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The Qualification of the Workforce in Cameroon: Social Capital, a Hindrance or a Lever?

Astride Claudel Njiepue Nouffeussie (University of Douala and AFEDEV)
Cosmas Bernard Meka'a (University of Bertoua)
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Fabrice Nzepang (University of Douala)

G²LM|LIC
c/o IZA – Institute of Labor Economics
Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany
Phone: +49-228-3894-0
Fax: +49-228-3894-510
Email: glm-contact@iza.org

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ABSTRACT

The Qualification of the Workforce in Cameroon: Social Capital, a Hindrance or a Lever?*

Although the analysis of the effects of social capital on the labour market has been the subject of extensive theoretical and empirical literature, very few studies have focused on qualification in general and on worker qualification in particular. In order to fill this gap, the aim of this study is to analyze the effects of social capital on the qualification of workers in the Cameroonian labour market. For a complete and contextual understanding of social capital, Multiple Correspondence Analysis (MCA) is used to construct a composite index of social capital combining the structural, relational, and cognitive dimensions. The data used come from the fourth Cameroonian household survey conducted by the National Institute of Statistics in 2014. The study uses an instrumental variable probit model to take account of the endogeneity bias associated with the dual causality between social capital and worker qualification. The main results suggest that: i) social capital has a negative and statistically significant effect on the qualification of workers on the labour market in Cameroon; ii) this negative social effect is more pronounced for male workers, workers in the informal sector, and young workers than for senior workers, female workers, and workers in the formal sector. Our results argue in favor of encouraging the use of formal channels in order to reduce dependence on informal channels, but also in favor of aligning training and skills provision for individuals with market needs.

JEL Classification:
A13, J24, J21, C35

Keywords:
social capital, worker qualification, multiple correspondence analysis, IV probit, Cameroon

Corresponding author:
Astride Claudel Njiepue Nouffeussie
Faculty of Economics and Applied Management
University of Douala
Carrefour Ange Raphaël
Cameroon
E-mail: claudel.n17@yahoo.com

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1. Introduction

There has long been a concern among labor economists and sociologists over worker qualification. The intricate relationship between labor supply and demand makes this problem difficult to resolve (Cloutier-Villeneuve, 2019). Indeed, when analyzing individuals' performance in the labor market, this issue is highlighted in the literature from the perspective of the mismatch between education or training and the profession. According to Naville (1956), qualification is simply the ability to perform a specific work process. More precisely, qualification is a polysemous notion with diverse understandings depending on the concepts and frameworks adopted. Indeed, the sociological and economic literature distinguishes two main conceptions. The first, called "substantialist" and associated with Friedman (1946) and Freyssenet (1978), seeks to grasp the qualification itself beyond the legal or institutional forms it may take. The second conception, known as "relativist and conflictual," is found in the works of Naville (1956), Rolle (1988), and Tripier (1991). Here, qualification is considered as a notion situated in time, as an issue, as a social process of articulation between several dimensions, use value and exchange value of labor power, forms of labor use, and modalities of acquiring the qualities used.

However, Rose (2012) argues that beyond these two conceptions, qualification is also understood through three main registers, namely: job qualification, worker qualification, and work qualification. In the case of the qualification of work, Goy (1978) and Rose (2004, 2009, 2012) argue that it is related to the content of the work and the conditions under which it is performed. In the case of employment, Goy (1978) postulates that the qualification of a job refers to the skills and knowledge necessary to occupy that job. Moreover, Rose (2004) argues that in this context, qualification is primarily salary-based in the sense that each job is associated with a salary and specific forms of remuneration. In the case of worker qualification, qualification refers to the examination from the perspective of individuals and their personal qualities. Seen from this perspective, Goy (1978) argues that qualification is the result of skills and knowledge acquired either through training or professional experience. This study focuses solely on the qualification of the worker, also known as workforce qualification. This choice is due to the fact that this qualification register is the most evident in the Cameroonian context according to the statistics. Indeed, the Cameroonian labor market is characterized by a relatively

low level of worker qualifications, as only 27% of employed individuals report holding a job that corresponds to their training.

However, alongside this low level of worker qualifications, the trend is rather upward regarding the use of social capital in the Cameroonian context. Indeed, job seekers use various methods of entering the labor market (Rees, 1966). According to Rees (1966), they can notably use formal methods[2] or, more importantly, resort to informal methods also known as social capital. Even though this concept has been widely used in the literature since Hanifan's work (1916), it should be noted that authors have various apprehensions, which leads to the absence of a consensual definition. If Coleman (1988) emphasizes the functional approach to social capital, Putnam (2000) addresses it from a macroeconomic perspective focused on communities. However, these previous approaches are limited because they do not take into account the quality aspect of social capital. This limitation is addressed by Granovetter (1973) and Lin et al. (1981) in their microeconomic approach based on individuals through their analysis in terms of the strength of ties and social resources. For these authors, social capital refers to personal relationships (family, friends, colleagues, etc.) that an individual can mobilize to achieve their goals in the labor market. From then on, the non-technological[3] and technological[4] aspects of social capital grouped by Nahapiet and Ghoshal (1998) through its three dimensions, namely relational, structural, and cognitive, all find their relevance. Cucchi and Fuhrer (2011) state that taking these dimensions into account allows for a more refined understanding and contextual measurement of this polysemic notion. Just like Kloman-Kouakou et al. (2020), Brendan et al. (2022), we adopt the microeconomic approach to social capital, as it allows for a better

[2] Contact employment agencies, check job listings in newspapers or on websites, approach employers directly.

[3] Non-technological social capital refers to all the social resources of individuals that can be mobilized to achieve their objectives (Lin et al., 1981).

[4] Technological social capital refers to ICT tools (telephone, internet) that enable individuals to connect with their peers and access mobilizable information to achieve their goals (Ellison and Thierry, 2011). Furthermore, Montes and Pronovost (2007) postulate that the technological and non-technological aspects of social capital are intertwined.

measurement and understanding of this concept, as well as a better representation of the contextual reality of developing countries like Cameroon.

Factually, the Fourth Household Survey (FHS) report from the NIS (2014) indicates that 45% of individuals are members of an association, and 97% belong to a religion. Regarding the use of social assistance in the labor market, it appears that 74.74%, 70.77%, 38.91%, and 31.83% of individuals report relying respectively on family, friends, neighbors, and religious associations in times of difficulty. Moreover, the cognitive aspect of social capital is perceptible in the context through the proportion of individuals who can read and write in French, English, the vernacular language, and Arabic, which are respectively 65%, 50%, 25.08%, and 10.83% of individuals. Moreover, the NIS report (2014) reveals that 13.42% of the employed workforce are members of a union. Regarding technological social capital, the internet usage rate has significantly evolved, rising from 4.3% in 2010 to 18.3% in 2015 and to 37.8% in 2020. At the same time, the mobile phone subscription rate increased from 42.5% in 2010 to 77.9% in 2015 and dropped to 84.2% in 2020 (NIS, 2014). This increase is accompanied by a rise in the mobile phone penetration rate during the same period, which was 43.96% in 2010, 82.31% in 2015, and 84.2% in 2020.

