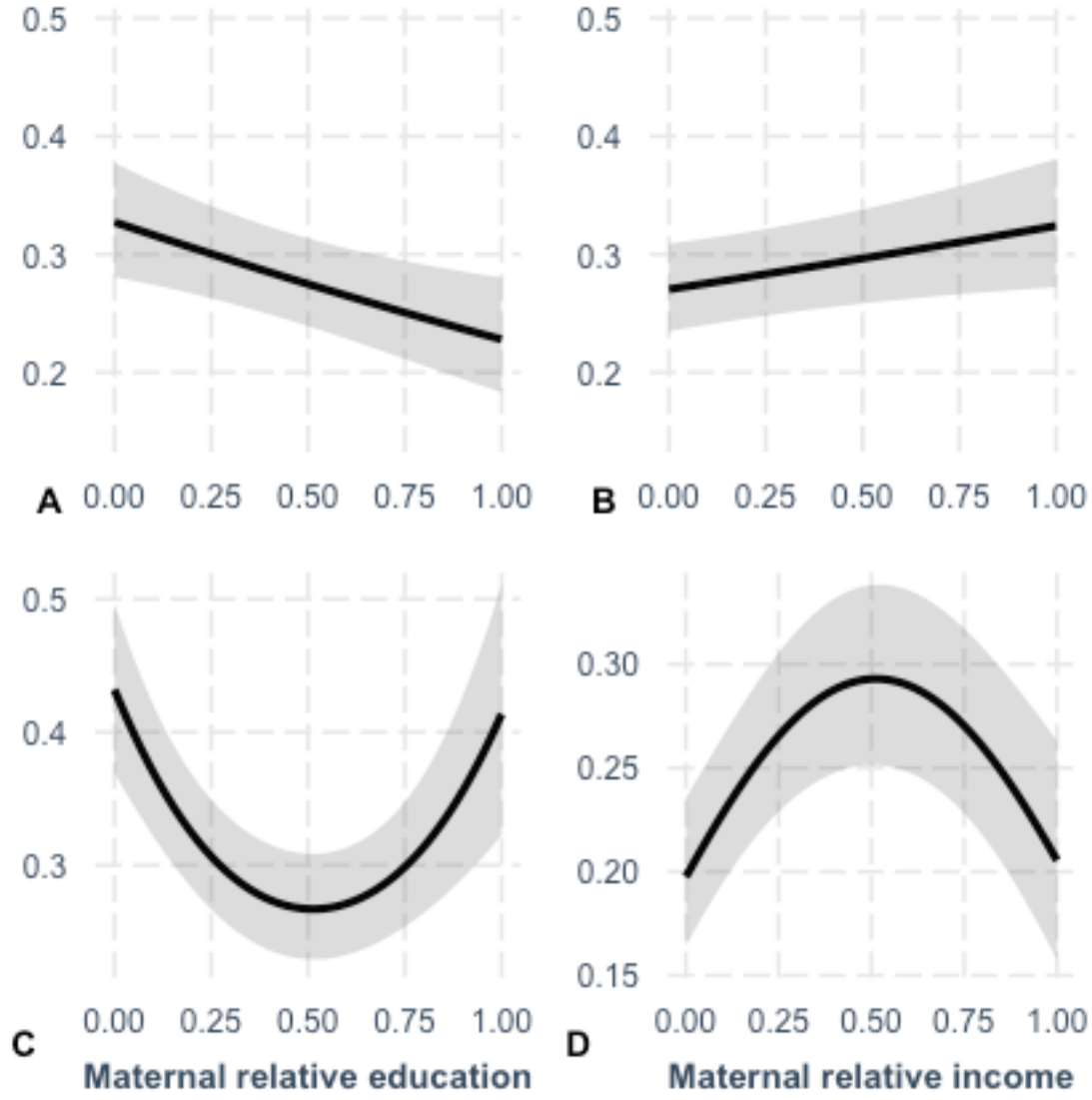


Figure 3-3. Maternal Relative Education, Maternal Relative Income, and Probability of Children Participating in Higher Education

Note: Interval indicates 95% confidence.

3.5 DISCUSSIONS

The analysis presented above has yielded several valuable findings. Firstly, it appears that women's underutilized human capital does not translate into improved educational outcomes for their children. Contrary to the expectation that children would benefit

from a mother's underutilization of human capital, children's educational outcomes tend to be worse when mothers have not fully utilized their human capital. Secondly, it is evident that mothers have different impacts on their children's educational outcomes compared to fathers. Furthermore, while the total quantity of parental resources remains crucial for children's educational outcomes, the relative quantity of these resources also plays a significant role. After controlling for the total quantity of parental resources in both dimensions, it is clear that the relative quantity of these resources exerts different effects on children's educational outcomes. Although the study did not conclusively determine the optimal relative amount (due to variations based on quadratic or linear relationships), it is apparent that these relative quantities impact educational outcomes in opposing directions. These findings have far-reaching implications for theory and policy concerning gender inequalities and intergenerational stratification of inequalities.

Within the broader field of sociology, the study of inequalities and stratification is a central theme. Gender inequalities within a family setting often place wives in contrast with their husbands, while intergenerational mobilities emphasize children as products of family investments in resources. This study bridges these two areas of scholarship through the lens of capital transfer (or the absence thereof) within family units.

Despite promising progress in recent decades, systematic gender income disparities persist, and complete gender equality is still far away (e.g., F. D. Blau & Kahn, 2006; England, 2010; Misra & Murray-Close, 2014). Motherhood and the associated responsibilities, such as childcare activities, are commonly seen as factors that hinder women's careers and prevent them from surpassing men in the workplace (Budig &

England, 2001; Correll et al., 2007; Mincer & Polachek, 1974; Stratton, 2012).

On the other hand, children's education stands as a crucial factor in intergenerational stratification. Research on the one hand indicates a consistent intergenerational transmission from parental socio-economic status to children's educational attainment (e.g., P. M. Blau & Duncan, 1967; Bloome et al., 2018; Davis-Kean et al., 2021; Duncan et al., 2012; Harding et al., 2015; Hsin & Xie, 2017; Ichou, 2014; Roksa & Potter, 2011; Sewell & Hauser, 1975). However, it also suggests that once individuals reach a certain education level, it can mitigate the impact of their socio-economic background on their personal achievements (Goldthorpe, 2014; Hout, 1984, 1988; Torche, 2011). Consequently, children's educational outcomes and subsequent career trajectories play a pivotal role in determining intergenerational stratification or mobility.

The two strands of inquiry could intersect if the underutilization of a mother's human capital, which is a cause of gender inequalities of income, would build up the human capital of children and facilitate intergenerational mobilities. However, the reality is often more complex than a straightforward capital transfer within families, as child-rearing involves intricate dynamics among family members. In summary, the present findings do not support the notion of capital transfer but instead, reveal the intricate interconnections and dynamics at play among individual family members.

The results in turn provide important implications for gender inequalities from an intergenerational perspective. The prevailing antifeminist sentiment, coupled with the emergence of the "intensive motherhood" culture, has raised concerns regarding the

perpetuation of traditional gender roles (Cotter et al., 2011; Douglas & Michaels, 2005). While some argue that framing women's choices as autonomous can reinforce traditional gender norms (Cotter et al., 2011), this study goes beyond the warning to empirically demonstrate the irrationality and unsustainability of this perspective.

Moreover, this study contributes to the field of intergenerational stratification research in two significant ways. First, it expands the understanding of familial influences beyond traditional family structures to the division of labor within families. Prior research has acknowledged the potent influence of family structures on children's life prospects (Mclanahan & Percheski, 2008; Western, 2006). This study, however, underscores the pivotal role played by the allocation of labor and resources within family units in shaping intergenerational outcomes. Second, it extends the impact of a mother's relative resources beyond the realms of children's health to their educational achievements. Building upon previous insights that have associated maternal resources with children's health outcomes (Delisle, 2008; Osmani & Sen, 2003; L. C. Smith et al., 2003), this analysis reveals the counterproductive effects of a mother's underutilization on her children's educational attainment.

3.6 CONCLUDING REMARKS

In this study, I have investigated whether the economic setbacks experienced by mothers following childbirth could be an investment in children’s human capital. Rather than finding evidence to support the optimistic notion that the motherhood penalty represents a capital transfer from mothers to their offspring, this study reveals a more

complex reality. Regrettably, it shows that children bear the brunt of their mothers' underutilization of human capital.

On the brighter side, the idea that sacrificing one's career to provide better care for children may not yield the anticipated benefits. In essence, women need not make such significant self-sacrifices when it comes to balancing their roles as mothers and professionals. Conversely, the pessimistic aspect of these findings suggests that there isn't a straightforward trade-off between mothers fully utilizing their human capital and facilitating the development of their children's human capital. To achieve optimal outcomes, mothers may need to undertake dual responsibilities.

These findings offer crucial policy implications for addressing gender inequalities and breaking the cycle of intergenerational inequality. The complexity arising from the interaction of these two societal challenges both complicates problem-solving and presents opportunities to address them simultaneously. State policies that discourage traditional gender roles and division of labor are expected to not only alleviate gender inequalities but also enhance the educational outcomes of the next generation. In turn, because gender attitude and ideology are both interest-based and experience-based (Bolzendahl & Myers, 2004; Grunow et al., 2018), if parents become aware of the link between underutilization and children's education, the prospect of better educational outcomes for their children should motivate them to adopt a more equitable division of labor within the household.

As with any study, there are limitations that leave room for future research. First, the operationalization and measurement of a mother's underutilization of human capital

may benefit from refinement. I have used cross-sectional measures to examine the relationship between parental resources and children's educational outcomes. This is based on the premise that personal income typically depends on past income levels. As is common in predictive models for current income, lagged income is used as a predictor. The same principle applies to income contributions: All else being equal, a mother who currently contributes a small proportion to the household is less likely to have contributed a large proportion in the past. However, it's important to note that the extent to which a mother's current income-based underutilization represents the actual forgone value during children's growth is nuanced. Future studies can further refine this aspect of measurement.

Second, the underlying reasons why a mother's underutilization of human capital negatively impacts their children's human capital remain unexplored in this study. Various familial dynamics, such as differences in parenting styles, socialization, and home environments between mothers who utilize their human capital effectively and those who don't, may be involved. Moreover, differences in interactions between each parent may also play a significant role. Future research could draw from family systems theory to investigate these complex dynamics in various family subsystems and identify the potential mediators between a mother's underutilization and her children's outcomes.

Third, an unreported analysis reveals that daughters' educational outcomes appear to be less responsive to parental (relative) education and income compared to sons' outcomes. Although the current study does not delve into the reasons behind this

observation, it could be related to the superior academic performance of female students, making family background less influential in their progression into post-compulsory education. Future research can explore this possibility by comparing siblings within a family or, ideally, comparing twins.

Lastly, while the differential impacts of relative education and income on children's educational outcomes are evident, the specific relationship between them remains uncertain. Statistically significant linear and quadratic relationships have been identified, but the precise description of the actual pattern has not been determined. It is conjectured that the actual pattern is neither entirely linear nor entirely quadratic across the entire spectrum of relative amounts. Further modeling of this relationship has been limited due to space constraints and sample size limitations. Future studies can advance this by employing larger sample sizes and integrating data from different societies.

CHAPTER 4 HUMAN CAPITAL IN THE CREATION OF SOCIAL CAPITAL: A MICRO-FOUNDATION PERSPECTIVE AND AN EXAMINATION IN MODERN CHINA

Abstract

In the realm of social capital literature, two major perspectives, namely the structural and individual agentic perspectives, exist. Yet, two significant theoretical gaps persist. First, these perspectives remain largely isolated within the existing literature. Second, in comparison to the well-established structural perspective, the individual agentic perspective remains relatively under-conceptualized.

To address the theoretical gaps, this study synthesizes the structural perspective and the individual agentic perspective to propose a new model of social capital with special relevance to stratification and inequalities. Specifically, the model conceptualizes an individual's social capital as a composite of both structural and individual agentic components. Building upon this distinction, the model attributes (a) access to social contacts (alters) and (b) the capacity of alters to the structural component. It further attributes (c) the awareness of utilizing social connections and (d) the willingness to use them for instrumental purposes to the individual agentic component.

As an application of this model, the study investigates the impact of individual educational attainment on both components of social capital within the context of contemporary China. By adopting an instrumental variables approach and employing a bootstrapping-based two-stage least-squares regression method, analysis of data from the China Family Panel Studies and the Chinese General Social Survey demonstrates that education positively influences both the awareness of using and the willingness to use social connections for instrumental purposes. Furthermore, gender and educational

upward mobility moderate the effects on the awareness of using social connections. Specifically, the influence of education is more pronounced for men than for women and is stronger for individuals whose educational attainment surpasses that of their fathers compared to their counterparts.

This study makes valuable contributions to synthesizing different perspectives of social capital research, enriching the micro-foundation of the individual agentic perspective, conceptualizing the link between social capital and stratification, shedding novel light on how education affects stratification through a social capital mechanism, and providing an agenda for future research.

4.1 INTRODUCTION

The fungibility of capital entails that insufficient human capital can be compensated by social capital, whereas when disadvantages in human capital coincide with disadvantages in social capital, it results in a situation of double jeopardy. Motivated by such an idea, this study delves into the intricate realm of social capital, a concept recognized for its profound yet multifaceted roles in shaping social stratification and inequalities. The embedded nature of social capital within social relationships suggests that its distribution and function are influenced by factors such as embeddedness and homophily, contributing to disparities and cumulative (dis)advantages (Bourdieu, 1986; DiMaggio & Garip, 2012; Rivera et al., 2010). Conversely, the idea that social capital represents a valuable form of nonmonetary resources hints at the potential for cost-effective, non-economic solutions to social inequalities, thanks to the fungibility of various forms of capital (Portes, 1998). Central to this dichotomy is the ongoing debate between structuralism and individual agency. If social capital is primarily shaped by societal and network structures, it may amplify inequalities. However, if it is more idiosyncratic than structuralism suggests, it could provide fresh insights into addressing inequalities.

To bridge these theoretical gaps, this study aims to synthesize the structural and individual agentic perspectives in the social capital literature and develop a novel social capital model with specific relevance to understanding stratification and inequalities. This model conceptualizes an individual's social capital as comprising both structural and individual agentic components, emphasizing the critical role of the individual

agentic component in conditioning inequalities and altering stratification.

Moreover, this study aims to enrich the conceptualization of the individual agentic component. In particular, it explores the cognitive variation among individuals in their use of social capital to achieve instrumental goals and disentangles the awareness from the willingness mechanisms. Awareness is about evaluative judgments and concerns (a) activation of social resources as a means to achieve goals and (b) recognition of this means. By contrast, willingness is about affective judgments and concerns the extent to which individuals hold a positive attitude towards using social resources to achieve instrumental goals.

As an application of the model, this study predicts how educational attainment affects the structural and individual agentic components of social capital and how educational upward mobility and gender moderates these relationships. Empirically, it uses modern China as a case study, a context well-suited for examination due to its educational system and the prevalence of using social connections for instrumental purposes.

Utilizing data from the China Family Panel Studies (CFPS) and the Chinese General Social Survey (CGSS), adopting an instrumental variables (IV) approach, and employing a bootstrapping-based two-stage least-squares (2SLS) regression method, the analysis reveals that education positively affects the agentic component of social capital, but the effects on the structural component are not evident. Specifically, education positively influences both the awareness of using and the willingness to use social connections for instrumental purposes. Furthermore, the influence of education

on awareness is more pronounced for men than women and is stronger for individuals whose educational attainment exceeds that of their fathers, compared to their counterparts. These results provide important theoretical insights into the micro-foundation of social capital, implications for inequalities and stratification, and an agenda for further studies.

The structure of this study and the logic behind it are as follows. First, I present an overview of the theoretical underpinnings in the social capital literature. Given the vast body of literature on social capital with various research focuses, these theoretical underpinnings serve to clarify the specific focus of the current study and provide the theoretical rationale for building the proposed model. Building upon the theoretical foundation and considering the profound yet multifaceted roles of social capital in shaping social stratification and inequalities, I develop a novel social capital model with special relevance to stratification and inequalities.