Specifically, regarding the use of social capital in the labor market in Cameroon, the NIS report (2014) reveals that 4.07% and 32.78% of workers are respectively members of an association/syndicate and belong to a religion. Furthermore, 75.35%, 41.68%, 41.68%, 32.78%, and 17.96% of workers report having relied respectively on family, friends, neighbors, religious associations, and personal connections as channels for accessing information about the labor market. Furthermore, regarding the cognitive aspect, it appears that 61.61%, 44.16%, 24.29%, and 9.34% of workers can read and write respectively in French, English, the vernacular language, and Arabic. These facts indicate a rather upward trend regarding the use of social capital in the Cameroonian context, both in general and specifically in the labor market. This frequent recourse to capital could be explained by the important role they play in mitigating the information problems that prevail in the labor market (Horváth, 2014). However, this significant reliance contrasts with the qualifications of workers, which remain at a still low level.

However, even though the link between social capital and the labor market has been extensively addressed in the literature since the pioneering works (Granovetter, 1973; Montgomery, 1991)

showing how social capital can help individuals enter the labor market, its exploration has not received much interest in African countries in general (Lassassi and Muller, 2013; Wapoh, 2013; Zenou, 2015; Matsuda and Nomura, 2017; Kloman-Kouakou et al., 2020) and in Cameroon in particular. Few studies focus on the qualification of workers in relation to social capital. Indeed, existing studies in the context that mobilize social capital focus more on its role either in access to employment (Yogo, 2013), or in the well-being of rural producers in the agricultural sector (Nana-Djomo and Atangana Ondoa, 2012), or in administrative constraints (Ngoa et al., 2012), or even in social performance (Atangana and Yogo, 2012). If social capital can play an important role in helping individuals find a job, it does not necessarily mean that the job found is in line with their training in order to match the qualifications of this worker (Kalfa and Piracha, 2015). Indeed, it is possible that the use of capital directs workers towards jobs for which they have no qualifications. Given the predominant level of underemployment that prevails in the Cameroonian context, individuals may resort to social capital and seek unskilled jobs solely to escape unemployment. To our knowledge, this study is the first to explicitly analyze the role of social capital in the qualification of workers in the labor market in Cameroon.

The objective of this study is to assess the contribution of social capital to the qualification of workers in Cameroon. This study is interesting for at least three reasons: first, it emphasizes the issue of worker qualification, which remains pressing and is a challenge for the economic competitiveness of companies and the performance of workers in Cameroon. Secondly, this study highlights the mechanisms through which social capital affects the qualification of workers in developing countries. Thirdly, this study draws attention to the detrimental effects that capital can have in countries with limited opportunities for decent employment and massive underemployment. Indeed, the relationship between social capital and the qualification of workers in the context of developing countries like Cameroon may be different from that observed in developed countries.

The rest of the paper is divided into five sections: the second section is dedicated to the literature review. The third section presents the methodology of the study. The fourth section presents and discusses the results obtained, and the fifth section concludes.

2. Literature review

This section first presents the debate on the dimensions and measures of qualification. Next comes the review of the determinants of workers' qualifications and finally the role of social capital in workers' qualifications.

2.1. Qualification: Measurement approaches and theoretical review

Numerous studies have been conducted to measure qualifications. However, Verhaest and Omey (2006) already pointed out that no standard practice had been established. Nevertheless, certain procedures are now widely used in empirical studies, particularly macroeconomic measurement approaches and microeconomic measurement approaches. The macroeconomic approach is based on the work of Estevao and Tsounta (2011). It involves comparing the relative share of each type of qualification in the labor supply and demand, in other words, the distance between the supply and demand for qualifications, and aggregating the gaps to obtain an index called the "mismatch index." At the microeconomic level, there are two main approaches to measuring qualifications, namely the objective approach and the subjective approach. The objective approach, on the other hand, measures the mismatch by examining the information provided by occupational classifications and thus allows the construction of a matching table that assigns a corresponding job to each level of qualifications (Oosterbeek and Webbink, 1996; Kracke et al., 2017). This first approach serves as a measure of job qualification. The subjective approach, on the other hand, is a method that refers to the formal education required to obtain the job. We ask workers what is necessary or not to obtain or perform their current job. This approach or method of self-assessment therefore reflects the worker's perspective (Kracke, 2016; Di Stasio et al., 2016; Voßemer and Schuck, 2015). The different forms of mismatch can be captured from the individual's simple declaration (Kouakou and Yapo, 2019). It is this approach that we adopt because it serves as a measure of the qualifications of the worker who is the subject of this study on the one hand, and due to the availability of data on the other hand.

The issue of worker qualification is central to labor market analysis, as it helps to understand the mechanisms of access to employment, remuneration, and professional mobility. The early economic theories primarily addressed qualifications through an individualistic approach centered on education. The human capital theory, formulated by Becker (1964) and Schultz (1961), considers education and training as investments that increase the productivity of the

worker, and thus their remuneration. Thus, salary differences would be explained by differences in qualification levels. Additionally, Spence (1973) develops the signaling theory, according to which degrees do not necessarily reflect competence, but serve as a signal to employers to assess the potential of candidates.

However, these linear approaches have been criticized for their inability to explain certain distortions observed in the employment-wage relationship. It is in this context that the efficiency wage theory (notably Akerlof and Yellen, 1986) offers an alternative perspective by suggesting that employers may voluntarily pay wages above the market rate to encourage loyalty and productivity, regardless of formal qualifications. In doing so, remuneration no longer strictly reflects the level of education. In parallel, the theory of labor market segmentation, introduced by Doeringer and Piore (1971), challenges the uniqueness of the labor market. It distinguishes a primary market (stable jobs, well-paid, with career prospects) from a secondary market (precarious, low-skilled, and poorly paid jobs). This dichotomy suggests that qualifications are not the only explanatory variables: institutional factors, entry barriers, and social norms also play a fundamental role.

2.2. The determinants of workforce qualification

According to Campinos-Dubernet and Marry (1986), the qualification of workers is at the convergence of the productive system and the educational system. As a result, Freyssenet (1977) emphasizes that it cannot be assessed in isolation because it is part of a set of representations and the society as a whole. In fact, the hierarchy of qualifications is the result of a set of interrelated factors, the weight of which varies according to the dimensions of the qualifications concerned. Thus, several determinants can be highlighted. Among other things, it involves the division of labor, the state of professional relations, and that of the labor market.