As the model presents the conceptual relationship between social capital, inequalities, and stratification, an investigation into how education affects social capital leads us to better understand education's potential and limitations in reducing inequalities through a social capital mechanism. Subsequently, I hypothesize the relationships between education and different components of social capital within this model. After detailing data and analytic strategies, I present the results of the primary and robustness analyses. I conclude this study with discussions regarding the implications for research on education, social capital, gender inequalities, and intergenerational stratification, along with an agenda for future research.

4.2 DEFINITIONS AND THEORETICAL FOUNDATIONS

4.2.1 Definitions of Social Capital

Over time, the term "social capital" has evolved and expanded, becoming somewhat vague and versatile, often described as a "wonderfully elastic term" (Lappe & Bois, 1997, p. 119). This flexibility allows researchers to use it in various, sometimes conflicting, contexts. For instance, social capital has been used to explain job opportunities and performance (Bian, 1997; Burt, 1992, 1997; Granovetter, 1973; Lin, Ensel, et al., 1981; Mehra et al., 2001; Podolny & Baron, 1997), children's educational achievement (Coleman, 1988; Teachman et al., 1997), social support (Briggs, 1998; Lin et al., 1986; Lin & Ensel, 1989), civic engagement (Putnam, 1993, 1995), and community solidarity (Light & Bonacich, 1988; Portes & Sensenbrenner, 1993), among others. Researchers have applied the concept to various units of analysis, ranging from individuals and small groups to entire communities and nations.

The use of social capital can sometimes lead to conflicting interpretations. For example, "individual social capital," defined as connections that enable certain individuals to access profitable public contracts and bypass regulations, contrasts with "collective" social capital (Portes, 2000, p. 4). As a result, there has been a growing body of literature, including review papers, books, and chapters, dedicated to reconceptualizing or clarifying the concept (Adler & Kwon, 2002a; Brehm & Rahn, 1997; Burt, 2000; Foley & Edwards, 1999; Glanville & Bienenstock, 2009; Kwon & Adler, 2014; Lin, 1999; Moody & Paxton, 2009; Portes, 1998, 2000; Robison et al.,

2002; Sandefur & Laumann, 1998; Woolcock, 1998).

Among the many definitions of social capital, the most frequently cited come from Bourdieu, Coleman, and Putnam.[6] Bourdieu defines social capital 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 or recognition" (Bourdieu, 1986, p. 248). For Coleman, "Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure" (Coleman, 1990, p. 302). It “refers to features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (Putnam, 1995, p. 67).

While detailed discussions about the similarities and differences between these definitions are available elsewhere (Adler & Kwon, 2002a; Burt, 2000; Portes, 1998, 2000; Robison et al., 2002), this study does not recap but aims to emphasize three aspects to clarify the focus. First, there is a distinction between "bridging" and "bonding" forms of social capital (Adler & Kwon, 2002a; Gittell & Vidal, 1998; Putnam, 2000), between egocentric and sociocentric perspectives (Sandefur & Laumann, 1998), and between ego-oriented and network-oriented analysis (Tasselli & Kilduff, 2021). The "bridging" form and egocentric perspective concentrate on a focal actor (ego) and examine social capital as resources embedded in social ties between the

[6] While never explicitly using the concept of social capital in his seminal work (Granovetter, 1973), Mark S. Granovetter is another scholar who has substantially contributed to the foundation of social capital theory and enriched its definition (see more discussions in, e.g., Adler & Kwon, 2002b; Fulkerson & Thompson, 2008).

ego and other actors (alters) to explain the ego's competitive success. In contrast, the "bonding" form focuses on collectives (e.g., communities) and their internal characteristics. This study aligns more closely with the first group as it explores individual social capital and individual benefits, making it ego-oriented. However, it acknowledges the interplay between the two forms.[7]

Second, this study primarily examines the positive effects of social capital. This is essential for two reasons. Coleman's definition underscores the first reason: social capital is defined by its function, and social structure becomes capital when an actor effectively uses it to pursue a goal. Additionally, certain forms of social capital may be useful for specific goals but irrelevant or even harmful to others (Coleman, 1990, pp. 300–302). The second reason is related to the growing interest in the dark side and the costs of social capital (Adler & Kwon, 2002a; Kwon & Adler, 2014).

Third, this study explicitly recognizes various sources and effects of social capital. As noted by Robison, Schmid, and Siles (2002), the differing definitions of social capital arise from scholars' incorporation of various sources and effects into their definitions. Following Sandefur and Laumann (1998) and many subsequent studies, this study considers information, influence, and solidarity as the effects of social capital, though solidarity may be less relevant due to the primary focus on individual benefits. It also acknowledges different specific sources of social capital, such as friends, family

[7] For instance, one of the main distinctions between Putnam's and Coleman's concepts is the subject of interest: Coleman considers individual benefits drawn from collectivities (that feature trust, reciprocity, and certain norms) as social capital whereas Putnam considers benefits enjoyed by the collectivities (instead of individuals) as social capital. Within this contrast, this study is interested in Coleman's social capital because it emphasizes individual benefits. However, elements such as trust, reciprocity, and norms are essential to both concepts (see Glanville & Bienenstock, 2009; Portes, 2000).

members, and acquaintances (Burt, 1992, p. 9). While these are not explicitly specified in the theoretical model, they will be reflected in the empirical investigation.

After clarifying these aspects, I posit that, among the various definitions, Burt's closely aligns with the essence of this study: Social capital is a metaphor for advantages (Burt, 2000, p. 346). At its core, "certain people, or certain groups of people, do better in the sense of receiving higher returns to their efforts…social structure is a kind of capital that can create a competitive advantage for certain individuals or groups in pursuing their goals" (Burt, 2000, p. 347). While social capital is applied to explain a wide range of phenomena, the focus on individual benefits reveals that all these stories can be summarized as utilizing an individual's resources embedded in interpersonal relationships to explain their competitive success, whether in education, career advancement, or other contexts.

4.2.2 Structure and Agency in Social Capital

The debate between determinism and agency, or more simply, the extent to which individual actions are influenced by societal structures, has been a central topic in social theory throughout intellectual history (see, e.g., Archer, 1998; Emirbayer & Mische, 1998; Giddens, 1984; Sewell, 1992). Within the realm of social capital, this dichotomy is reflected in the role of individual actors within social networks. Specifically, the question of the role of individual idiosyncrasies in the relationship between network structure and individual success has been termed the "motivation issue" (Burt, 2000;

Burt et al., 1998).[8]

Dealing with the motivation issue has been approached in three main ways (Adler & Kwon, 2002a; Burt, 2000, 2005). First, following the neoclassical economics perspective, the motivation issue can be dismissed by assuming that all actors are uniformly motivated by self-interest. Second, formalistic sociology, or traditional sociological research on networks, views individual variation as a consequence of network structure (e.g., Boorman & White, 1976; Burt, 1992, pp. 32–34; Mayhew, 1980; McPherson et al., 1992). Third, the issue can be addressed by specifying a micro-foundation, that is, by bringing individuals back into the network (e.g., Burt et al., 1998; Kilduff & Krackhardt, 1994). The first approach completely disregards the issue, while the second and third approaches reflect the structural and agentic perspectives of social capital, respectively.

More specifically, from a structural perspective, an actor's position in a network is sufficient to explain their actions and success because their actions are seen as products of the network structure itself (Burt, 2012; Stevenson & Greenberg, 2000; Tasselli & Kilduff, 2021). Thus, properties of social networks, such as the presence (or absence) of network ties, density, connectivity, and hierarchy, are of primary interest and are used to explain the success of individuals occupying specific positions in the network (Kilduff & Lee, 2020; Nahapiet & Ghoshal, 1998; Tasselli & Kilduff, 2021). This exclusive emphasis on network structure, coupled with concepts like embeddedness and homophily in the broader social structure (DiMaggio & Garip, 2012; Rivera et al.,

[8] The motivation issue here is different from what I subsequently conceptualize as “motivations for reaching out”.

2010), often links social capital with the perpetuation of inequalities.

In contrast, the agentic perspective seeks to address whether and why different individuals, occupying structurally identical positions in the network, benefit differently from those positions. The rationale is intuitive: Opportunities do not automatically translate into achievements, and some people are more adept at utilizing opportunities within their network than others (Burt, 2000, 2004, 2010; Burt et al., 1998). As E. B. Smith et al. (2020, p. 161) aptly put it, "The origin of social capital lies not only in the social structures surrounding us but also in our minds."

4.2.3 Forms of Social Capital

Bourdieu defines social capital 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 or recognition" (Bourdieu, 1986, p. 248). Two crucial points are worth noting here. First, as Portes (1998) observes, Bourdieu's concept of social capital comprises two elements: a social tie that enables access to resources and the quantity and quality of those resources. Second, there exists a distinction between "actual" and "potential" resources. While this distinction remains somewhat abstract in Bourdieu's treatment, subsequent studies have refined it into the concepts of access to versus mobilization of social capital, or having versus using social capital (e.g., Kwon & Adler, 2014; Lin, 2001b; S. McDonald, 2011; Nahapiet & Ghoshal, 1998; Pedulla & Pager, 2019; S. S. Smith, 2005).

The access-mobilization model is further expanded by E. B. Smith et al. (2012)

through the introduction of the concept of activation. Activation involves a cognitive process, specifically the act of mentally extracting specific resources from the array of potential resources available in a given context. Incorporating this cognitive process helps address the question of why individuals might not utilize resources even when their network provides opportunities. However, while this cognitive process aids in bridging the gap between having and using resources, it does not fully explain why individuals might fail to activate resources. Various factors, such as the inability to recall resources, the failure to recognize their value, or mental reluctance to reach out, may contribute to this phenomenon.

Lastly, although using different terminology, Adler and Kwon's (2002) opportunity-motivation-ability schema aligns with the typologies mentioned earlier: Opportunity relates to the potential access to resources provided by the structural elements, while ability pertains to the richness of these resources. Motivation deals with the reasons why potential resources are (or are not) mobilized. In this sense, the motivation component in the opportunity-motivation-ability schema encompasses a broader range of mechanisms than activation, as it fully accounts for the reasons why an individual might reach out. The motivation aspect is pivotal in the study of stratification and inequalities because it encompasses individual agency and is less costly to manipulate among all forms of social capital. Regrettably, it is also one of the most understudied aspects.

Bringing together the structural and agentic perspectives and considering the various forms of social capital, I will subsequently develop a new model of social

capital with a particular focus on its relevance to the study of stratification.

4.3 A MICRO-FOUNDATION MODEL OF SOCIAL CAPITAL

Before diving into the details, it's crucial to clarify that this model represents a heuristic process where individuals consciously employ social connections as resources to achieve instrumental goals. While individuals can indeed benefit from their embedded network without conscious decision-making, this falls outside the scope of this study. By a "heuristic process," I mean that the primary purpose of the model is to provide a heuristic illustration of how potential social resources are mobilized, rather than predicting empirical relationships between different components.

4.3.1 Potential Social Resources

Accessibility. Since the early stages of social capital literature, access to alters has been emphasized as a form of social capital determined by structural factors. According to Bourdieu, accessibility, as viewed through the lens of structuralism, is a driving force behind inequalities. The fungibility of different resources and the foundation of social capital, defined as "relationships of mutual acquaintance or recognition" (Bourdieu, 1986, pp. 248–249), imply that privileged individuals, possessing more resources in various forms of capital, can join networks consisting of similarly privileged individuals.

This concept of accessibility as a form of social capital determined by structure is also evident in Granovetter's weak tie theory. For instance, Granovetter states, “The

personal experience of individuals is closely bound up with large-scale aspects of social structure, well beyond the purview or control of particular individuals" (Granovetter, 1973, p. 1377). Weak tie theory highlights that strong ties tend to form between similar individuals, while weak ties facilitate connections between dissimilar individuals. It is through these weak ties that less privileged individuals can access privileged contacts and acquire new information.

Nan Lin, in forming his theory of social resources, adopts Granovetter's idea and asserts that, especially for low-status members, "the better strategy would be for ego to reach toward contacts higher up in the hierarchy…This reaching-up process may be facilitated if ego uses weaker ties, since weaker ties are more likely to reach out vertically (presumably upward) rather than horizontally relative to ego's position in the hierarchy" (Lin, 1999, p. 470).

Ability. Ability, namely the resources possessed by alters, has received less attention from social capital scholars, particularly those who emphasize network structure as the primary source of social capital (see a discussion in Adler & Kwon, 2002). However, when applying social capital to the study of inequalities, the concept of ability becomes especially significant. When we assert that an individual is (dis)advantaged by social capital based on their access to certain alters, we implicitly assume a distinction in the resources these alters possess. Otherwise, the individual may not require assistance from alters to achieve their goals. Like access to alters, the ability of alters is also structurally determined.

Lin's social resources theory effectively illustrates both aspects of this concept.

Specifically, Lin emphasizes that high-status alters possess greater influence when assisting an ego in achieving status-related goals. He posits that high-status alters "would be better able to exert influence on positions (e.g., recruiter for a firm) whose actions may benefit ego's interest"; Additionally, he underscores the structurally determined attribute of ability by noting that "social resources, in turn, are affected by the original position of ego (as represented by parental resources or previous resources)" (Lin, 1999, p. 470).

Studies on job hunting provide compelling evidence for ability as a form of social capital. Using occupations as indicators of status, Lin and his associates found that the status of alters significantly predicts the occupational status of an ego (Lin, Ensel, et al., 1981; Lin, Vaughn, et al., 1981; Lin & Dumin, 1986; Marsden & Hurlbert, 1988). Furthermore, job seekers benefit from alters who are current employees at target organizations (Fernandez & Greenberg, 2013; Pedulla & Pager, 2019) and who have hiring authority (Kmec & Trimble, 2009). The benefit is also evident in the fact that network referrals themselves can exert significant influences on hiring decisions (Fernandez et al., 2000; Fernandez & Galperin, 2014). Obukhova (2012) further demonstrates the structurally determined attribute by finding that the most helpful referrals are not necessarily the most motivated referrals, and vice versa.

It's important to note that while accessibility and ability are closely related, they are distinctive concepts. In general, suggesting that a low-status person has no access to high-status contacts is akin to asserting that a low-status person's existing contacts have poor resources. However, this broad generalization may not apply uniformly

across all contexts and goals. For example, having a contact who is a top manager at Firm A may not necessarily be more effective than having a contact who is a general manager at Firm B if the goal is to pursue a job opportunity at Firm B. Therefore, for the purpose of model development, I have chosen to treat accessibility and ability as separate concepts. Researchers conducting empirical studies can decide how to operationalize them based on specific contexts and research objectives.

4.3.2 Individual Agency

Over the past two decades, there has been a growing interest in understanding why there is individual variation in mobilizing social capital, even when individuals are presented with the same opportunities within network structures (e.g., Burt, 2005; Lin, 2001b; Obukhova & Lan, 2013). This emerging area of research has revealed how personal experiences in prior networks (Janicik & Larrick, 2005), personality traits (Burt et al., 1998; Fang et al., 2015), emotions (Shea et al., 2015), self-monitoring styles (Fang et al., 2015; Mehra et al., 2001; Tasselli & Kilduff, 2018), feelings of power (E. B. Smith et al., 2012), feelings of status (Cao & Smith, 2021), status (Casciaro et al., 2014), social skills (Hargadon & Sutton, 1997; Obstfeld, 2005), cognition of network structure (Brands, 2013; Brands & Kilduff, 2014; Flynn et al., 2006), among other factors, can potentially influence individual networking behaviors and strategies (an overview of these studies is available in Appendix G).

These studies have laid a crucial micro-foundation for the agentic perspective in social capital. However, there are two aspects that require further exploration. First,

while research on network cognition has emphasized understanding whom an individual should turn to for help, it remains relatively nuanced regarding what triggers the behavior of reaching out. In a broader context, given the individual variation in the utilization of interpersonal relationships to achieve instrumental goals, what factors can account for this variation? Second, while certain psychological characteristics (e.g., high self-monitoring styles and a need for achievement) may partially account for these differences, they do not fully disentangle the awareness from the willingness mechanisms.

To illustrate the questions that need addressing, Coleman (1988) mentions the example of senators building up obligations for future favors to get legislation passed. Coleman (1990) also provides other instances of intentionally creating obligations by doing unsolicited favors for others. While self-interested agents, as assumed by economics, should not find such behavior surprising, not all individuals act in the same way in reality. In daily life, not everyone will seek help with job changes from a friend with whom they often share drinks, either because they are unaware of the potential benefits or because they are reluctant to do so. Therefore, I propose that this question can be divided into whether individuals are aware of the method and whether they are willing to use it. This division aligns with prior studies. For instance, Burt et al. (1998) show that even managers can be rather unaware of network theory, and Casciaro et al. (2014) find that some people have "dirty" feelings when they activate social relationships for instrumental purposes.

Awareness pertains to the rational benefits-costs calculation of the effectiveness

and efficiency of achieving instrumental goals. In other words, awareness involves evaluative judgments. Specifically, awareness concerns (a) the activation of social resources as a means to achieve goals (i.e., when the idea of using social resources as a means comes to mind) and (b) the recognition of this means. By contrast, willingness concerns the extent to which individuals hold a positive attitude toward using social resources to achieve instrumental goals, reflecting affective judgments. I posit that individual inclination to reach out is determined by both evaluative and affective judgments, i.e., awareness and willingness.

4.3.3 Structural Restraint

The preceding discussion has primarily focused on the egocentric perspective, but the mobilization of social resources is also contingent on the reactions of alters in the network. From the viewpoint of the ego, these reactions are influenced by structural factors for two key reasons. Firstly, as elucidated in the previous section discussing accessibility and ability, the composition of an ego's network, including the presence of specific alters, is inherently shaped by structural factors. Secondly, the responses of alters are also influenced by the ego's own structural characteristics.

Previous research has demonstrated that alters may react differently to an ego's requests based on various factors, including the ego's identity and status. For example, studies by S. S. Smith (2005, 2007) have revealed that concerns about potential damage to one's reputation significantly deter alters from providing assistance to egos who find themselves in disadvantaged positions, particularly in the context of job seeking.

Similarly, Pedulla and Pager (2019) have found that, all else being equal, contacts are less inclined to offer aid in job-seeking endeavors, such as directly reaching out to employers, to black job seekers compared to white job seekers. This disparity is believed to be linked to concerns among alters regarding potential harm to their own reputation.

In a different context related to affective responses, Yu and Xie (2017) have discovered that college students are more inclined to accept requests on a social media platform when they originate from high-status requesters, as indicated by the prestige of their affiliated universities.

These examples collectively illustrate that alters function as instrumental agents who carefully weigh the costs and benefits, such as the prospect of reciprocity and potential harm to their own reputation, when responding to requests for help and resource exchange.

4.3.4 Summary of the Model

In concluding this section, I integrate the key components of our social capital model and underscore its significance in understanding inequalities and stratification. Illustrated in Figure 4-1, the model encompasses several critical aspects:

Potential Social Resources. Positioned on the left side, potential social resources represent a component of social capital well-regarded by structuralist scholars. This facet includes two closely intertwined concepts: the access to alters and the ability of alters. These elements jointly determine the opportunities presented by social structures.

Individual Agentic Component. Extending from the structural opportunities, the individual agentic component emerges as a vital aspect. The actual value of opportunities provided by social structures hinges on individual agency. Notably, while prior studies on network cognition have hinted at the significance of connecting with the "right" alters, I emphasize a crucial step that precedes this: the decision to reach out. This decision is influenced by “awareness” and “willingness”, which collectively drive motivations for engagement.

Structural Restraint. Once an individual decides to reach out and selects specific alters, the reactions of these alters become crucial in determining whether potential resources can be effectively mobilized.

Impact on Other Forms of Capital. The mobilized or actual social resources play a pivotal role in influencing various forms of capital, such as financial, human, and cultural capital. These, in turn, exert an impact on the structurally determined component of social capital.

Among all elements in the model, the individual agentic component stands out as the linchpin for amplifying or conditioning inequalities. In the context of structural advantages, a person lacking the individual agentic component cannot fully harness the potential of the structural component to enhance their existing advantages. Conversely, when structural advantages are present alongside the individual agentic component, a person can effectively leverage the structural component to further enhance their existing advantages.

In contrast, when facing structural disadvantages, a person without the individual

agentic component of social capital finds themselves in a position of double jeopardy. However, a person with the individual agentic component amidst structural disadvantages can mitigate these challenges by leveraging their social capital to compensate for other resource deficits.

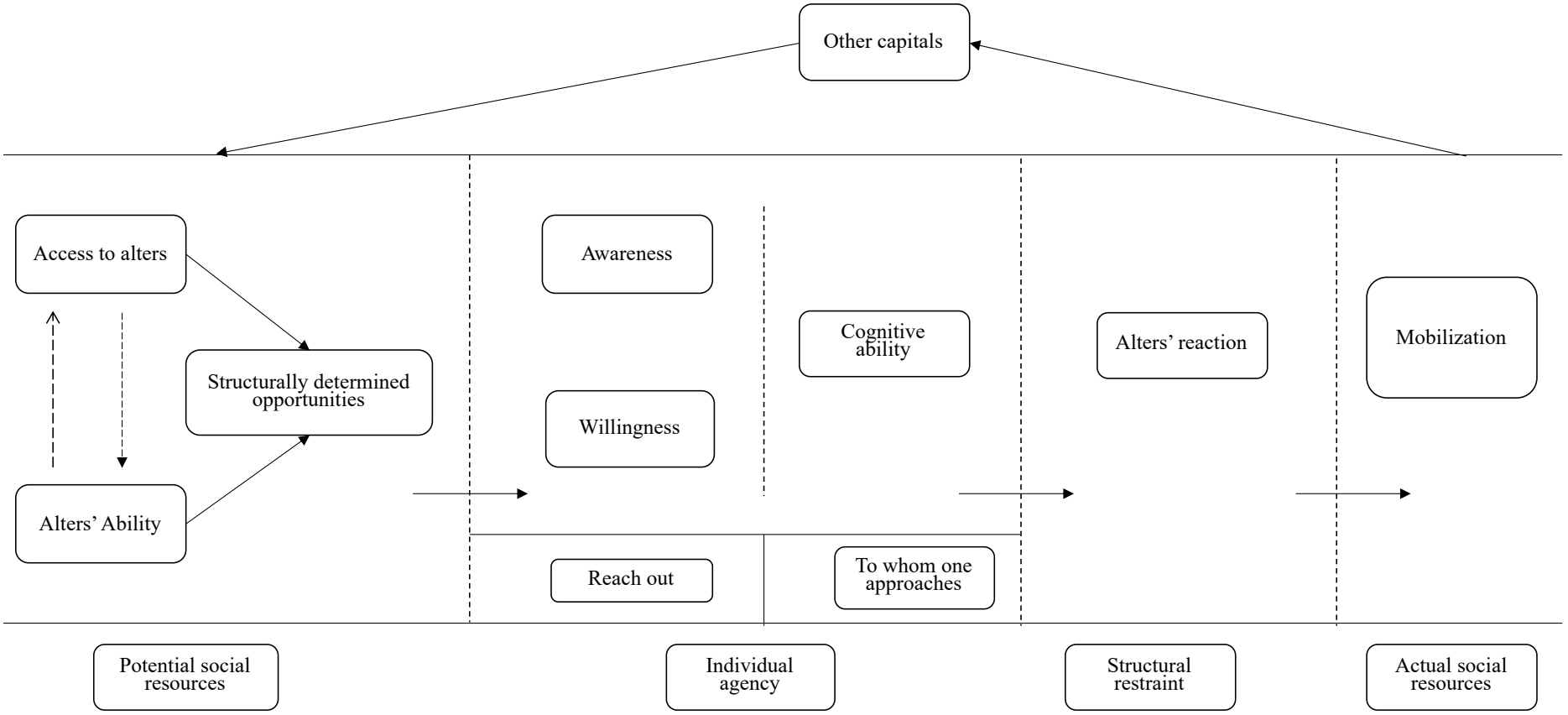


Figure 4-1. A Micro-Foundation Model of Social Capital for Stratification

4.4 EDUCATIONAL ATTAINMENT: AN APPLICATION OF THE MODEL

Educational attainment serves as an intriguing variable for applying the model due to its well-established significance in both stratification (e.g., Alon, 2009; P. M. Blau & Duncan, 1967; Lareau & Weininger, 2003; Sewell et al., 1969, 1970; Sewell & Hauser, 1975) and mobility (Goldthorpe, 2014; Hout, 1984, 1988; Torche, 2011). This dual nature resonates with the duality inherent in the social capital model outlined above.

Within the structural component, the principle of homophily, often referred to as the "like-me" principle, naturally suggests that individuals with similar levels of education tend to congregate (Homans, 1951). Additionally, Lin (1982, 1990) explicitly includes individual educational attainment, along with parental status, as determinants of social resources. Drawing from the insights found in prior literature and applying them to the structural components of my model—namely, accessibility and ability—I propose the following baseline hypothesis:

Hypothesis 1 (H1): People with higher educational attainment have greater "accessibility" and "ability" forms of social capital.

Since the primary extension of this study lies in the agentic component, particularly focusing on the awareness of using and the willingness to instrumentally use social connections, my main empirical emphasis is also on this aspect of the model. I empirically examine a central determinant, which is education, along with two moderating factors: gender and upward mobility. While education may influence awareness and willingness through various mechanisms, I will focus on two potential

mechanisms for developing my hypotheses: education-agency orientation-awareness and education-subjective status-willingness.

Before delving into the concept of agency orientation, it's essential to clarify that the notion of agency previously discussed in this study is relative to social structures, as commonly used in sociology literature (Campbell, 2009; Emirbayer & Mische, 1998; Sewell, 1992). In contrast, in psychology and social psychology, agency is often understood as a set of personal traits. In this psychological sense, human agency is associated with traits such as self-efficacy, mastery, personal control, and life expectations (Hitlin & Johnson, 2015). To prevent any confusion, I will henceforth refer to the second concept as "agency orientation". While agency orientation can be operationalized in various ways, psychological studies typically link it to "intellectual and motivational competence" and emphasize a focus on the efficient attainment of goals (Wojciszke et al., 2011, p. 617). For example, agentic traits encompass qualities like "Clever, Competent, Efficient, Energetic, Intelligent, Knowledgeable, Logical" (Wojciszke et al., 2011, p. 620), and agentic goals include "Competence, Achievement, Power, Status, Recognition, Superiority" (Trapnell & Paulhus, 2012).

Drawing from this conceptualization of agentic traits, it is reasonable to hypothesize that education enhances one's agency orientation. Consequently, individuals with a higher level of education are more likely to exhibit agency orientation, as they are more motivated to achieve goals efficiently and effectively. They are expected to consider various means and calculate optimal strategies for goal attainment. As a result, they are more aware of the value of social resources as a means to achieve

instrumental goals.

Hypothesis 2 (H2): People with higher educational attainment have a greater "awareness" form of social capital.

For the willingness aspect, I rely on a mechanism related to subjective status, with key insights drawn from studies such as Casciaro et al. (2014), Cao and Smith (2021), and E. B. Smith et al. (2012). These studies collectively offer several crucial implications, detailed further in Appendix H. First, the perception of self-justifiability in utilizing social connections for instrumental goals varies among individuals. High-status and influential individuals tend to find such utilization more justifiable, as they are highly motivated by the sense of achievement. Second, the acceptability of felt obligation varies across individuals. High-status and influential individuals often consider it more acceptable, given their belief in having more resources to reciprocate. Third, the tolerance for the risk of rejection varies among individuals. High-status and influential individuals not only face a lower likelihood of rejection but also experience lower psychological costs in the event of rejection.

Applying these insights to the context of education, it is reasonable to hypothesize that higher educational attainment positively contributes to an increased willingness to leverage social connections for instrumental goals because individuals with higher levels of education tend to have a higher subjective status.

Hypothesis 3 (H3): People with higher educational attainment have a greater "willingness" form of social capital.

Given that agency orientation is considered the mechanism underlying educational attainment and awareness, and acknowledging the established gender differences in agency orientation, I anticipate gender to have moderating effects accordingly.

First, I expect gender to moderate the relationship between education and agency orientation. It is widely recognized that women are often seen as more communal, while men tend to exhibit more agentic traits (Eagly, 1987; Eagly et al., 2000; Eagly & Steffen, 1984; Eagly & Wood, 1991). Therefore, the impact of education on agency orientation is likely to be more pronounced in men than in women. This is because men, with their initial agentic traits, may find it easier to assimilate and internalize the self-efficacy and sense of mastery that education can provide.

Second, I expect gender to moderate the relationship between human agency and the awareness form of social capital. The backlash literature suggests that when women project themselves as competent and agentic, they can be negatively perceived as lacking warmth and niceness. Consequently, they may face economic penalties due to the violation of feminine stereotypes (Moss-Racusin et al., 2010; Rudman et al., 2012; Rudman & Phelan, 2008). As a result, agentic women are more likely than equally agentic men to choose to solve problems and achieve instrumental goals independently, rather than utilizing interpersonal relationships as instrumental tools to avoid potential penalties. This difference in life experiences implies that women may require a higher degree of agency orientation to become aware of the instrumental function of social connections. Taken together, I raise:

Hypothesis 4 (H4): Being female negatively moderates the relationship between

educational attainment and the "awareness" form of social capital.

From an intergenerational perspective, family backgrounds are expected to moderate the relationship between educational attainment and awareness. This is because educational attainment can shatter the illusion of self-sufficiency in achieving goals.

For instance, consider a person who was born and raised in a disadvantaged family but managed to attain a high level of education. Despite their academic achievement, they may find themselves unable to compete with their privileged peers due to a lack of social resources. This realization can reinforce their awareness of the importance of social connections. Conversely, if an individual from an underprivileged background has low educational attainment, they might attribute their personal shortcomings to a lack of effort and self-efficacy in obtaining an education. They may hold the illusion that achieving a higher level of education would enable them to compete on an equal footing with the privileged.

This phenomenon is particularly likely in societies where Confucian educational meritocracy is prevalent. For example, Chinese individuals, especially those from disadvantaged backgrounds, often strongly believe in the power of self-efficacy and hard work to improve their circumstances (Fong, 2004; Ho, 1964). As a result, it's only after they attain a high level of education that they realize that self-efficacy alone is insufficient to achieve goals in many situations and that social connections are equally important.

In summary, individuals who have achieved educational upward mobility have a

more realistic understanding of how society functions compared to those who are both underprivileged and have low educational attainment. Similarly, when compared to the privileged and highly educated group, individuals who have achieved educational upward mobility possess a better grasp of the limitations of self-effort and self-efficacy. Therefore, I propose:

Hypothesis 5 (H5): Educational upward mobility positively moderates the relationship between educational attainment and the "awareness" form of social capital.

4.5 DATA AND METHOD

4.5.1 Data

The data utilized in this study were derived from two comprehensive surveys: the China Family Panel Studies (CFPS) and the Chinese General Social Survey (CGSS). Specifically, I employed data from the CFPS 2010 Wave and the CGSS 2017 Wave because these waves included relevant items related to the key variables under investigation. The study focused exclusively on adults aged 18 and above who had completed their highest level of education (i.e., non-students). Furthermore, to ensure data quality and after the exclusion of missing values, I obtained a final dataset consisting of 10,481 valid observations from CFPS and 805 valid observations from CGSS. [9]

[9] The original sample size in CFPS 2010 was 33,598. After applying three exclusion criteria—(a) being aged 18 or above, (b) being born in 1969 or later (to ensure an age of 12 or older in the year 1981), for reasons I explain in the next section, and (c) having non-student status—the sample size decreased to 11,908. The sample size was further reduced to 10,481 after excluding

4.5.2 Dependent Variables

Accessibility. Accessibility, a key component of structure-based social capital, was measured by assessing whether a respondent had connections with individuals in ten different occupational categories. These categories included bus/truck drivers, top managers in large firms, cleaners, beauticians/hairdressers, human resources (HR) managers, lawyers, auto repairmen, nurses, policemen/policewomen, and junior high school teachers. Having a connection was defined as knowing the name of a specific person within one of these occupations and having the ability to contact that person.