A first category of factors likely to influence qualification is internal to the company or organization. Thus, some correspond to the conditions of the work activity. The classification grids define levels of qualification based on criteria expressing the skills required for job positions, often related to autonomy, initiative, responsibility, and the level of education (Rose, 2009). Alongside these factors, one also notes the organization and division of labor, which establish the framework and hierarchy of qualifications, as well as the management of work and working conditions. Indeed, the conditions of activity affect the content of qualifications.

For example, in service and commerce activities, the pressure is often high, whether it comes from the client or the hierarchy, and this affects the required qualities.

A second set of factors relates to the external environment of the company or organization. It may concern the state of the labor market, which plays a decisive role in this regard as it weighs, both locally and globally, on the salary recognition of qualifications. In this vein, Naville (1956) emphasized that competition plays a decisive role in the range of real wages, much more than acquired skills, that is, the qualification itself. Moreover, the effect of the economic situation is noted, which, depending on the general level of activity, the extent of unemployment, the qualifications of individuals, will be more or less valued, the recruitment criteria more or less demanding, and the gaps between individual qualifications and job classifications more or less pronounced. A third category of factors refers to the local and national situation of the educational system. Rose (2009) argues that this category of factor is also essential for understanding the distribution of qualifications. Indeed, the distribution of diplomas or their relative scarcity weighs, for reasons of competition, on their recognition and thus on the hierarchy of qualifications. As a result, the gap between the poles of qualification logically widens in a context of educational development, as is the case in developing countries.

These critiques mark a break with traditional theories by emphasizing the limitations of the purely educational approach. This paves the way for more integrative theories, such as the one on social capital, notably developed by Coleman (1988) and Granovetter (1973). This approach emphasizes the importance of networks, interpersonal relationships, and social trust in access to employment and the recognition of skills of workers.

2.3. Qualification in the labor market: the role of social capital

Empirically, the first works addressing the relationship between social capital and qualifications in the labor market are those of Granovetter (1973). This author notes that the use of social capital shortens job search periods and provides more information on job suitability or vacancies, as social networks allow individuals to obtain more relevant employment information than their counterparts who do not have contacts. Therefore, not only do these informational advantages help provide information about job vacancies, but they can also be used to verify if a job is suitable in terms of specific dimensions such as the level of formal qualifications and salaries. Franzen and Hangartner (2006) obtain similar results using Swiss

data from 2001. They conclude that social capital contributes to more adequate job-education matches and reduces job search costs. They showed that social capital leads to higher-status professions compared to formal channels. In other words, social capital helps reduce the mismatch of workers in the Swiss labor market. Similar results were also obtained by Horváth (2014) and Griesshaber and Seibel (2015), who found that personal networks and social participation lead to lower levels of over-education and thus improve adequacy in 19 European countries.

Unlike the results presented above, Kucel and Byrne (2008) estimated the effect of job search methods on over-education using the UK Quarterly Labour Force Survey, distinguishing between formal channels and social contacts. Their results reveal a lower probability of mismatch when the job was found through formal channels (for example, job offers), while personal contacts seem to increase the probability of mismatch. Similarly, Bentolila et al. (2010) argue that social capital can only help individuals find jobs in specific professions rather than in those where they are most productive. Using data from the United States and Europe, they found that while social contacts reduce the duration of unemployment by 1 to 3 months, they also reduce wages by at least 2.5%. The argument put forward by the authors is that high-level jobs are more difficult to find. Therefore, people with social contacts are more willing to accept a lower-paying job, which creates a mismatch in the labor market. Still in this context of developed countries Kalfa and Piracha (2015) assess the extent to which social networks and ethnic concentration impact the qualifications of natives and immigrants in Australia. Using panel data from the Australian Household, Income and Labour Dynamics Survey and a dynamic random effects probit model, the authors show that social capital increases the likelihood of skill mismatch among Australian workers. Furthermore, Kracke and Klug (2021) examine whether social capital plays a decisive role in the risk of overqualification of migrants in Germany. To achieve this, the authors employ logistic models on data from a German migration sample derived from the IAB-SOEP[5] conducted between 2013 and 2014. The authors find that social capital influences the job matching of migrants. Specifically, migrants are at a greater risk of overqualification if they only use informal job search strategies, such as relying on friends or family members. Furthermore, the authors show that homophilic migrant networks

[5] The Institute for Employment Research (IER) and the Socio-Economic Panel (SEP).

and jobs in employment niches are risk factors for overqualification and less adequate employment. More recently, Crea-Arsenio et al. (2025) in their study based on a qualitative survey in an Ontario city in Canada, examine the professional integration of recent immigrants, with a focus on qualifications. The authors identify a model of adopting employment strategies where skilled workers often find themselves in underqualified jobs. They show that local social capital, particularly through networks of inter-ethnic contacts and former colleagues, allows for better qualification-job matching. However, the absence of bridging ties limits access to qualified jobs.

In the context of Sub-Saharan African countries, Akpe et al. (2019) examine the impact of social capital on worker qualifications, particularly the mismatch between the skills acquired and the jobs held by graduates in Côte d'Ivoire. The authors conclude that the use of social networks in the professional integration process does not necessarily guarantee a match between graduates' skills and the requirements of the jobs they occupy.

3. Methodology

We will first present the source of the data, then the description of the variables and the descriptive statistics, and finally the model and the estimation technique.

3.1. Data source

The data used comes from the Fourth Cameroonian Household Survey, conducted in 2014 by the National Institute of Statistics (NIS) of Cameroon. In order to assess the importance of social capital on qualification outcomes, the sample is limited to the working-age population (individuals aged 15 to 64) who are employed in paid work (excluding self-employed and seasonal workers). On this basis, the overall sample consists of 18,036 individuals. The advantage of this data lies in the fact that it provides information on job characteristics, the work environment, as well as the socio-demographic characteristics of the worker. Furthermore, it provides relevant information about the individual's societal environment (social ties), which they can leverage to achieve their goals in the labor market. As a result, this database appears suitable for conducting the empirical analysis of the relationship between social capital and workforce qualification in the Cameroonian labor market.