To quantify accessibility, I tallied the number of connections a respondent had across these ten occupations. If a respondent had connections in all ten occupations, their score would be 10, while a score of zero indicated no connections in any of the mentioned occupations. This approach aligns with the concept that a broader range of connections across various occupational categories signifies "greater reachability across the socioeconomic hierarchy in Chinese society" (Bian 2019:50; also referenced in Lin 2001b).

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observations with missing values in the desired variables.

Similarly, the original sample size in CGSS 2017 was 12,582. After applying three exclusion criteria—(a) being aged 18 or above, (b) being born in 1969 or later (to ensure an age of 12 or older in the year 1981), for reasons I explain in the next section, and (c) having non-student status—the sample size decreased to 4,335. Subsequently, the sample size decreased to 2,561 as I only included respondents who had lived in the same place (at the county/city level) since birth. Finally, the sample size was further reduced to 805 after excluding observations with missing values in the desired variables. The significant reduction in sample size for CGSS 2017 was primarily due to the questionnaire's structure, as only 4,219 out of 12,582 respondents were assigned to answer the relevant social capital items in Part C.

Ability. In evaluating ability, it's crucial to move beyond simply counting the number of connections and consider the distinctions between different occupations. For instance, having a connection with a nurse and having a connection with a top manager represent distinct levels of influence and status. To capture this, I assessed the ability of alters by assigning status scores to each occupation based on the International Standard Classification of Occupations (ISCO).

To achieve this, I began by identifying the ISCO codes associated with the ten specified occupations. Subsequently, I extracted the first digit from these ISCO codes and reversed the order for coding purposes. For example, top managers fall under Major Group 1 within ISCO and occupy the highest rank among the nine major groups, resulting in a status score of nine in this study. Conversely, cleaners belong to Major Group 9 in ISCO, resulting in a status score of one in this study.

The ability variable was calculated as $\sum_{i=1}^{10} t_i s_i$ where $t_i = 1$ indicates that a respondent had connections within Occupation i while $t_i = 0$ signified an absence of connections. Meanwhile, s_i represented the status ranking associated with Occupation i.

Awareness. For the assessment of awareness regarding the use of social capital in achieving instrumental goals, a five-Likert item was employed. Respondents were asked to indicate the extent to which they agreed with the statement, "It is more important to have social connections than to have personal competence in the current society." To ensure consistency, I re-coded the original scale, with values ranging from one to five representing the responses "strongly disagree," "disagree," "neither agree

nor disagree," "agree," and "strongly agree," respectively.

Willingness. Regarding willingness to employ social capital for instrumental purposes, a similar five-Likert item was utilized. Respondents were asked to express their level of agreement with the statement, "It is acceptable to make friends with people just because they are useful to you." To maintain uniformity, I re-coded the original scale, with values ranging from one to five corresponding to the responses "strongly disagree," "disagree," "neither agree nor disagree," "agree," and "strongly agree," respectively.

4.5.3 Independent and Other Variables

The independent variable, educational attainment, was operationalized based on the number of years of schooling completed by respondents. Two moderating variables were considered: gender and upward mobility. Upward mobility was determined by comparing respondents' educational attainment with that of their fathers. Specifically, if a respondent's educational attainment exceeded that of their father, a value of one was assigned to this dummy variable; otherwise, a value of zero was assigned.

Additionally, several control variables were included in the analysis. These control variables encompassed personal annual income (represented in natural logarithm form), age, membership in the Chinese Communist Party (CCP) (classified as CCP member or non-CCP member), urban or rural residency status (categorized as urban resident or rural resident), and marital status (categorized as unmarried, married, or divorced/widowed).

4.5.4 Identification Strategy

Arguably, an individual's educational attainment is influenced by various factors, including cognitive ones such as being instrumental and agentic. These idiosyncratic factors might be confounding variables affecting both educational attainment and different forms of social capital. Additionally, the agentic component of social capital is embodied in broader concepts, like being instrumental and agentic in general, which are expected to influence educational attainment (e.g., Frye, 2012). In other words, concerns about reversed causality also arise.

To address these concerns, I adopted an instrumental variables (IV) approach. Specifically, following similar suggestions from Angrist and Pischke (2009, pp. 121–127), I utilized a temporal variable and a regional variable as instruments to enhance the precision of the first-stage estimation (see a similar practice in the Chinese context in Giannetti et al., 2015; Luo et al., 2021). For the temporal dimension, I created a dummy variable called "compulsory policy." In 1986, the Chinese government implemented the 1986 Compulsory Education Law, making nine-year education (comprising primary and junior high school education) mandatory (Hannum et al., 2011; Ministry of Education, 1986; C. Wu & Shi, 2020). Consequently, individuals who were previously uncertain about attending junior high school, those who may have decided against it, or those who had dropped out were discouraged from doing so by the compulsory policy.[10] It is expected that individuals within the eligible age range for

[10] The effects on primary school are expected to be minimal since primary school was already quite widespread even before the compulsory policy, with, for instance, a net enrollment ratio of up to 96% in 1978. This temporal evidence for the effects on primary school and junior high

junior high school (between 12 and 15) after 1986 will, on average, attain higher levels of education. For example, there would be a difference between people born in 1970, who were 15 years old in 1985, and people born in 1975, who were 12 years old in 1987, after accounting for the general cohort-based increase in national educational attainment.

Regarding the regional dimension, I leveraged the well-established uneven distribution of educational resources and unequal educational opportunities in China. In regions with sufficient educational resources, residents are anticipated to have greater educational opportunities and higher educational attainment on average. While regional educational resources should strongly predict individuals' educational attainment, the association with regions implies that they may influence dependent variables through mechanisms other than educational attainment. Therefore, I did not directly use region-based educational resources as an instrument. Instead, I considered the interaction of compulsory policy and educational resources as an instrument. Prior to the implementation of the compulsory policy, I expect educational resources to be positively associated with residents' educational attainment. However, after 1986, I anticipate that the compulsory policy will exert its greatest influence in regions where educational resources are the scarcest. Consequently, I expect a negative interaction effect between the compulsory policy and educational resources.

Practically, for each observation, the dummy variable indicating compulsory policy took a value of one if the respondent was aged 12 or younger in 1987, and zero

school can be found in Hannum et al. (2011).

otherwise. Regarding regional educational resources, I considered the provinces where respondents lived at age 12 and utilized the percentage of senior high school students in a province each year as an indicator of the province's educational resources. The data on senior high school students in each province were sourced from the China Statistical Yearbook.

I restricted my analysis to respondents born after 1968. This restriction was necessary because the identification strategy relied on respondents being aged 12 or older in 1981. There are two key reasons for this choice. First, data on each province's educational resources are only available from 1981 onwards. Second, the Cultural Revolution, which significantly impacted various aspects of Chinese society, including education, concluded in the late 1970s. The early 1980s marked the return to a more "normal" state in Chinese society. As a result, I focused on the post-revolution period, often referred to as the reform period, to minimize the noise caused by the Cultural Revolution's disruptions to education.

While the general approach was consistent between CFPS and CGSS, I applied different exclusion criteria due to variations in the availability of relevant information. Specifically, CFPS provides information about the provinces where respondents lived at age 12. In contrast, CGSS lacks this information but records the provinces where respondents currently reside. To address this issue, I only included CGSS respondents who have resided in the same location (at the county/city level) since birth. This approach ensured that their current province matched the province they lived in at age 12. While this approach does introduce certain limitations, it is essential to note that the

remaining CGSS sample, representing 67.03% of all respondents in CGSS 2017 (8434 out of 12582), remained rather representative.

The two instruments, I argue, are unlikely to be systematically related to social capital through mechanisms other than educational attainment (exclusion restriction). First, it is unlikely that the year 1986 has any systematic influence on people's cognition of social capital and their network structure. While it is possible that the effectiveness of this dummy variable lies in the general progress of the population's educational attainment, the identifying assumption is not problematic once I control the effect of respondents' age in the second-stage estimation. Similarly, the interactive term may affect people's cognition of social capital and their network structure via other mechanisms related to regional educational resources, apart from the mechanism of educational attainment. However, this will not be a problem once I control regional educational resources in the second-stage estimation (see a similar approach in Luo et al., 2021).

To be valid instruments, these two variables should be strong predictors of educational attainment after controlling age, regional educational resources, and other covariates. To examine this criterion, I conducted a joint F test of excluded instruments for the first-stage regressions (details available in Appendix I). The joint F statistic in the CFPS sample is 68.1479 ($p < .001$), indicating that the compulsory policy and the interactive term are strong IVs, both from a perspective of statistical significance and based on the typical rule of thumb proposed by Stock, Wright, and Yogo (2002), which suggests that values larger than 10 indicate strong instruments.

In the CGSS sample, the joint F statistic is 9.1470 ($p < .001$). Although it is slightly smaller than 10, it is mainly due to the small sample in CGSS ($n = 805$). It's important to note that the F statistic tends to increase with larger sample sizes. Considering the statistical significance and a statistic very close to 10, the compulsory policy and the interactive term are still considered quite strong IVs in this small sample.

To address concerns about weak instrumental variables, this study employed a two-stage least-squares (2SLS) regression method based on bootstrapping. This approach was used to enhance the robustness and consistency of the results, a technique similarly employed in the work of Acharya, Blackwell, and Sen (2016). The methodology involved resampling observations with replacements from the CFPS dataset (comprising 10,481 observations) and the CGSS dataset (comprising 805 observations) respectively. Subsequently, 2SLS regressions were conducted to identify the coefficients of education on social capital indicators. By repeating this process *n* times, *n* coefficients of education were obtained. The average of these *n* coefficients was then reported in the subsequent sections.

In addition to bolstering the robustness and consistency of the coefficients, this bootstrapping-based 2SLS method offered an advantage in assessing H4 and H5 in a more intuitive manner. H4 and H5 pertained to the moderating effects of gender and upward mobility. In a typical scenario, adding interactive terms of education and the two potential moderators would be the straightforward approach. However, this might not align seamlessly with the IV approach, as it would necessitate treating the interactive terms as endogenous variables. Therefore, an alternative strategy was

adopted, involving a comparison of education coefficients across different sub-samples and a test to determine the significance of these differences in examining the moderating effects. For example, to assess differences between male and female sub-samples, an independent t-test was employed to evaluate the mean difference between the *n* coefficients of education in the male and female sub-samples.

4.6 RESULTS

4.6.1 Structural Component of Social Capital

Hypothesis 1 posits that individuals with higher educational attainment will exhibit greater accessibility and ability in terms of their social capital. The results, however, fail to fully support this hypothesis. While Ordinary Least Squares (OLS) regressions suggest a positive association between education and both accessibility (B = .2728, p < .001) and ability (B = .3375, p < .001), the IV approach yields limited evidence in favor of this claim. In contrast, utilizing the bootstrapping-based two-stage least-squares (2SLS) method, there appears to be no significant impact of education on either accessibility (B = -.3105, 95%Confidience Interval (CI) = {-1.0724, .2810}) or ability (B = -.2494, 95%CI = {-1.0076, .3203}). Figure 4-2 provides a visual representation of the results obtained through different analytical methods (For coefficients of other variables across different methods, please refer to Appendix J).

One possible explanation for the difference between the OLS approach and the IV approach is that the commonly believed relationship between educational attainment and the structural component may be influenced by confounding factors such as wealth.

For instance, a notable observation from this study is that income remains a significant predictor of the structural component in the IV approach. In fact, when compared to the OLS approach, the coefficients of income substantially increase. In sum, the findings do not offer strong support for Hypothesis 1.

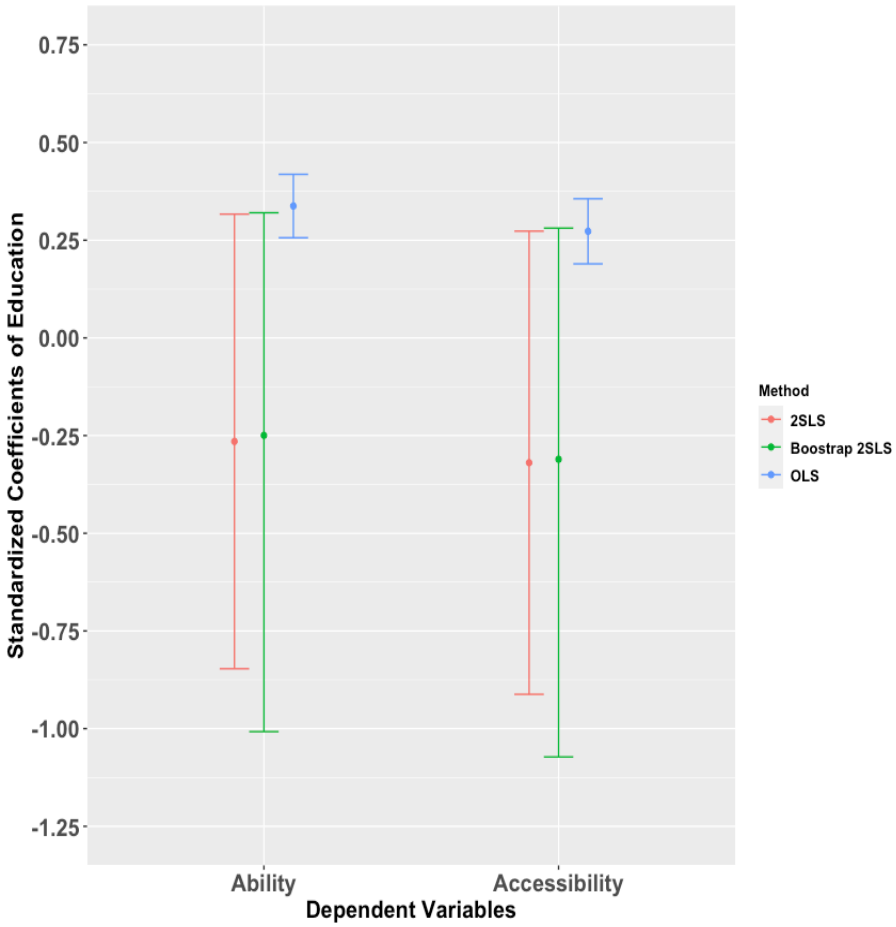


Figure 4-2. Coefficients of Education on Accessibility and Ability, Grouped by Analytic Methods

Note: 2SLS = 2-Stage Least Squares; OLS = Ordinary Least Squares. Spiked lines represent 95% confidence intervals (CI). 95%CIs in OLS and 2SLS are calculated by coefficients and standard errors in regression results, whereas 95%CIs in bootstrapping-based 2SLS are taken from 2.5% and 97.5% quantiles in the bootstrapped coefficients.

4.6.2 Agentic Component of Social Capital

Hypotheses 2 and 3 predict that individuals with higher educational attainment exhibit

greater awareness and willingness forms of social capital, respectively. Figure 4-3 provides an overview of the results for the agentic component across different analytical methods (Coefficients of other variables across different methods are available in Appendix K).

While education does not exhibit a significant association with awareness in the OLS regression (B = -.0181, p = n. s.), the bootstrapping-based 2SLS method reveals a positive effect on awareness (B = .3069, 95%CI = {.1179, .5246}). Thus, H2 receives support from the IV approach.

The difference in results between the OLS model and the IV approach may be attributable to some confounding factors underlying education and awareness. In particular, urban residential type and income positively and significantly predict awareness in the OLS model, whereas their effects disappear in the IV approach (see Appendix K). One possible explanation regards that in the OLS model, the urban residential type predicts both education and awareness and thus, the power of education in explaining awareness is reduced when the residential type is included in the OLS; similarly, some individual characteristics related to earning capacities predict both education and awareness and thus, the power of education in explaining awareness is further reduced when income is included in the OLS. In contrast, the IV approach excludes the influences of these confounding factors, and accordingly, the causal effect of education becomes evident.

In contrast, results from the OLS regression demonstrate a significantly positive association between education and willingness (B = .8079, p < .001), and the

bootstrapping-based 2SLS method generates similar results (B = .7284, 95%CI = {.1121, 1.6217}). Hence, H3 is supported.

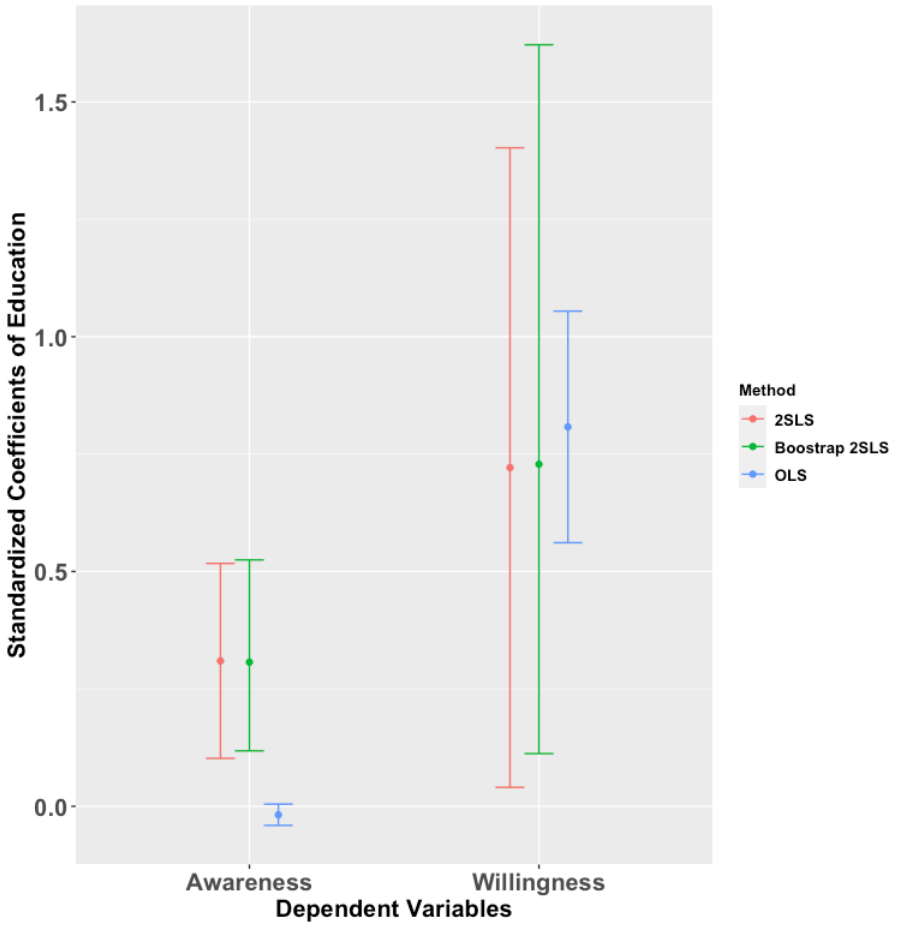


Figure 4-3. Coefficients of Education on Awareness and Willingness, Grouped by Analytic Methods

Note: 2SLS = 2-Stage Least Squares; OLS = Ordinary Least Squares. Spiked lines represent 95% confidence intervals (CI). 95%CIs in OLS and 2SLS are calculated by coefficients and standard errors in regression results, whereas 95%CIs in bootstrapping-based 2SLS are taken from 2.5% and 97.5% quantiles in the bootstrapped coefficients.

Hypotheses 4 and 5 predict moderating effects of gender and upward mobility on awareness, respectively. To investigate these effects, I divided the full sample into sub-samples based on gender and upward mobility status, resulting in two sub-samples for each hypothesis (male and female sub-samples for H4, and upward and non-upward

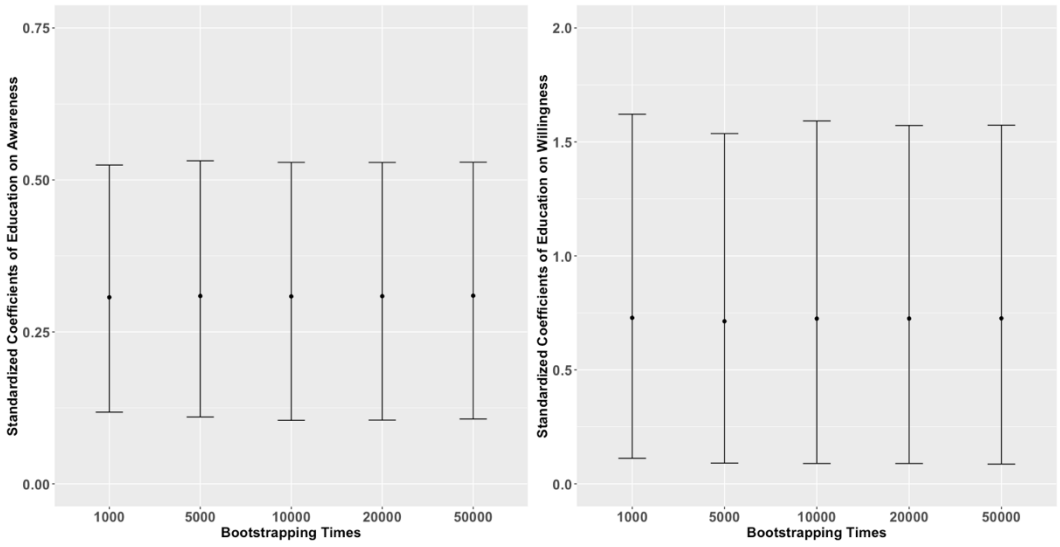
sub-samples for H5). I then applied the bootstrapping-based 2SLS method within these sub-samples to assess the main effect and compared the education coefficients across these sub-samples.

In particular, the mean of education coefficients is significantly larger in the male sub-sample (M_{male} = .6516) compared to the female sub-sample (M_{female} = .1355). An independent sample t-test confirms a significant difference in the bootstrapping coefficients between the two sub-samples (t(1176) = 47.2938, $p < .001$), thereby supporting H4, which posits that the effect is stronger for men.

Similarly, the mean of education coefficients is notably higher in the upward sub-sample (M_{upward} = .5730) than in the non-upward sub-sample ($M_{non\text{-}upward}$ = .2332). Another independent sample t-test reveals a significant difference in the bootstrapping coefficients between these sub-samples (t(1341) = 30.9556, $p < .001$). These results support H5, which suggests that the effect is stronger for individuals with educational upward mobility.

4.6.3 Robustness

In the main analysis, bootstrapping with 1000 iterations was employed. However, sensitivity tests were conducted by increasing the number of bootstrapping iterations. Figure 4-4 visually presents the robustness of the results: The point estimators exhibit only marginal variations with changes in the number of bootstrapping iterations, indicating a high level of consistency overall. Therefore, the use of 1000 bootstrapping iterations in multiple analyses is deemed adequate for generating reliable estimators.



(a) Awareness (b) Willingness

Figure 4-4. Sensitivity Tests of Education Coefficients

Note: Spiked lines represent 95% confidence intervals (CI). 95%CIs are taken from 2.5% and 97.5% quantiles in the bootstrapped coefficients.

4.7 DISCUSSIONS

Empirically, this study aims to investigate the effects of educational attainment on social capital as an application of the built model. Interestingly, the results do not support positive effects of educational attainment on the structural component; in contrast, they indicate strong positive influences on the individual agentic component of social capital.

Within the individual agentic component, gender and upward mobility moderate the relationship between education and the awareness of instrumentally using social connections. These findings provide significant empirical evidence regarding education's role in shaping social capital and offer important insights into gender inequalities and intergenerational stratification. Subsequently, I will discuss the implications for education as an equalizing and reproducing factor via the social capital

mechanism, respectively.

4.7.1 Education, Social Capital, and Inequalities

Since education has dual roles in widening and mitigating inequalities—educational attainment is considerably influenced by one's origin, but educational attainment also serves as an upward mobility tool (Goldthorpe, 2014)—the magnitude of widening and mitigating inequalities should also include such less visible aspects as the agentic component and instrumental rationality.

At the individual level, the instrumental functions of education have been mainly related to the creation of human capital so far, but the creation of social capital, especially the agentic component, attracts little attention. Although it is not uncommon for researchers to discuss education along with social capital since Coleman's important work (Coleman, 1988), most works focus on how social capital influences educational outcomes instead of how education affects social capital (e.g., Coleman, 1990; Hao, 1994; Portes, 2000; Teachman et al., 1996, 1997; Q. Wu et al., 2014).

By directly examining how education affects social capital, I have shown the consistent positive influences of educational attainment on the agentic component of social capital, in terms of both the awareness and willingness forms. The awareness addresses whether individuals are aware of the role of social capital in a means-end relationship when considering the means of pursuing instrumental goals, whereas the willingness addresses the acceptance of such means-end thinking. The results, therefore, indicate that education increases instrumental rationality at the individual level. In

particular, there is also a gender difference in how education affects instrumental rationality.

The findings have two significant implications for social stratification. First, when viewed from an intergenerational perspective, family backgrounds wield substantial influence over an individual's educational achievements. Existing literature, despite acknowledging this, has tended to underestimate the role of education in perpetuating intergenerational disparities. This oversight can be attributed to the relative neglect of social capital's creation, particularly the agentic component.

Second, from a gender perspective, although extensive previous studies have demonstrated women's gradual outperformance of men in educational attainment (Becker, 2012; Becker et al., 2010a, 2010b; Buchmann & DiPrete, 2006; Diprete & Buchmann, 2006; DiPrete & Buchmann, 2013; Goldin et al., 2006; Quadlin, 2018; Rosin, 2012), it is essential to exercise caution when predicting how these advantages among women might influence gender disparities beyond the educational stage. The existing literature on gender stereotypes underscores that women continuously grapple with the burden of the “communal” stereotype, facing professional challenges as a result (Eagly, 1987; Eagly et al., 2000; Eagly & Steffen, 1984; Eagly & Wood, 1991). The findings in this study, unfortunately, provide further evidence for women’s disadvantages in being agentic and instrumental: Although education increases the awareness of instrumentally utilizing social connections, women require more education than men to gain the same level of awareness.

4.7.2 Education, Social Capital, and Potential Mobility

While part of the findings holds implications for understanding how education and social capital contribute to social stratification, others provide invaluable insights into the potential for social mobility. This potential stems from the association of goals aimed at mitigating inequalities and altering social stratification with the individual agentic perspective found in the social capital literature. For decades, scholars have been intrigued by the notion that social capital, as a form of non-monetary resource, could offer a less costly, non-economic solution to addressing social inequalities by transforming social resources into other forms of capital (Portes, 1998).

However, the viability of this idea depends on whether social capital can be readily granted or "manipulated". Therefore, I shift my focus toward the motivations for proactive engagement, specifically enriching the micro-foundation by distinguishing between awareness and willingness mechanisms. In this context, it becomes relatively feasible to bestow or influence social capital, as it is arguably less economically costly to manipulate individual awareness and willingness compared to restructuring one's entire social network. Empirically, the findings from this study underscore the significant individual variations in both awareness and willingness forms of social capital, particularly variations influenced by educational attainment, which constitutes a second source of potential to explore.

As discussed in the preceding section, our understanding of the role of education in social reproduction may be limited if we overlook the creation of social capital. In a similar vein, we may underestimate the role of education in fostering social mobility. Highly educated individuals possess a greater agentic component of social capital, and

notably, those who experience upward mobility reap even greater benefits from education in terms of the agentic component of social capital. Indeed, the increased agentic component need not exclusively result from the acquisition or cultivation at school. It can be the experience in the post-education period that is associated with the corresponding educational attainment. For instance, when a highly educated person aims to secure a competitive position, the job-hunting experience makes the person aware of using and motivated to use social connections to achieve the goal. Regardless of the direct or indirect effects of education, these patterns carry significant practical implications, especially in societies influenced by Confucian values of meritocracy, where diligent study is considered the means to achieve upward mobility.

4.7.3 An Agenda for Future Studies

The primary objective of this study is to construct a social capital model with specific relevance to stratification by (a) synthesizing the two major perspectives and (b) enriching the micro-foundation through conceptualizing the daily experiences—not all individuals are equally aware of and content with the role of social connections in pursuing instrumental goals. The empirical application serves as an initial step in exploring the individual idiosyncrasies in this domain, and I hope that this paper will serve as an inspiration for further research in this area. As a result, I present several areas that could be explored in future studies.

First, although the effects of educational attainment on the agentic component of social capital are clear, the underlying mechanisms require further investigation. In the

case of awareness, I have incorporated the concept of agency orientation to hypothesize how education may influence it and how gender and upward mobility may moderate this relationship. Regarding willingness, I assume a connection between educational attainment and psychological status, from which I make predictions about how education might influence the willingness to utilize social capital. While the results do support my predictions, I have not been able to examine the mechanisms by including the two mediators. Therefore, future studies could conduct more comprehensive investigations into how education impacts social capital by examining the roles of agency orientation and subjective status.

Second, beyond educational attainment, future studies could benefit from exploring additional determinants of the agentic component of social capital, especially those factors that can be modified, granted, or manipulated in a relatively short timeframe. Two potential research directions are as follows. On one hand, future investigations might explore the impact of short-term learning experiences, such as completing a one-year degree program or specific courses within a curriculum. Furthermore, experimental studies could assess how exposure to knowledge of social capital theory influences the agentic component of social capital. While the findings related to educational attainment suggest a viable albeit moderate means of shaping social capital through education, it would be intriguing to explore more ambitious approaches involving short-term learning.

On the other hand, personality change offers another promising avenue for enhancing the agentic component of social capital. Personality transformation can

occur through self-directed efforts, including interventions focused on self-affirmation, self-actualization, and therapy. External life events, such as employment changes and marriage, can also contribute to personality shifts (for a comprehensive review,see Tasselli et al., 2018). Significantly, self-directed methods can facilitate rapid personality changes over a relatively short period, often spanning just a few weeks or months (e.g., D. M. Clark et al., 2003; Magidson et al., 2014; Roberts et al., 2017; M. L. Smith, 1980). Consequently, personal traits associated with agency orientation, instrumental rationality, and the propensity to mobilize potential social resources can be intentionally cultivated through interventions within a relatively brief timeframe.

Third, it is unexpected that H1 did not receive support, given the well-established notion that individuals with high socioeconomic status tend to derive more benefits from their social networks (Kwon & Adler, 2014). I propose two potential explanations for future research to explore. As demonstrated by the OLS analysis, there is a clear link between educational attainment and the structural component. However, this relationship disappears in the IV approach. One possible explanation, as I proposed before, is that the suspected relationship between educational attainment and the structural component may be influenced by confounding factors such as wealth. Another possibility is related to how the structural component is operationalized in this study. Therefore, utilizing a more suitable operationalization may yield different results.

Lastly, it's worth noting that this study exclusively considers the positive effects of social capital. However, it provides valuable insights into the "dark side" of social capital at the societal level, which I refer to as collective social capital henceforth.

Further exploration of this aspect is necessary to address some seemingly counterintuitive and paradoxical patterns. To elaborate, it is well-established that education is one of the most potent predictors of general social trust (Alesina & La Ferrara, 2002; Huang et al., 2009; Li et al., 2005; Oskarsson et al., 2017; Putnam, 2000; Putnam & Helliwell, 2007), and communal trust serves as the foundation of collective social capital (Adler & Kwon, 2002a; Brehm & Rahn, 1997; Fukuyama, 1996; Lin, 1999; Putnam, 1993). In this context, personal educational attainment should exhibit a positive association with collective social capital. Consequently, educational expansion should contribute to the growth of collective social capital, as argued by Putnam (1993, 1995).