3.2. Description of variables and descriptive statistics

3.2.1 Description of the variables

In the context of this study, the dependent variable is the worker's qualification, also known as labor qualification. It reflects the fact that a worker holds a job corresponding to the training they have received. In this case, we talk about the match between education and employment. In the literature, three main methods have been proposed to measure adequacy and/or inadequacy: the job analysis method, the worker's self-assessment, and the method of realized matches. The self-assessment method is based on the feelings expressed by the worker. It is considered a subjective measure of qualification and is based on household survey data. It is therefore often considered the preferred method for measuring the mismatch or adequacy of training in the labor market (Green et al., 2010; Hartog, 2000; Krack and Klug, 2021). According to Krack and Klug (2021), it is the worker's self-assessment method that we adopt in this study. This choice is justified not only by the fact that our data pertains to households but also because the question regarding the worker's qualification is a self-assessment by the worker. Thus, the following question is addressed to him: *Does the job that (Name) holds correspond to any training he/she has received?* In fact, the variable "qualification of the workforce" is a dichotomous variable that takes the value 1 if there is a match between training and employment, and 0 otherwise.

The variable of interest is social capital, understood through a composite index that we construct using the Multiple Correspondence Analysis (MCA) method following the steps prescribed by the OECD manual (2008). This form of measurement has the advantage of taking into account the multidimensional and contextual nature that characterizes social capital; which not only allows for a better measurement of this concept but also of its effects on the likelihood of the qualification of employed individuals in the labor market in Cameroon. According Njiepue Nouffeussie and Meka'a (2025), the Composite Social Capital Index (CSCI) constructed is centered in the interval [0,1] and then dichotomized. Thus, the dichotomous Social Capital variable takes the value of 1 if the CSCI is greater than the median (CSCI >=Me), corresponding to workers who have high social capital, and 0 otherwise (CSCI <Me). This choice is justified by at least two reasons: On the one hand, the median allows for the creation of two equally sized and easily comparable sub-samples (Lang and Ulrich, 2017), given the relatively high

level of reliance on social capital that prevails in the Cameroonian context[6](Njiepue Nouffeussie, 2025). On the other hand, the index being in the range [0,1], the distribution can be asymmetric or contain extreme values. Using the median as a dichotomization threshold helps mitigate the impact of these extreme values, unlike an approach based on the mean.

The non-technological and technological indicators used for the construction of the index are grouped into three dimensions, namely structural[7], relational, and cognitive social capital according to the classification by Nahapiet and Ghoshal (1998). All these indicators are qualitative and dichotomous.

In recent socio-economic literature on social capital, the structure of an individual's network constitutes the dimension that attracts the most attention for capturing social capital at the individual level, as it concerns the interpersonal configuration of links between individuals (Chang and Chuang, 2011). Several indicators allow for the operationalization of this dimension in the Cameroonian context, notably union membership, religious engagement, associative belonging, institutional trust, and digital social networks (mobile phone). The relational dimension refers to the nature of personal relationships that develop between individuals and manifest in relation to "strong" ties and "weak" ties. It allows for the creation of trust, norms, obligations, and identity among network members. This dimension includes indicators obtained from 3 questions: assistance in case of difficulty from various sources (friends, neighbors, Non-Governmental Organization, religion, family), the use of personal relationships as a channel for accessing employment, and the nature of the ties with the head of the household. The cognitive dimension, on the other hand, refers to shared visions, interpretations, and codes that allow network members to make sense of information and categorize it into conceptual categories (Nahapiet and Ghoshal, 1998). This dimension also takes into account the cognitive skills of individuals, which are inherent to them.

The literature groups the control variables into three main categories, namely job characteristics, household characteristics, and individual characteristics. Indeed, it emerges

[6] Indeed, an average of 97% of Cameroonian households rely on social capital (NIS, 2014).
[7] In recent socio-economic literature on social capital, the structure of an individual's network is the dimension that attracts the most attention for capturing social capital at the individual level, as it concerns the interpersonal configuration of ties between individuals (Chang and Chuang, 2011).

from this literature that age, gender, place of residence, marital status, and level of education influence the worker's qualifications (Kalfa and Pirachat, 2015; Kruck and Klug, 2021). Moreover, household size, informality, working hours, and the sector of activity are not without influence on the worker's qualification according to BAD (2020).

In summary, Table 1 below provides a description of all the variables used on one hand and presents some descriptive statistics on the other.

3.2.2 Descriptive Statistics

Table 1: Descriptive Statistics

Variables		Mean (Standard deviations)	Min	Max	Authors
The qualification of the worker					
Worker qualifications (training-job fit)		0.275 (0.447)	0	1	Rose (2012)
Indicators used in the construction of the Composite Social Capital Index (CSCI)					
Structural Dimension (Institutional trust, Union, Association, Religion, and Digital Social Networks)	Economic policy,	0,679 (0,467)	0	1	Onyx and Bullen, 1998 ; Kloman-Kouakou et al., 2020 Moore et al., 2010 Brendan et al., 2022
	Decentralization policy	0,50 (0,492)	0	1	
	Union membership	0,41 (0,198)	0	1	
	Religious commitment	0,965 (0,183)	0	1	
	Membership in an association	0,465 (0,499)	0	1	
	Phone Usage	0,603 (0,489)	0	1	
	Internet usage	0,007 (0,082)	0	1	
Relational dimension (Personal relationships, Assistance and strong ties)	Personal relationship	0,175 (0,38)	0	1	Granovetter, 1973 ; Yogo, 2013 Piracha et al., 2014 ; Granovetter, 1973 ; Lee et al., (2015)
	Help religious association	0,328 (0,469)	0	1	
	NGO Help	0,053 (0,224)	0	1	
	Neighbour help	0,417 (0,493)	0	1	
	Family help	0,754 (0,431)	0	1	
	Strong bond (head of household	0,474 (0,499)	0	1	
	Spouse	0,221 (0,415)	0	1	
	Brother/sister	0,184 (0,388)	0	1	
	Grandson/granddaughter	0,036 (0,187)	0	1	
Cognitive dimension (Language)	French	0,616 (0,486)	0	1	Sirvin, 2001 Nahapiet and Ghoshal, 1998
	English	0,442 (0,497)	0	1	
	Arabic	0,093 (0,291)	0	1	
	Mother tongue	0,243 (0,429)	0	1	
Social capital index	Quantitative	0,98 (0,018)	0	1	Brendan et al. (2022)
	Qualitative	0.242 (0.428)	0	1	
Control variables					
Man		0.524 (0.499)	0	1	
Young people (15-35 years)		0.489 (0.5)	0	1	
Seniors (Over 35 years)		0.473 (0.499)	0	1	
Couple		0.571 (0.495)	0	1	
Urban area		0.456 (0.498)	0	1	

No schooling	0.198 (0.399)	0	1	
Primary	0.378 (0.485)	0	1	
Secondary	0.354 (0.478)	0	1	Kalfa and Pirachat,
Higher	0.07 (0.255)	0	1	2015; Kruck and
Logarithm household size	1.568 (0.705)	0	3.401	Klug, 2021; BAD
Primary sector	0.441 (0.497)	0	1	(2020)
Industrial Sector	0.153 (0.36)	0	1	Kloman-Kouakou et
Commercial sector	0.164 (0.37)	0	1	al. (2021)
Service sector	0.242(0.428)	0	1	
Formal sector	0.12 (0.325)	0	1	
Indefinite-term contract (ITC)	0.151 (0.289)	0	1	
Fixed-term contract (FTC)	0.039 (0.149)	0	1	
Instruments				
Average social capital index (CSCI) per household	0.266 (0.237)	0.032	0.982	Coleman (1988) ;
Population Density	0.047 (0.028)	0.006	0.096	Yogo (2013)

Source: Author based on data from Fourth Cameroonian Household Survey (2014); N= 18036

It appears from Table 2 that 27.5% of workers are qualified, meaning they are well-matched. Similarly, 24.2% of these employed individuals rely on social capital. Moreover, regarding their education, Table 2 reveals that 19.8% of these workers are not educated, compared to 37.8%, 35.4%, and 7% who have respectively completed primary, secondary, and higher education. These are mostly men, accounting for 52.4% compared to 48.6% of women. Regarding the sector of activity, it appears that the primary sector absorbs the majority of the employed workforce, accounting for 44.1% compared to 15.3%, 16.4%, and 2.42% respectively for the industrial, commercial, and service sectors. Similarly, the informal sector absorbs the majority of these employed assets, specifically 88% compared to only 12% for the formal sector. Regarding age, the employed population is relatively predominantly young, specifically 48.9% compared to 47.3% of seniors. Similarly, 45.6% are employees in urban areas compared to 54.4% who work in rural areas. A look at the nature of employment contracts shows that 15.1% and 3.9% of these workers are respectively on fixed-term and permanent contracts. Furthermore, 57.1% are in a relationship compared to 42.9% who are single. Thus, the correlation matrix between the different variables used is presented in Appendix 3. This matrix shows that there is indeed a correlation between the different variables used. However, it appears that this correlation is not strong because the maximum value of the correlation coefficient is 0.6, which is below the threshold value of 0.7/-0.7 established in the literature. As a result, all the variables used are relevant for our study.

The formula for the overall social capital indicator of a worker (i) is written as:

$$\mathbf{CSCI_i} = \frac{\mathbf{1}}{\boldsymbol{K}} \sum_{\boldsymbol{k=1}}^{\boldsymbol{K}} \sum_{\boldsymbol{Jk=1}}^{\boldsymbol{jk}} \boldsymbol{p}_{\boldsymbol{jk}}^{\boldsymbol{k}} \boldsymbol{I}_{\boldsymbol{i,jk}}^{\boldsymbol{k}}$$

In this expression, **K** represents the total number of indicators retained, $I_{i,jk}^{k}$ corresponds to the binary variable **1/0** which takes the value 1 when individual i takes the modality j_k and **0** for any other modality. p_{jk}^{k} is the weight of modality j of indicator k obtained by the formula. Subsequently, the CSCI is rescaled to the interval [0;1] using the min-max method.

3.2.3 Some Results on the Composite Social Capital Index (CSCI)

In order to retain only the most significant axes in the construction of our synthetic indicator, we used Cattell's Scree Test (Cattell, 1966) as well as Cronbach's Alpha. In his study, Cattell (1966) recommends retaining the axes that are visually located before the change in slope of the graphical representation related to the percentage of inertia explained by each axis. Graph in the appendix 1 highlights the outcome of Cattell's Scree test and suggests retaining only the first three axes to synthesize the information provided by the CSCI indicators. Furthermore, the results of the MCA contained in appendix 2 in the appendix illustrate that the cumulative total inertia of the first three factorial axes is over 95%, with 49.92% for the first factorial axis, 40.34% for the second, and 5.01% for the third axis, which is more than sufficient to capitalize on the maximum possible information from the social capital indicators of individuals in Cameroon. The Cronbach's Alpha coefficients of the axes are respectively 0.839, 0.728, and 0.479. However, only the first two axes have coefficients above the minimum value generally accepted in the literature (0.70) (Soares Costa et al., 2013; Greenacre and Blasius, 2006). A combination of the Scree test criterion and Cronbach's Alpha suggests retaining only the first two axes for the construction of our synthetic indicator.

Table 2: Distribution of the composite social capital index according to the individual's demographic characteristics

Elements	Gender (average in %)		Level of education (average in %)				Age (average in %)	
	Man	Women	No schooling	Primary	Secondary	Higher	Young peoples	Seniors
Social capital Index (CSCI)	98,2	98,41	98,89	98,47	97,51	96,70	97,37	97,20

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

Table 2 shows that the social capital index (CSCI) is slightly higher for women (98.41%) than for men (98.2%), suggesting a better use of social capital by them. In terms of education, the

uneducated display the highest CSCI (98.89%), which can be explained by strong community networks. The primary and secondary levels follow, while higher education graduates have a lower CSCI (96.70%), which could reflect a tendency towards individualism. Finally, young people (97.37%) have a slightly higher reliance on social capital than seniors (97.20%), probably due to their more active social engagement.

Table 3: Distribution of the composite social capital index (%) according to characteristics related to the individual's household environment

Element	Area of residence (average in %)			Marital status (%)(average in %)	
	Urban	Semi-Urban	Rural	Married	Single
Social Capital Index (CSCI)	33	33	34	96,77	98,31

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

Table 3 reveals that the social capital index (CSCI) is higher among singles (98.31%) than among married individuals (96.77%), suggesting a greater integration of singles into diverse social networks. This difference could be explained by the flexibility of singles to establish varied connections, while married individuals may focus more on family relationships, thus limiting their reliance on other forms of social capital.

Table 4: Distribution of the composite social capital index according to employment characteristics

Elément	Employment status (average in %)				Sector of activity (average in %)		
	Actif occupé	Chômeur	Chercheur d'emploi	Inactifs	Public	Privé formel	Privé informel
Indice du capital social (CSCI)	96,66	98,19	98,23	99,28	95,67	95,9	96,79

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

This Table 4 illustrates the distribution of the Social Capital Index (CSCI according to employment status and sector of activity. The Social Capital Index (CSCI) is higher among inactive individuals (99.28%), followed by job seekers (98.23%) and the unemployed

(98.19%), while the employed show a lower index (96.66%). This suggests that people outside the labor market are more likely to mobilize their networks to seek opportunities or social support. Moreover, social capital is higher in the informal private sector (96.79%) than in the public sector (95.67%) and the formal private sector (95.9%). This trend is explained by the strong reliance on personal relationships in the informal sector, where opportunities often come through direct contacts, unlike in more regulated sectors. The inactive and informal sector workers rely more on their social capital to compensate for the lack of institutional stability. In contrast, the employed and those in the formal public or private sector rely more on established administrative and professional mechanisms.