However, the findings concerning the agentic component imply that education may have a negative influence on collective social capital, and these effects are mediated by mechanisms associated with the pursuit of self-achievement and instrumental rationality. Differently put, a highly educated person may instrumentally use social connections to achieve personal goals, even at the cost of public benefits. These potentially negative consequences have been overlooked in prior research on collective social capital. Indeed, if higher levels of education lead individuals to increasingly prioritize social connections for achieving instrumental goals and, at the same time, reduce their altruism in interpersonal relationships, we must reconsider the roles of education in shaping collective social capital.

It is important to acknowledge that the results of this study are context-specific, [11]

[11] See results regarding the direct effect of education on social trust in the Chinese context in C. Wu and Shi (2020).

and it remains an empirical question whether they apply to other contexts. However, even within the Chinese context, the paradox persists when it comes to building institutional trust and promoting procedural justice.

For institutional trust, consider the practice of banquets (or social eating) in the Chinese context, which is one of the most common and intentional ways of building social networks. This practice reflects a high level of individual instrumentality. However, research by Bian (2019, pp. 43–75) reveals that participation in banquets significantly reduces institutional trust, including trust in government, police, the court system, and local community leaders.

Regarding procedural justice, studies show that prevalent relation-based HR management practices, despite their other advantages, diminish employees' trust in management. This is because employees tend to perceive these practices as lacking procedural justice (C. Chen et al., 2004).

Building on this line of reasoning, if education does indeed increase individual awareness and willingness to utilize social resources for instrumental purposes, its potential negative impact on institutional trust and procedural justice cannot be ignored. This adverse effect is further magnified by the significant role of social connections in exerting influence and power, which may be less virtuous or meritocratic than their role in information exchange. In this context, under ceteris paribus conditions, the group with the highest educational attainment is most likely to become a source of bribery, corruption, bias, and discrimination. Consequently, the current findings underscore the importance of conducting a comprehensive investigation into the relationships between

education, individual social capital, and collective social capital.

4.7.4 Limitations

This study, like any research endeavor, has its limitations. First, the IV approach employed in this study implies that only individuals who are "compliers" and not "always-takers" would be affected by the education policy. However, despite this limitation, the divergent results obtained from the OLS approach and the IV approach suggest that the adoption of the IV approach is, on the whole, advantageous.

Second, due to the absence of information on the provinces where respondents resided at the age of 12 in the CGSS dataset, I limited my analysis to those who have lived in the same provinces since birth. While this group represents the majority of respondents, the practice of excluding the counterpart group does pose a limitation in terms of overall representation.

Finally, my analytical strategy of comparing the coefficients of education across sub-samples is more straightforward than creating interactive terms within an IV design. However, this method may introduce some biases. Specifically, the comparison relies on the assumption that the prediction model at the first stage is equally precise across the sub-samples being compared. If there are significant disparities in precision among these sub-samples, the method could lead to some biases in the results.

4.8 CONCLUSION

As the field of social science has evolved, the debate between structuralism and agency

has transitioned from a state of dualism to one of duality, i.e., from being opposed to being conceptually distinct but interdependent. Within the realm of social capital literature, this transition has occurred more gradually, with the structural perspective predominating in its early stages and the individual agentic perspective emerging more recently. This study endeavors to put forth a model that amalgamates the latest insights from the individual agentic perspective with the well-established structural perspective, contributing to the ongoing shift toward duality.

The roles played by social capital in the contrast between stratification and mobility are far more intricate than commonly believed. It goes beyond a simplistic association of the structural perspective with stratification and the individual agentic perspective with mobility. In light of structural advantages, an individual lacking the individual agentic component of social capital cannot fully leverage the structural component to further their existing advantages. Conversely, in cases of structural disadvantages, an individual without the individual agentic component of social capital will face a compounded disadvantage, and vice versa. In essence, the structural and individual agentic components, while conceptually distinct, are mutually "enabling" and jointly determine the functions of social capital within the stratification-mobility contrast. Therefore, the model casts fresh insights on a previously raised yet underdeveloped concept: whether social capital could act as a means to condition inequalities and reshape stratification. The answer to this query ultimately hinges on the contingency of the individual agentic component.

My empirical application represents an initial but pivotal step in exploring the

individual idiosyncrasies within the agentic component of social capital. Given that education serves as both a significant mechanism for reproduction and a tool for equalization, the substantial influence of education on social capital suggests that the dual roles of education in the stratification-mobility contrast can amplify the dual functions of social capital in this context. On an optimistic note, education's role in shaping social capital aligns with the Confucian ideals of educational meritocracy in East Asia. Conversely, from a pessimistic perspective, disadvantages in human capital coincide with disadvantages in social capital, resulting in a situation of double jeopardy.

CHAPTER 5 GENERAL DISCUSSIONS AND CONCLUSION

5.1 INTRODUCTION

This thesis represents a pioneering and rigorous investigation into the pivotal roles of education in shaping and reshaping gender inequalities and intergenerational stratification. Anchored firmly in fundamental theoretical concepts encompassing human agency and instrumental rationality, this inquiry not only delves deeply into the profound influence of education on these critical issues but also injects new vitality into the ongoing discourse. By examining the transformative potential of education in transferring human capital between family members and in metamorphosing into a potent currency of social capital, this work stands as a beacon of insight and innovation in the field.

The three empirical chapters within this thesis address distinct yet interconnected questions, all under the overarching theme of education's potential and limitations in mitigating inequalities. To gain a more holistic understanding of education's potential and limitations, it is imperative to consider the evolution of education-based human capital, as discussed in Chapter 1. Accordingly, the first two empirical chapters scrutinize the transfer of human capital between family members, while the third empirical chapter focuses on the transformation of human capital into social capital.

Within this chapter, I will provide a succinct summary of the primary findings from the empirical chapters and elucidate the shared theoretical insights and policy implications concerning gender inequalities and intergenerational stratification.

5.2 A SUMMARY OF EMPIRICAL CHAPTERS

5.2.1 Chapter 2: Mutual Confirmation of Social Norms and Economic Benefits

Chapter 2 investigates gender inequalities and the evolution of human capital through the lens of human capital transfer between spouses. With a focus on married women, Chapter 2 sheds new light on income disparities from the supply side. Specifically, it addresses the following questions: Why do highly educated women choose to forgo their labor income to care for the family, and do social norms, economic factors, or a combination of both contribute to this phenomenon?

To address these questions, I theorize a pattern that gender ideology and economic gains mutually confirm each other and jointly shape gender inequalities in three steps. First, drawing on the influence of internalized social norms on individuals' division of labor within the family, I hypothesize that traditional gender ideology is associated with the underutilization of education-related human capital among married women. Second, adopting insights from the neoclassical approach, which emphasizes utility-maximizing actions, I hypothesize that the underutilization of human capital among married women enhances their husbands' personal income, thereby contributing to overall household income. Finally, I illustrate how gender ideology is strengthened by economic gains: When women's choices align with traditional gender ideology and are accompanied by greater economic benefits, the traditional gender ideology becomes more entrenched.

In the empirical analysis, I investigate these hypotheses using data from the China Family Panel Studies (CFPS) in contemporary China. To begin, I create two key variables: (a) a wife's underutilization, determined by the difference between the

couple's relative income and relative education, and (b) a wife's forgone value, calculated as her underutilization multiplied by her education. Utilizing the longitudinal data available in CFPS, I establish that a wife's traditional gender ideology in the 2014 Wave significantly predicts her underutilization and forgone value in subsequent waves, specifically in 2014, 2016, and 2018. Notably, this association remains robust even when controlling for underutilization and forgone value in the 2010 Wave.

Then I employ a bootstrapped mediation analysis to examine the relationship between a wife's underutilization, forgone value, and family income. Results indicate that the overall impact of a wife's underutilization and forgone value on family income is nearly negligible. This is primarily because the negative effects of underutilization and forgone value can be partially offset by an increase in the husband's personal income. To address potential self-selection biases, wherein women who intend to underutilize their human capital may marry high-income men or women with high-earning husbands may be more inclined to underutilize their human capital, I conduct a robustness check using individual fixed-effect analysis. The results suggest that the relationship between a wife's underutilization and her husband's income cannot be solely attributed to self-selection factors.

Lastly, I utilize the variable "comparable family income" in CFPS to create a new variable, family income change, for the 2012 and 2014 Waves. By examining the interactive effects of these family income changes alongside a wife's underutilization and forgone value on her gender ideology in the 2014 Wave, I reveal that when a certain level of underutilization coincides with an increase in family income, it reinforces

traditional gender ideology.

Chapter 2 offers three significant contributions. First, it builds upon these empirical findings to introduce a two-dimensional framework of gender ideology revolution. As evidenced by the discussions on the empirical findings and the proposed agenda, this framework holds substantial potential as a general tool for analyzing gender ideology revolution.

Second, Chapter 2 demonstrates how an agentic approach to studying norms and inequalities can be pursued without placing blame on victims. The key insight here is that when macro-level conditions and norms mutually reinforce each other, individuals may have limited agency in their decisions. In such cases, it is not the individuals' choices that should be blamed, but rather the macro-level conditions.

Lastly, this chapter emphasizes that economically rational decisions concerning the division of labor can contribute to gender inequalities. This insight underscores the need for a balanced approach in gender and family studies, acknowledging individual rationality at the micro level while also advocating for structural changes at the macro level. These structural changes, as suggested in Chapter 2, include creating an equally rewarding labor market that is friendly to married women and providing widely accessible childcare services, among others.

5.2.2 Chapter 3: Mother's Underutilized Human Capital and Children's Education

Complementary to the focus on human capital transfer between spouses in Chapter 2, Chapter 3 adopts the perspective of human capital transfer from mothers to children,

providing insights into gender inequalities and intergenerational stratification. While motherhood is often considered a contributor to gender income disparity, economic literature suggests that the income loss and specialization associated with motherhood may function as investments in children's human capital. Chapter 3 empirically tests the economic proposition that a mother's underutilization of human capital in education can lead to positive outcomes for their children's education. Similar to Chapter 2, underutilization is constructed by subtracting a couple's relative income from its relative education.

Beyond testing the human capital transfer hypothesis, Chapter 3 examines four additional hypotheses rooted in family systems theory. These hypotheses relate to how a mother's relative income and relative education, in comparison to the father's, influence their offspring's educational prospects. Beneath the human capital transfer hypothesis lies an economically rational logic, which treats each individual family member as independent, considers individual resources as transferable, and assumes family resources remain constant. In contrast, family systems theory offers a different perspective, emphasizing the complex interconnections and dynamics among individual family members. According to this view, each member serves a unique function within the system, and the prosperity of the system relies on the diverse yet collaborative contributions of its members.

Empirically, Chapter 3 also relies on data from the CFPS, focusing on the attendance of post-compulsory education as the outcome variable. The primary analysis uncovers intriguing findings: married women's underutilization of their human capital

not only fails to translate into improved educational outcomes for their children but may even have a negative impact. Additionally, the main analysis reveals two significant insights: (a) When the total quantity of parental income and education is controlled, the relative levels of these factors have distinct effects on children's educational outcomes. (b) The influence of mothers' resources on their children's educational outcomes significantly differs from that of fathers'. These findings are corroborated by several robustness checks.

Chapter 3 provides important theoretical and policy implications for gender inequalities and intergenerational stratification. Theoretically, the results in Chapter 3 show evidence against the notion of human capital transfer from mothers to children while underscoring the pivotal role of a mother's relative resources in shaping intergenerational stratification. In turn, it demonstrates the irrationality and unsustainability of intensive mothering and sacrificing a mother's career for the sake of children's education.

Regarding policy implications, the intricate interplay between gender inequalities and the cycle of intergenerational inequality both complicates problem-solving and presents opportunities to address them simultaneously. State policies that discourage traditional gender roles and division of labor are expected to not only alleviate gender inequalities but also enhance the educational outcomes of the next generation, and vice versa.

5.2.3 Chapter 4: Human Capital in the Creation of Social Capital

While Chapters 2 and 3 investigate inequalities through the lens of human capital transfer between family members, Chapter 4 does so from the perspective of transforming human capital into social capital.

Given the extensive body of literature on social capital, which encompasses various research focuses, Chapter 4 commences with an overview of the theoretical underpinnings within the social capital literature. This overview serves to clarify the specific focus of Chapter 4. Building upon this theoretical foundation and recognizing the profound yet multifaceted roles of social capital in shaping social stratification and inequalities, I have developed a novel social capital model with a particular emphasis on its relevance in understanding stratification and inequalities. To achieve this, I have synthesized the structural and individual agentic perspectives within the social capital literature, while also enriching the conceptualization of the individual agentic component.

As the model delineates the conceptual relationship between social capital, inequalities, and stratification, an examination of how education impacts social capital allows us to gain deeper insights into education's potential and limitations in reducing inequalities through a social capital mechanism.

Empirically, I also utilize modern China as a case study, a context well-suited for examination due to its educational system and the prevalence of using social connections for instrumental purposes. By utilizing items from the CFPS and the Chinese General Social Survey (CGSS), I construct two variables to measure the two elements within the structural component, namely accessibility and ability.

Simultaneously, I employ two items to gauge the elements within the individual agentic component, namely awareness and willingness. Through an instrumental variables approach and a bootstrapping-based two-stage least-squares regression method, the analysis reveals that education has a positive impact on the agentic component of social capital. However, its effects on the structural component are less apparent. To elaborate, education positively influences both the awareness of using and the willingness to use social connections for instrumental purposes. Furthermore, the influence of education on awareness is more pronounced for men than for women, and it is stronger for individuals whose educational attainment exceeds that of their fathers compared to their counterparts.

Chapter 4 contributes significantly to synthesizing two different perspectives within social capital research, enriching the micro-foundation of the individual agentic perspective, conceptualizing the link between social capital and stratification, shedding new light on how education influences stratification through a social capital mechanism, and providing a comprehensive research agenda.

5.3 JOINT IMPLICATIONS

The exploration of inequalities and stratification holds a central place in the intellectual history of sociology. Within this expansive field, gender inequalities and intergenerational stratification are of paramount concern. Education is commonly recognized as a key factor with intricate influences on both gender inequalities and intergenerational stratification. Through an in-depth investigation into the roles of

education, the findings in this thesis yield several significant implications for the study of gender inequalities and intergenerational stratification.

5.3.1 Implications for gender inequalities

To achieve gender equality through education, it is essential to acknowledge the challenges posed by family responsibilities. On an individual level, neoliberal feminism suggests that women can strategically navigate between family life and individual careers to maintain their human capital advantages. However, the effectiveness of such a strategy may vary. In a society where marriage and parenthood are prevalent, as in the context examined in this thesis, the burdens associated with family responsibilities are often inevitable. In this case, human agency and instrumental rationality play a pivotal role in determining how education shapes gender inequalities because there is a distinction between an economic rational and an irrational division of labor.

Central to the investigation into instrumental rationality, Chapter 3 focuses on the goal of cultivating children's human capital and the means of underutilizing a mother's education-related human capital. The adverse effects of underutilization on children's educational outcomes highlight the absence of instrumental rationality. Therefore, the primary obstacle to achieving gender equality lies in the lack of awareness regarding instrumental irrationality. Consequently, the solution is relatively straightforward: raising awareness among individuals about instrumental irrationality.

Chapter 2 presents a more intricate scenario compared to Chapter 3. The mutual confirmation of social norms and economic benefits in Chapter 2 reflects the key

theoretical proposition: When the personal goal of maximizing the family income is enabled by the structure of the traditional gender ideology, instrumental rationality tends to reproduce the structure. Consequently, the mutual confirmation between cultural beliefs and instrumental rationality stands as the primary obstacle.

In such cases, it is less effective to address gender disparities directly by encouraging individuals to change their ideologies and behaviors. Instead, the solution lies in adopting an approach rooted in instrumental rationality. This entails creating an environment where traditional methods become instrumentally irrational. In practice, establishing a labor market characterized by high gender equality on a macro level is imperative. This not only ensures equitable compensation for education-related human capital between men and women but also discourages the acceptance of traditional gender role norms.