3.3. Model and Estimation Technique

The main objective of this study is to examine the effect of social capital on the qualification of workers in the labor market in Cameroon. To achieve this, we resort to qualitative econometric analysis methods considering the qualitative nature of our dependent variable. In this category, one can use the dynamic random effects probit model (Wooldridge, 2005), a simple probit/logit model, or the probit model with instrumental variables. The dynamic random or fixed effects probit model is not suitable for our study as our data is static (covers only one year) and cannot be subjected to a dynamic analysis. In the same vein, the simple Probit/Logit model suffers from a major limitation, namely the lack of correction for endogeneity and/or selection bias.

This bias may be due to the omission of variables when measuring social capital, but also to the bidirectional causality that may exist between social capital and qualification. Indeed, if social capital explains qualifications, it is not excluded that qualifications could in turn explain social capital. This double causality can be explained by at least two reasons: on the one hand, the fact that an individual uses social capital can guarantee them a job that matches their qualifications (Granovetter, 1973; Bentolila et al., 2010). On the other hand, the fact that an individual is qualified and therefore holds a job that corresponds to their training allows them to meet colleagues, superiors, and professional partners of the same qualification. These interactions can strengthen the worker's network and connect them to future opportunities, relationships with their colleagues, and allow for the accumulation of social capital (Kracke and Klug, 2021). For all the reasons mentioned above, the first two categories of models are unsuitable for our study. Similarly, the decision or motivations for using social capital are unobservable and can

only be observed in an ex-post situation. In order to account for this unobservable factor that could bias the results if ignored, it is recommended to assign it a truncated latent variable that is only observed for employed individuals who have actually used social capital. Therefore, following Kracke and Klug (2021), Njiepue Nouffeussie et al. (2024), we employ a probit model with an instrumental variable (IV) which seems better suited for conducting our analysis.

The basic equation to estimate is written as follows:

$$\boldsymbol{WQ_i = \alpha_0 + \gamma_1 SocialCapital_i + \beta_i\, x_i + \varepsilon_i} \qquad \textbf{(1)}$$

WQ_i represented the qualification of the workforce for an occupied asset i; $SocialCapital_i$ represents the use of social capital by the occupied asset i. $SocialCapital^*$ is the social capital (takes the value 1, and 0 otherwise); β_i is the vector of coefficients to be determined and ε_i the iid error term; and x_i is a vector of control variables.

However, it follows from this equation that $E(\varepsilon_i / SocialCapital_i)$ is non-zero, meaning that the exogeneity condition of social capital, which ensures the consistency of results through a simple probit, is not met. Thus, the coefficient cannot be interpreted as the causal effect of the use of social capital on the worker's qualification. In the face of this bias, emerging econometric literature recommends using instrumental variable (IV) methods: it involves finding variables (instruments) that are correlated with the use of social capital without being correlated with the qualification of the workforce. In practice, the number of instruments must be greater than or equal to the number of endogenous variables. However, it is advisable to have at least two instruments per endogenous variable (Bourbonnais, 2015).

In the context of this study, drawing on empirical literature, it appears that population density and the average social capital per household are strongly correlated with the use of social capital (Coleman, 1980; Yogo, 2013). Indeed, population density is understood by relating the population of the individual's household's residential area to the total population. Similarly, the average social capital per household was obtained by relating the composite social capital index (CSCI) to the household size. These variables have no effect on the qualification of the workforce, thus corroborating the validity conditions of a good instrument as stated by Wooldridge (2002). Thus, the density and average social capital per household appear to be good instruments.

Finally, equation (1) becomes a system of simultaneous equations whose structural form is:

$$\begin{cases} \boldsymbol{WQ_i^* = \alpha_0 + x_i\beta_1 + \gamma_1 SociaCapital_i^* + \varepsilon_i \ > 0} & \textbf{(2)} \\ \boldsymbol{SocialCapital_i = \pi_0 + \beta_2 x_{1,i} + \gamma_2 x_{2,i} + \mu_i} & \textbf{(3)} \end{cases}$$

Equation (3) is written in its reduced form, where $x_{1,i}$ and $x_{2,i}$ represent respectively the population density and the average social capital per household considered as an instrument. We assume that $(\boldsymbol{\varepsilon_i, \mu_i}\ ) \approx \boldsymbol{N(0,1)}$, $\boldsymbol{\gamma_2}$ and $\boldsymbol{\beta_2}$) are the matrices of the model parameters in its reduced form; and are the parameters of the structural model.

Usually, the Probit model is used to estimate each of the equations (2) and (3) separately. However, not taking into account the interdependence between these two equations generally leads to biased results (Baltagi, 2008; Lollivier, 2002; Lee et al., 1980). It is to solve this problem that methodologies have been proposed, although they have been more limited to linear models, unlike non-linear models. In this latter case, a methodology initially proposed by Amemiya (1978) has been widely used and extended to the instrumental variable method applied to dichotomous models. Thus, starting from (2) and (3), we have the equations (4) and (5) below:

$$\boldsymbol{WQ_i^* = \alpha_0 + z_i\varphi + \varepsilon_i} \qquad \textbf{(4)}$$

$$\boldsymbol{SocialCapital_i = \pi_0 + d_i\delta + \mu_i} \qquad \textbf{(5)}$$

With $z_i = (TIC^*, x_i)$, $\varphi = (\beta'_1\ ,\ \gamma'_1)$, $\delta = \left(\beta'_2\ ,\ \gamma'_2\right)$ the parameter vector, and the error terms assumed to be i.i.d., the likelihood function (LF) in the presence of an endogenous regressor is then as follows:

$$LF_i = \{y_{1,i}\ \ln\Phi(m_i) + (1- y_{1,i})[(1- \ln\Phi(m_i)] - \ln\Phi(\tfrac{y_{2,i}-d_i\rho}{\sigma}) - \ln\sigma\} \quad \textbf{(6)}$$

Where $m_i = \frac{z_{1,i}\varphi\sigma-\rho(y_{2,i}-d_i\delta)}{\sigma\sqrt{1-\rho^2}}$; $\phi(.)$ and $\Phi(.)$ respectively represent the density function and the standard normal distribution function, σ and ρ define the standard deviation of μ_i and the correlation coefficient between $\varepsilon_i\ \mu_i$. In order to test the validity of the instrument, we will resort to the minimum Chi2 estimator. More precisely, it is a Chi2 instrument exogeneity test, which allows us to determine the absence (null hypothesis) or not of the exogeneity of the social

capital variable. If $prob\ (Chi2 = 0) \leq 0.05,$ the null hypothesis of exogeneity is rejected, and therefore the correlation between the two error terms is significantly different from zero. In this perspective, the estimation by Maximum Likelihood is to provide efficient results, but in the case of validation of the null hypothesis, an estimation of equation (6) by a simple probit is recommended. Furthermore, the marginal effects will be determined, which will be subject to interpretation. Moreover, we will conduct the robust version of this test, as well as sensitivity, predictivity, and classification tests, in order to strengthen the quality of our results.

This model allows for the consideration of two biases that may exist in our analysis, namely selection bias and endogeneity bias. Indeed, since qualification only concerns workers, that is, the employed, a potential selection bias can occur if individuals are selected non-randomly within the population (Kalfa and Piracha, 2015). However, in the Fourth Cameroonian Household Survey, only 3.46% of the sample is unemployed. Given that the percentage of unemployed individuals is relatively low, a selection problem would generally not be a major concern.

4. Results and robustness analysis

This section presents, on the one hand, the main results and, on the other hand, the analysis of the robustness of these results.

4.1. Effects of social capital on worker qualification in Cameroon

Table 5 below presents the marginal effects of the instrumental variable (IV) probit estimation of the effect of social capital on worker qualification. Column (1) presents the results obtained using population density as an instrument. Column (2) presents the results obtained using the average social capital per household as an instrument. Column (3), on the other hand, presents the results obtained by simultaneously using population density and the average social capital per household as instruments. It is the results from this last column that will be further commented on.

Table 5: Results of Probit Estimates with Instrumental Variable (IV)

	Marginal effects		
Variables	**(1)**	**(2)**	**(3)**
	Equation of worker qualification		

Social Capital	**-1.910*** **	**-1.860*** **	**-1.832*** **
	(0.143)	**(0.133)**	**(0.156)**
Young peoples	-0.252***	0.327**	-0.233***
	(0.0536)	(0.149)	(0.0559)
Seniors	0.576***	0.401	0.546***
	(0.0685)	(0.272)	(0.0727)
Man	0.121***	0.371***	0.103***
	(0.0401)	(0.105)	(0.0422)
Couple	0.0677***	0.134***	0.071***
	(0.0238)	(0.0240)	(0.0242)
Primary	0.028	0.0451*	0.094*
	(0.0457)	(0.0341)	(0.0085)**
Secondary	0.066	0.0647**	0.170
	(0.0565)	(0.0318)	(0.0085)
Higher	0.194*	0.088***	0.183***
	(0.0791)	(0.085)	(0.0101)
Urban	0.219***	0.138	0.208***
	(0.0311)	(0.105)	(0.0326)
Logarithm of Houselod size	0.166	0.140	0.155
	(0.233)	(0.820)	(0.241)
Industrial Sector	0.806***	1.328***	0.846***
	(0.0827)	(0.0670)	(0.0850)
Commercial sector	0.0409	0.465***	0.0603
	(0.0505)	(0.0726)	(0.0525)
Service sector	0.473***	1.051***	0.509***
	(0.0738)	(0.0358)	(0.0765)
Formal	0.294***	0.454***	0.307***
	(0.0444)	(0.0502)	(0.0454)
ITC	0.571***	0.753***	0.591***
	(0.0560)	(0.0865)	(0.0572)
FTC	0.299***	0.466***	0.312***
	(0.0663)	(0.0747)	(0.0677)
Instrumental equation			
Average CSCI per Household	-	0.133***	0.0791***
	-	(0.0263)	(0.0262)
Population Density	1.414***	-	1.430***
	(0.0944)	-	(0.0920)
Athrho	0.754***	-0.388	0.705***
	(0.0914)	(0.325)	(0.0941)
Lnsigma	-1.029***	-1.024***	-1.029***
	(0.00512)	(0.00507)	(0.00517)
Wald Exogeneity Test (chi2)	68.02	64.02	56.23
Probability (P)	0.000	0.000	0.000
Observations	17,685	17,685	17,685

The standard deviations are in parentheses () ; *** p<0.01 ** p<0.05 * p<0.1

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

It appears from Table 5 that population density and the average social capital per household seem to be good instruments regardless of the model (1), (2), or (3) considered. Indeed, the effect of population density and the average social capital per household is positive and statistically significant at the 1% level in all three models. This result could be explained by

the fact that population density and the average social capital per household strengthen the creation and use of social capital without affecting the worker's qualifications. In other words, the two instruments are endogenous to social capital but exogenous to the worker's qualification. Therefore, these two variables are good instruments for our model (Coleman, 1988; Yogo, 2013). Furthermore, the probability of the Wald exogeneity test is significant at 1%, thus reflecting the validity of the instruments used and the overall significance of our model.

As for the effects of social capital on worker qualification, we find that regardless of the model (1), (2), or (3) considered, the effect of social capital on worker qualification is negative and statistically significant at the 1% level. More precisely, all else being equal Moreover, a 1% increase in the level of reliance on social capital deteriorates the worker's qualification probability by approximately 1.83 to 1.91 percentage points. This result indicates that social capital exacerbates the mismatch between education and employment in the labor market in Cameroon. At least two reasons can explain this result: firstly, the Cameroonian context is characterized by a high rate of underemployment, a high level of informality, and relatively low-quality jobs. Given this context and as noted by Kalfa and Piracha (2015), social capital is only an imperfect, even temporary, solution that allows job seekers to avoid the "stigma" of unemployment. For example, if individuals have been unemployed for a long period and are experiencing financial difficulties, they are likely to accept jobs that require a level of education or training lower than what they have officially attained. In this case, even if social capital positively contributes to facilitating access to the labor market, it generates a mismatch. Secondly, given the high level of reliance on social capital that prevails in Cameroon, job opportunities and promotions may be granted based on personal relationships rather than the actual skills and qualifications of individuals. This can lead to a distortion of the labor market, where qualified or suitable individuals may be sidelined in favor of less qualified individuals who have high-quality social capital. Our results corroborate those found by Kalfa and Piracha (2015) which show that social capital reduces the qualifications of Australian workers, as it increases the probability of worker mismatch.

Regarding individual characteristics, Table 5 shows that being a senior, being in a couple, being a man, or having a secondary or higher level of education positively and significantly affects the worker's qualification probability at the 1% threshold. More specifically, being a senior,

being in a couple, having a secondary or higher education level, or being a man improves the probability of workers' qualification by 14%, 10.9%, 17%, 18%, and 7% respectively. These factors enhance the worker's suitability in the labor market in Cameroon. Indeed, senior workers are often perceived as having accumulated considerable experience and expertise throughout their careers. Their longevity in the job market can be considered an advantage, making them more suitable and consequently more qualified in the job market than their younger counterparts.