For education to effectively promote gender equality, we must also consider the transformation of human capital into social capital, with particular attention to the individual agentic component. The awareness of using social connections instrumentally, as argued in Chapter 4, plays a central role in mobilizing social capital, independent of structural opportunities and constraints. Chapter 4 demonstrates that education enhances this awareness and the willingness to utilize social connections instrumentally. These findings carry significant implications for education's potential to mitigate gender inequalities. For instance, highly educated women are more likely to leverage their social networks compared to less educated men.

Furthermore, women often grapple with the stereotype of being “communal” or

“non-instrumental”, which can substantially hinder their career prospects. Therefore, it is expected that highly educated women would demonstrate more instrumental behavior than their less educated male counterparts, as they strive to overcome the disadvantages associated with the “communal” stereotype.

However, gender differences in the extent to which human capital can be converted into social capital dampen our optimistic outlook on education's potential. As Chapter 4 reveals, women need more education to attain the same level of awareness regarding instrumental use of social connections as men. This suggests that highly educated women still encounter social capital disadvantages when competing with similarly educated men.

In summary, Chapters 2-4 offer diverse implications for addressing gender inequalities, all underpinned by the theme of instrumental rationality. The proposed solutions to gender inequalities involve creating a new external environment rooted in instrumental rationality, fostering awareness of instrumental irrationality among actors, and enhancing instrumental irrationality concerning social capital.

5.3.2 Implications for Intergenerational Stratification

This thesis also provides two key implications for education in the context of enhancing intergenerational upward mobility. The first one arises from considering how the distribution of parental resources impacts children's educational outcomes. Maintaining parental human capital as a constant, it becomes imperative to determine the optimal approach to building children's human capital for the sake of fostering intergenerational

upward mobility. Both economic theories related to human capital transfer and societal norms, such as the concept of intensive mothering, suggest that mothers should prioritize their children's human capital development by sacrificing their participation in the labor market and their careers.

While it is out of the scope of this thesis to identify the optimal way of enhancing children's human capital and promoting intergenerational upward mobility, Chapter 3 offers a vital implication by showing evidence against the notion of mothers sacrificing their careers for the sake of their children's education. In addition to making mothers aware of the instrumental irrationality behind such sacrifices, it is crucial for parents to recognize how the distribution of parental resources can significantly affect their children's educational outcomes. The prospect of improved educational outcomes for their children should motivate parents to adopt a rational division of labor based on each spouse's education. Holding parental human capital constant, this rational division is expected to enhance children's educational outcomes, thereby fostering intergenerational mobility.

The second implication arises from the effects of education on social capital. Chapter 4 offers valuable insights into education's role as both a reproducing and equalizing factor through the social capital mechanism. In terms of reproduction, we might have previously underestimated education's role in intergenerational reproduction. This is because family backgrounds significantly influence personal educational achievement independently of other factors. The oversight often lies in neglecting education's contribution to the creation of social capital, especially the

agentic component.

Regarding the equalizing role, just as we might underestimate education's impact on reproduction by neglecting the creation of social capital, we might similarly underestimate its role in promoting mobility. Highly educated individuals tend to possess more agentic social capital, and those who experience upward mobility tend to benefit more from education in terms of agentic social capital. These findings underscore education's potential to empower disadvantaged groups to compete effectively with their counterparts. These patterns hold significant practical implications, particularly in societies influenced by Confucian values of meritocracy, where hard work is seen as the pathway to achieving upward mobility.

5.3.3 Synergy between Gender Equality and Intergenerational Upward Mobility

Finally, Chapter 3 also provides important theoretical and policy implications for the synergy between gender equality and intergenerational mobility. Theoretically, Chapter 3 bridges these two areas of scholarship through the lens of capital transfer (or the absence thereof) within family units. Motherhood and associated responsibilities, such as childcare activities, are commonly seen as factors contributing to gender income disparities. On the other hand, children's education is a crucial factor in intergenerational stratification. The human capital transfer hypothesis essentially makes these two strands of inquiry intersect. It implies that the underutilization of a mother’s human capital, which causes gender income inequalities, may contribute to building the human capital of children and facilitate intergenerational mobility. However, the

findings indicate a synergy between gender equality and children's educational outcomes instead of confirming the human capital transfer hypothesis. There is no straightforward trade-off between mothers fully utilizing their human capital and facilitating their children's human capital development. To achieve optimal outcomes, mothers may need to undertake dual responsibilities.

In terms of policy implications, the interaction of gender inequalities and the cycle of intergenerational inequality both complicates problem-solving and presents opportunities for addressing these issues simultaneously. State policies that discourage traditional gender roles and division of labor are expected to not only alleviate gender inequalities but also enhance the educational outcomes of the next generation. In turn, if parents become aware of the link between underutilization and children's education, the prospect of better educational outcomes for their children should motivate them to adopt a more equitable division of labor within the household.

5.4 CONCLUDING REMARKS

Within the discipline of sociology, keywords like rationality, education, inequalities, gender, social capital, human capital, marriage, and division of labor hold fundamental significance. Each of these keywords boasts a wealth of literature and contributes richly to our intellectual history. This thesis represents an endeavor to synthesize wisdom from various bodies of literature, apply established insights from one area to the study of another, and generate novel knowledge through these cross-domain applications.

Theoretically, this thesis places instrumental rationality at the forefront of the study

of inequalities. When personal goals align with existing structures, instrumental rationality often reinforces structural inequalities. Thus, the key to altering these structural inequalities and preventing self-fulfilling cycles lies in creating instrumental irrationality and raising awareness among individual actors regarding instrumental irrationality. However, when personal goals clash with existing structures, instrumental rationality tends to transform those structures. Consequently, the more disadvantaged groups within a structure are characterized by instrumental irrationality, all else being equal, the more likely the structure will undergo a transformation, as the personal goals of these disadvantaged groups are hindered by the structure.

Empirically, this thesis provides a comprehensive picture of education's role in exacerbating and mitigating inequalities. This picture encompasses marriage, childrearing, division of labor, and the transformation into social capital as mechanisms, and it offers clear conclusions regarding the outcomes of interest, namely, gender inequalities and intergenerational stratification. Through this extensive investigation, this thesis significantly advances our understanding of how education can impact inequalities by examining the transfer of human capital between family members and the transformation of human capital into social capital.

In summation, by treating China as a case study and drawing on its post-Confucian regime, this thesis emphatically underscores that a meticulous consideration of the dynamic evolution of human capital and the profound impact of rationality within this context is not merely important but imperative for the precise comprehension of education's pivotal role in both exacerbating and alleviating inequalities.

APPENDICES

Appendix A
Giddens's Structure and Agency

Anthony Giddens, another influential theorist of structure, is also commented on by Sewell (1992) with lack of agency and thus lack of change and by Emirbayer and Mische (1998, p. 963) with "have given selective attention to the role of habitus and routinized practices…sees human agency as habitual, repetitive, and taken for granted". In particular, Sewell (1992) offers perhaps the most comprehensive and compelling critique against Giddens's concept of structure. In Sewell (1992, p. 4)

> The most sustained effort at reconceptualizing structure in recent social theory has been made by Anthony Giddens…structures must be regarded as "dual" (Giddens 1976, 1979, 1981, 1984). By this he means that they are "both the medium and the outcome of the practices which constitute social systems" (Giddens 1981, p. 27). Structures shape people's practices, but it is also people's practices that constitute (and reproduce) structures. In this view of things, human agency and structure, far from being opposed, in fact presuppose each other. Structures are enacted by what Giddens calls "knowledgeable" human agents (i.e., people who know what they are doing and how to do it), and agents act by putting into practice their necessarily structured knowledge

Sewell (1992, p. 4) continues by raising how the agents in Giddens's conceptualization are able to transform the structure:

> This conception of human agents as "knowledgeable" and "enabled" implies that those agents are capable of putting their structurally formed capacities to work in creative or innovative ways. And, if enough people or even a few people who are powerful enough act in innovative ways, their action may have the consequence of transforming the very structures that gave them the capacity to act

For now, it seems clear that although Giddens's agents are largely likely to act reproductively, there is a possibility of transformation as well. However, a closer look reveals another puzzle—if the knowledge that actors have is from structure (or culture,

in Sewell's language), actors who internalize the knowledge are unlikely to act against the structured cultural beliefs unless the actors do not act as they intrinsically believe. If actors act in accordance with structured knowledge, then how can actors act creatively and innovatively? The trick lies in the word "knowledge". In Giddens's treatment, the knowledge is indeed structured, and the words "creatively and innovatively" may be replaced by "unexpectedly and accidentally" in that transformation of Giddens's structures to a large extent is dependent on unintended consequences of individual agents' actions. For this reason, the agents in Giddens's structures normally reproduce and occasionally transform structures, and thus the concept of agency is still more associated with reproduction.

By contrast, the concept of agency in Sewell's treatment is much more associated with transformation. Sewell attempts to resolve the issues of lack of agency and changes by using the same word "knowledge" but giving it a different meaning. Knowledge in this case is a tool empowered by structure and inherently implies the actor's ability to apply it to new contexts. That is, Giddens's agents know how to play a game, whereas Sewell's agents know the game rules and can choose to play the game or not. To put it concretely, within the institution of marriage, a woman who is socialized about culturally and contextually appropriate age of forming a new family and appropriate criteria of mate selection has "knowledge" in Giddens's structure but not necessarily in Sewell's structure; instead, a female sociological researcher who has expertise in gender, family, and marriage is a knowledgeable agent in Sewell's structure, because the knowledge she has enables her to act with or against the structure (e.g., delaying

marriage or using untraditional criteria of mate selection).

APPENDIX B
Rational Choice Theory

Rational choices theory is a family of specific theories that share universal postulates (see specific postulates in Boudon, 2003), and central to them is an assumption—which should be familiar to most of us—individual actions are based on subjective-expected utility theory. Subjective-expected utility theory entails that people calculate expected outcomes (utilities) of options and choose an optimal option (with the highest utilities). Central to this assumption, rational choice theory can be further divided into "thin" and "thick" models of individual action (Ferejohn, 1991; Hechter & Kanazawa, 1997). The thin model does not deal with specific goals to pursue and thus only concerns the decision-making process.

Thick models include individual intentionality and deal with values and beliefs (Hechter and Kanazawa 1998). People with different values and beliefs have different preferences and thus generate different utilities of expected outcomes. Therefore, the incorporation and specification of these idiosyncratic values are crucial to "modeling" and predicting people's behaviors. Despite crucial criticism against the thick model, i.e., the difficulties of specifying individual values, the insight from thick models is substantial: They allow norms and cultural beliefs to be incorporated in instrumental rationality decision-making in that norms and cultural beliefs can be treated as the origin of individual values.

This process need not be easily modeled by quantitative methods, but it should be rather pervasive in people's everyday decision-making. To illustrate through a man's decision on mate selection: Having a wife who is taller than a husband may be

considered undesirable in some cultures—although it makes little sense biologically and economically, such culturally structured values can be perfectly incorporated in calculating utilities when the man considers potential spouses in this decision-making process.

APPENDIX C
Social Connections and *guanxi*

Regarding the conceptual distinction between *guanxi* and social connections, my general claim is that there might be subtle differences between the two concepts, but the differentials have suffered insufficient conceptualization so far. To clarify, I am not interested in how to precisely translate *guanxi* into English words for public readers; rather, I aim to discuss whether social network and social capital researchers need another framework to study *guanxi*, or whether it is sufficient to apply established knowledge in the social network and social capital literature with minor culture-specific adjustments to study *guanxi*. Before any discussion, let us review some definitions of *guanxi* from several notable *guanxi* scholars. In Yang (1994, pp. 1–2),

> The word guanxi (pronounced guan-shee) means literally "a relationship" between objects, forces, or persons. When it is used to refer to relationships between people, not only can it be applied to husband-wife, kinship, and friendship relations, it can also have the sense of "social connections," dyadic relationships that are based implicitly (rather than explicitly) on mutual interest and benefit. Once guanxi is established between two people, each can ask a favor of the other with the expectation that the debt incurred will be repaid sometime in the future.

For Lin (2001a, p. 156), "guanxi is usually described as having several specific or particularistic characteristics in relationships or connections". By "specific or particularistic characteristics", Lin (2001a) mentions "for instrumental purposes" (156), "on a sentimental or emotional basis" (156), "voluntary actions by both parties" (158), and "endures over time" (159). Bian defines *guanxi* as "a dyadic, particular, and sentimental tie that has the potential for facilitating the exchange of favors between the two parties connected by the tie" (2019, p. 24). Bian (2018, pp. 615–616) further elaborates *guanxi* on five levels: (a) *Guanxi* is understood as a tie of connectivity

(versus dis-connectivity), and its embedded resources are mutual recognition and communication among members of a shared community; (b) *Guanxi* is a sentimental tie, and its embedded resources are human affections – sympathy, care, trust, love – and a sense of altruistic, not reciprocal, help to the people one is socially connected to; (c) *Guanxi* is a sentiment-driven instrumental tie, and its embedded resources are substantial help with reciprocal implications and expectations; (d) *Guanxi* is an instrumental particular-tie, and its embedded resources vary hugely in forms, but the norms of reciprocity, face and favor are primary; (e) *Guanxi* is an obligational tie and a well-understood informal contract.

Within these descriptions, social network and social capital researchers should not find any concepts distant from their knowledge, probably except for one point—the sentimental or emotional basis. This, again, relates to what I have mentioned in the main body of this paper, the tendency of blending affective and instrumental functions in all relationships. Apart from this, although the *guanxi* literature offers rich insights into how Chinese people use culture-specific methods to build, maintain, and utilize social connections, the literature itself so far has not provided convincing arguments for why study on *guanxi* requires a framework conceptually different from existing frameworks in social network and social capital literature. I aim to demonstrate this over-culturalization treatment with several examples. In Bian's five-level interpretation, he uses phenomena such as illicit money-for-power-influence exchanges facilitating land allocations and real estate developments to illustrate the fifth level of *guanxi* (i.e., an obligational tie) and considers the fifth level as the "ugly faces of guanxi and the dark

side of guanxi capital" (Bian, 2018, p. 616). Without denying Bian's effort at illustrating how *guanxi* works in China, social capital theory suffices to explain these illicit exchanges, as we have already done so while discussing individual social capital versus collective social capital earlier. Another example regards citing banquets and gift-giving as special *guanxi* practices by which the Chinese people intentionally build desired *guanxi* (e.g., Bian, 2019, pp. 43–75; M. M. Yang, 1994, pp. 126–145, 177–208). One might wonder if we can cite the social activities in the royal balcony during the Wimbledon Open as a special source of British social connections building. In fact, even the claimed fundamental difference—*guanxi* ties tend to combine affective and instrumental functions—is fully covered in Coleman's treatment of appropriability, i.e., "social ties of one kind can be used for different purposes", a fundamental concept of social capital (Coleman, 1988, pp. S108–S109). Can we attribute Chinese unique historical and cultural factors to the high-level reflection of appropriability rather than use the high-level appropriability to conceptually distinguish *guanxi* from social connections in the West?

Above are several examples of how and why the distinction between *guanxi* and social connections remains elusive and inadequately theorized. While I do not take any side regarding whether *guanxi* de facto differs from social connections in social network and social capital literature, studies on *guanxi* have not yet theorized or conceptualized the potential differentials. This note aims to provide possible perspectives of how to advance the conceptualization.

Appendix D

Individual Fixed Effects Models Predicting Husband's Education Return Rate

Table D1. Individual Fixed Effects Models Predicting Husband's Education Return Rate

Variables	Model 1
Wife's education return rate	-.07150***
	(.0135)
Age	-.0427
	(.0233)
Age squared	.0002
	(.0003)
Children number	.1321***
	(.0322)
Urban *(rural omitted*)	.0521
	(.0750)
CCP *(non-CCP omitted)*	-.1141
	(.1241)
Occupational status	-.0013
	(.0023)
NO. observations	9,598
NO. groups	3,546

Note: Only respondents who appear in at least two waves are included; education Return Rate defined as $\frac{Education}{ln(Income)+.1}$.

Robust standard errors adjusted for clusters in parentheses.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tailed test.

Appendix E

Summary Balance of Matched Samples

Table E1. Summary Balance of Matched Samples

Variables	Treatment Group	Control Group
Income	6.3856	5.1434
Age	45.4716	45.3885
Education	6.7833	6.5417
Residential Type		
Urban	.4940	.4763
Rural	.5060	.5237
Survey Wave:		
1	.3056	.3897
2	.2709	.3161
3	.1886	.2029
4	.1676	.0833
5	.0673	.0080
Observations	5717	5717

Note: Income in natural logarithm.

Appendix F

Results of Children's Educational Outcomes, Grouped by Stages of Education

Table F1. Binary Logistic Regression Predicting Children's Educational Outcomes by Underutilization, Grouped by Stages of Education

Variables	Senior High School Model 1	Higher Education Model 2
Maternal underutilization	-.2974**	-.3309***
	(.1084)	(.0948)
Parental education	.1003***	.1044***
	(.0085)	(.0067)
Parental income	.1738***	.2535***
	(.0377)	(.0342)
Child gender: Female *(male omitted)*	.5068***	.6708***
	(.0875)	(.0716)
NO. children	-.2891***	.2849***
	(.0522)	(.0475)
Urban *(rural omitted)*	.3695***	.3747***
	(.0906)	(.0744)
Constant	-1.8921***	-4.5329***
	(.3882)	(.3598)
Wave fixed effect	Yes	Yes
Observations	2,932	4,528
Log likelihood	-1,658.5520	-2,436.7730
AIC	3,339.1040	4,895.5460

Note: AIC = Akaike information criterion. Standard errors in parentheses.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$.

Appendix G

An Overview of the Development of the Agentic Perspective in Social Capital

The last two decades witnessed a growing interest in the question of why there is individual variation in mobilizing social capital in the face of the same opportunities offered by network structure (e.g., Burt, 2005, p. 23; Lin, 2001b, p. 92; Obukhova & Lan, 2013). Many studies have demonstrated various determinants of the ego's ability to mobilize social resources. For instance, Hargadon and Sutton's (1997) findings imply that employees in a design firm display differentials in skills in combining existing ideas that are generated in working with prior clients. Obstfeld (2005, p. 124) finds that social skills such as the ability to appropriately articulate with "metaphors, analogies, stories, informal sketches, humor, and perspective taking" complement network structure in explaining the mobilization of social resources. Burt, Hogarth, and Michaud (2000) point to the influences of culture by showing French employees are less emotionally comfortable than Americans with bridge relationships to colleagues.

Burt et al. (1998) find structural holes are more likely to be occupied by people with proactive characteristics than reactive characteristics and take this as evidence for personalities helping explain various levels of social capital mobilization. In a meta-analysis, Fang et al. (2015) document that self-monitoring styles and the Big Five personality traits predict individual positions in a network and show that self-monitoring styles have much greater predictive power.[12] In terms of the mechanisms,

[12] According to the self-monitoring theory, the low self-monitor is relatively unresponsive to situational pressures for behavioral and attitudinal appropriateness, tending to look within for cues for how to act in accordance with personal beliefs and values, whereas the high self-monitor looks to the social situation and strives to present the appropriate response (Snyder, 1987).

it is believed that individuals with a high self-monitoring personality style are also more likely to engage in favor-giving behaviors than favor-receiving behaviors (Flynn et al., 2006). Tasselli and Kilduff (2018) also find that the benefits of networking behaviors are contingent on the self-monitoring styles, implying that different mobilizations can be a result of behavior adjustment of active agents in accordance with personalities.

Related and complementary to personalities are a growing number of studies on network cognition (see reviews on cognition and social network in Brands, 2013; E. B. Smith et al., 2020). The essential idea involves a comparison between the actual network and the network in one's mind. Since people are only boundedly rational regarding the true structure of their surrounding network, they differ in perception accuracy of the network structure. Accordingly, people differ in the ability to "translate that knowledge into the ability to build, maintain, and mobilize the right ties at the right times" (E. B. Smith et al., 2020, p. 160). Research finds, for instance, personal experience helps facilitate learning about network structure (Janicik & Larrick, 2005); individuals with a high need for achievement are better at perceiving advice and friendship network (Casciaro, 1998); individuals with a high self-monitoring personality style are better than the low-monitoring style at perceiving status-enabling relationships regarding the giving and receiving of help (Flynn et al., 2006). The cognitive perspective substantially challenges and extends the structurally determined school (e.g., Cook et al., 1983) by highlighting a mental representation of network opportunities is a necessary step before social capital mobilization (Brands, 2013). The idiosyncratic cognitive ability is thus believed to be an important status-achieving skill

(Flynn et al., 2006; Kilduff & Krackhardt, 1994).

Appendix H

Subjective Status and the Willingness to Use Social Connections

For willingness, I draw on a mechanism of subjective status, and closest to my reasoning are Casciaro et al. (2014), Cao and Smith (2021), and Smith et al. (2012). Casciaro et al. (2014) highlight an important but often neglected (by social capital research) fact: Some people are upset by instrumental networking and go as far as feeling morally dirty about it. Their arguments basically have three parts. First, people have moral self-justifications when their actions are motivated by altruism rather than self-interest (see more in Blum, 1980; Singer, 1995; Williams, 1973). For this reason, proactively seeking to establish a relationship, be it professional or personal, implies self-interest and thus triggers the dirty feeling. Second, compared to personal relationships (e.g., friendship) that are more mutual and symmetric (e.g., affection is shared by both parties), professional relationships are more characterized by asymmetry and obligation in a reciprocal exchange (see more in M. S. Clark, 1984; M. S. Clark & Mills, 1979). The difference makes professional relationships less morally justifiable. Third, the high-status and powerful people, on the one hand, are more motivated by goal pursuit (see more in Keltner et al., 2003), and on the other hand, they perceive that they are more able to reciprocate in a social exchange (Cook & Emerson, 1978), and therefore, they feel their proactive networking behaviors are more justifiable.

Cao and Smith (2021) and Smith et al. (2012) also provide important implications for an ego's willingness by addressing the effects of status and power. Overall, their findings imply that high-status people are more likely to reach out when facing threat. They attribute the phenomenon to the effect of the ego's perceived self-value and

perceived receptivity. For self-value, because high-status people feel better about themselves, they are more persistent in defending their confident, optimistic, and competent image in the face of threat and risk, which in turn motivates them to approach others in network (see more in Anderson & Galinsky, 2006; Briñol et al., 2007; Galinsky et al., 2003; Gruenfeld et al., 2008). By contrast, low-status and powerless people are more likely to accept the risk and internalize it.

For receptivity, a better feeling about self together with a favorable feeling about surroundings renders high-status people less worried about rejections (Eisenberger et al., 2003; Goffman, 1972; Gould, 2002; Huo et al., 2010; MacDonald & Leary, 2005; also see Han, 1994; Henrich & Gil-White, 2001; Perrow, 1961), whereas for the low-status people, the request on help amplifies the existent feeling of incompetence, dependence, and powerlessness (Flynn et al., 2006; Nadler, 1987). These psychological mechanisms point to two facts: (a) help-seeking is at the risk of rejection, an unpleasant outcome that people with an ex-ante unpleasant feeling are more desperate to avoid; (b) when people have more to offer in return, they are less concerned about asking for help.

Appendix I

First Stage Regressions Predicting Education

Table I1. First Stage Regression Predicting Education

Variable	Model 1 CGSS	Model 2 CFPS
IV1: Post-compulsory policy	2.6651***	2.9393***
(Pre-Compulsory Policy omitted)	(.6242)	(.2545)
IV2: Post-compulsory policy X	-246.8551***	-277.5604***
Senior high school ratio	(72.5727)	(30.0956)
Senior high school ratio	278.1565***	273.3945***
	(69.6326)	(29.4874)
Age	-.0722**	-.0590***
	(.0240)	(.0102)
Female	.0801	
(Male omitted)	(.1945)	
Income	.1300***	.1741***
	(.0265)	(.0100)
CCP	3.2436***	3.8260***
(Non-CCP omitted)	(.3287)	(.1601)
Urban	2.4107***	3.0719***
(Rural omitted)	(.2013)	(.0703)
Marital status:		
married	-.8535**	-1.0587***
	(.2969)	(.1075)
Divorced/widowed	-.8290	-1.3241***
	(.5353)	(.2971)
(unmarried omitted)		
Joint F-statistic of excluded instruments	9.1470***	68.1479***
F-statistic	54.5163***	498.6499***
R-squared	.4070	.3000
Observations	805	10481

Note: Standard errors in parentheses.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tail tests.

Appendix J

Regressions Predicting the Structural Component of Social Capital

Table J1. Coefficients of Education in Predicting Accessibility and Ability

Variable	Accessibility			Ability		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	OLS	2SLS	2SLS Bootstrap	OLS	2SLS	2SLS Bootstrap
Education	.2728***	-.3195	-.3105	.3375***	-.2650	-.2494
	(.0425)	(.3024)		(.0414)	(.2968)	
Senior high school ratio	-2.6149	3.5108	-1.0825	-1.3669	4.8638	.5471
	(6.5117)	(8.3179)		(6.3530)	(7.5163)	
Age	-.0084	-.0277*	-.02889	- .0042	-.0239*	-.0247
	(.0053)	(.0110)		(.0052)	(.0109)	
Female	-.0018	.0205	.0171	.0529	.0756	.0751
(Male omitted)	(.0697)	(.0779)		(.0680)	(.0768)	
Income	.0377***	.0632***	.0623	.0356***	.0615***	.0612
	(.0096)	(.0162)		(.0094)	(.0159)	
CCP	-.0940	.4884	.4861	-.0545	.5379+	.5205
(Non-CCP omitted)	(.1249)	(.3183)		(.1219)	(.3144)	
Urban	.1248	.5598*	.5550	.1362+	.5788*	.5712
(Rural omitted)	(.0782)	(.2421)		(.0763)	(.2366)	
Marital status:						
Married	.2228*	.1071	.0998	.1292	.0116	.0007
	(.1036)	(.1273)		(.1011)	(.1247)	
Divorced/widowed	.2513	.1385	.1261	.0888	-.0260	-.0306
	(.1906)	(.2295)		(.1859)	(.2282)	
(Unmarried omitted)						
Observations	805	805	805	805	805	805

Note: The outcome variable, *accessibility*, and the predictor, *education*, are standardized. Bootstrap: N = 1,000.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tail tests.

Appendix K

Regressions Predicting the Agentic Component of Social Capital

Table K1. Coefficients of Education in Predicting Awareness

Variable	Model 1 OLS	Model 2 2SLS	Model 3 2SLS Bootstrap
Education	-.0181	.3096**	.3069
	(.0116)	(.1059)	
Senior high school ratio	.4721	.5547	.6078
	(1.6613)	(1.7239)	
Age	.0005	.0094*	.0094
	(.0018)	(.0034)	
Income	.0110***	-.0027	-.0027
	(.0029)	(.0053)	
CCP	-.0259	-.3308**	-.3270
(Non-CCP omitted)	(.0468)	(.1212)	
Urban	.1148***	-.1307	-.1292
(Rural omitted)	(.0217)	(.0820)	
Marital status:			
married	-.0941**	-.0269	-.0271
	(.0299)	(.0378)	
divorced	.0379	.1196	.1189
	(.0843)	(.0913)	
(unmarried omitted)			
Observations	10,481	10,481	10,481

Note: The outcome variable, *awareness*, and the predictor, *education*, are standardized. Bootstrap: N = 1,000.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tail tests.

Table K2. Coefficients of Education in Predicting Willingness

Variable	Model 1 OLS	Model 2 2SLS	Model 3 2SLS Bootstrap
Education	.8079***	.7213*	.7284
	(.1258)	(.3475)	
Senior high school ratio	-7.7431	4.4151	5.6942
	(19.2820)	(6.1969)	
Age	-.0250	.0195	.0200
	(.0157)	(.0129)	
Female	-.0054	.0655	.0625
(Male omitted)	(.2063)	(.0826)	
Income	.1118***	-.0414*	-.0422
	(.0284)	(.0185)	
CCP	-.2785	-.5130	-.5201
(Non-CCP omitted)	(.3699)	(.3675)	
Urban	.3694	-.5403*	-.5463
(Rural omitted)	(.2317)	(.2733)	
Marital status:			
married	.6597*	.4339**	.4472
	(.3069)	(.1409)	
divorced	.7440	.0789	.0822
	(.5643)	(.2309)	
(unmarried omitted)			
Observations	805	805	805

Note: The outcome variable, *willingness*, and the predictor, *education*, are standardized. Bootstrap: N = 1,000.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tail tests.

Appendix L

Moderating Effects Coefficients of Education in Predicting Awareness

Table L1. Coefficients of Education in Predicting Awareness, Grouped by Genders

Variable	Male			Female		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	OLS	2SLS	2SLS Bootstrap	OLS	2SLS	2SLS Bootstrap
Education	.0156	.6376*	.6516	-.0408*	.1341	.1355
	(.0177)	(.2799)		(.0153)	(.0996)	
Senior high school ratio	-1.0416	-1.6101	-1.4423	1.8251	2.0552	2.1112
	(2.6183)	(2.9331)		(2.1452)	(2.1745)	
Age	-.0064*	.0081	.0083	.0055*	.0108**	.0109
	(.0027)	(.0071)		(.0024)	(.0039)	
Income	.0101+	-.0192	-.0203	.0096**	.0038	.0038
	(.0060)	(.0147)		(.0035)	(.0048)	
CCP	-.0223	-.5313*	-.5420	-.0614	-.2578+	-.2652
(Non-CCP omitted)	(.0577)	(.2374)		(.0823)	(.1383)	
Urban	.0953**	-.3196+	-.3291	.1338***	-.0117	-.0130
(Rural omitted)	(.0315)	(.1895)		(.0303)	(.0874)	
Marital status:						
married	-.0560	.0187	.0232	-.1046*	-.0478	-.0479
	(.0414)	(.0571)		(.0457)	(.0562)	
divorced	.1235	.3129*	.3178	-.0169	.0228	.0240
	(.1181)	(.1568)		(.1212)	(.1247)	
(unmarried omitted)						
Observations	5028	5028	5028	5453	5453	5453

Note: Outcome variable, *awareness*, and the predictor, *education*, are standardized. Bootstrap: N = 1,000.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tail tests.

Table L2. Coefficients of Education in Predicting Awareness, Grouped by Mobility

Variable	Upward			Non-upward		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	OLS	2SLS	2SLS Bootstrap	OLS	2SLS	2SLS Bootstrap
Education	.0361	.5608+	.5730	-.0329*	.2410+	.2332
	(.0333)	(.2973)		(.0140)	(.1355)	
Senior high school ratio	4.1961	6.5473+	7.2768	-.3555	-.7495	-.6976
	(3.5107)	(3.9037)		(1.8867)	(1.9418)	
Age	-.0022	.0051	.0052	.0005	.0091+	.0088
	(.0040)	(.0058)		(.0020)	(.0047)	
Income	.0149*	-.0030	-.0036	.0100**	.0014	.0017
	(.0064)	(.0121)		(.0032)	(.0054)	
CCP	-.0942	-.3679*	-.3745	.0179	-.2069	-.1956
(Non-CCP omitted)	(.0635)	(.1677)		(.0721)	(.1330)	
Urban	.1877***	-.0611	-.0646	.0912***	-.0903	-.0844
(Rural omitted)	(.0445)	(.1475)		(.0249)	(.0929)	
Marital status:						
married	-.1220*	.0310	.0364	-.0709*	-.0446	-.0459
	(.0593)	(.1061)		(.0349)	(.0380)	
divorced	-.0646	.0757	.0903	.0831	.1137	.1120
	(.1802)	(.2044)		(.0956)	(.0990)	
(unmarried omitted)						
Observations	2630	2630	2630	7851	7851	7851

Note: Outcome variable, *awareness*, and the predictor, *education*, are standardized. Bootstrap: N = 1,000.

† $P < .1$; * $P < .05$; ** $P < .01$; *** $P < .001$. Two-tail tests.

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