Moreover, compared to singles, being in a couple is often associated with a certain personal, emotional, and familial stability, as well as good priority management. These stabilizations can be considered an asset as they can translate into greater reliability, better stress management, and a greater ability to adapt to work demands; which increases the risk of adequacy and qualification. Moreover, the qualification in favor of men can be explained by the gap in access to education and continuous training programs that prevails between workers of both sexes. Thus, the fact that men have greater access than women predispose them to a higher adequacy and consequently to a higher level of qualification. Moreover, the positive relationship between the level of education and the qualifications obtained validates the postulate of human capital theory (Becker, 1964) which had already established this relationship. These results not only reflect the stylized facts established by the NIS (2014) in the Cameroonian context but also corroborate the findings by Morsy and Mukasa (2019) in the context of 10 developing countries. In contrast, our results oppose those of Ricketts and Bernard (2015), who, in the Jamaican context, show that female workers are more qualified than male workers.

Regarding employment-related characteristics, the results show that working in the formal sector positively and significantly affects the worker's qualification probability at the 1% threshold, all else being equal. More specifically, being an employee in the formal sector increases the probability of qualification by 3%. This result can be explained by the fact that jobs and promotions in the formal sector are generally based on certain prior skills and qualifications (degrees, experience) but are also characterized by continuous training; which is not the case in the informal sector, where jobs are most often less demanding in terms of skills and lack any program for updating skills and knowledge. This situation contributes to making formal sector workers more competent and more qualified than their informal sector counterparts.

Furthermore, it is observed that compared to the primary sector, working in the industrial, commercial, and service sectors positively and significantly affects the qualification probability of workers in the Cameroonian labor market. In other words, the probability of worker qualification increases by 8.46%, 6%, and 5% respectively for workers employed in the industrial, commercial, and service sectors. This result can be explained by the fact that working in these sectors may require specialized and technical skills. Thus, workers who possess these specific skills are often considered more suitable and consequently more qualified. For example, in the industrial sector, technical skills such as mechanics, electricity, or supply chain management may be sought after. Our results contradict those found by Morsy and Mukasa (2019) in the context of 10 developing countries, where the authors show that working in the industrial and tertiary sectors increases inadequacy and consequently deteriorates workers' qualifications.

4.2. Robustness Analysis

The robustness analysis unfolds in four stages. First, we estimate our model while controlling for the effect of gender (Table 6) because it is highly likely that the use of social capital is heterogeneous between men and women. Secondly, the model is estimated according to age group (table 7) because it is very likely that young people and seniors have different levels of social capital utilization. Thirdly, the model is estimated taking into account the differentiated effect of informality (table 8).

Table 6: Effects of social capital on qualification by gender

Variables	Marginal effect	
	Man	Women
Equation of worker qualification		
Social Capital	-2.961***	-1.454***
	(0.458)	(0.163)
Young peoples	-0.625***	-0.125*
	(0.150)	(0.0723)
Seniors	0.795***	0.446***
	(0.191)	(0.0792)
Couple	0.559***	0.301***
	(0.125)	(0.0405)
Primary	0.015*	0.020
	(0.0090)	(0.0683)
Secondary	0.038**	0.023
	(0.0091)	(0.0131)

Higher	0.066**	0.309*
	(0.0106)	(0.1322)
Urban	-0.126**	-0.365***
	(0.0545)	(0.0513)
Logarithm of Househlod size	0.282***	0.149***
	(0.0668)	(0.0339)
Industrial Sector	0.691***	0.870***
	(0.262)	(0.0970)
Commercial sector	0.192	-0.137*
	(0.128)	(0.0706)
Service sector	0.496**	0.441***
	(0.211)	(0.0897)
Formal	0.150**	0.558***
	(0.0742)	(0.0825)
ITC	0.446***	0.726***
	(0.129)	(0.0917)
FTC	0.220**	0.325**
	(0.106)	(0.129)
Instrumental equation		
Average CSCI per Household	-0.0869*	0.222**
	(0.0468)	(0.0426)
Population Density	0.476***	2.509***
	(0.0842)	(0.153)
Athrho	1.026***	0.584***
	(0.342)	(0.0948)
Lnsigma	-1.287***	-0.929***
	(0.0102)	(0.00633)
Wald Exogeneity Test (Chi2)	9	37.95
Probability (P)	0.002	0.000
Observation	9,278	8,407

Les écarts-types sont entre parenthèses () ; *** p<0.01 ** p<0.05 * p<0.1

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

The results of Table 6 confirm the validity of the instruments. Similarly, these results are similar to those in Table 5 regarding the effects of social capital on worker qualifications in Cameroon. Note that this negative effect is much more pronounced among male workers compared to female workers. Indeed, among female workers, the use of social capital significantly reduces the probability of qualification by 1.54 percentage points, while this decrease is 2.96 percentage points in the subsample of male workers. Indeed, this result can be explained by structural inequalities such as unequal access to education, training, and employment and promotion opportunities. These inequalities can also play a role in this disparity in a context like ours where women have less access to these resources and face additional barriers, which could mitigate the adverse effects of social capital for them compared to men. This result is consistent with the analyses of Pillai et al 2017 on the negative effects of social capital. Similarly, it

appears from Table 6 that regardless of gender, the fact that the employed individual is a senior, in a couple, on a permanent contract, or works in the formal sector positively affects the worker's qualification. On the other hand, living in an urban area or being young negatively affects the worker's qualification regardless of their gender. Our results are similar to those in Table 5, thus justifying the stability of our estimates.

Table 7: Effects of social capital on worker qualification by age

Variables	Marginal Effect	
	Young	Seniors
Equation of worker qualification		
Social Capital	-1.654***	-1.296**
	(0.189)	(0.529)
Man	-0.122***	0.00205
	(0.0467)	(0.165)
Couple	0.0424	0.239***
	(0.0346)	(0.0773)
Primary	0.003	0.141
	(0.7622)	(0.1740)
Secondary	0.020**	0.249
	(0.0922)	(0.2300)
Higher	0.043	0.065***
	(0.1200)	(0.2399)
Urban	-0.236***	-0.102
	(0.0449)	(0.0650)
Logarithm of Houselod size	0.0941***	0.0885**
	(0.0316)	(0.0372)
Industrial Sector	0.942***	1.031***
	(0.124)	(0.106)
Commercial sector	0.124	0.145*
	(0.0843)	(0.0861)
Service sector	0.535***	0.782***
	(0.111)	(0.115)
Formal sector	0.240***	0.396***
	(0.0612)	(0.0707)
ITC	0.513***	0.797***
	(0.0705)	(0.0964)
FTC	0.226***	0.554***
	(0.0869)	(0.120)
Instrumental equation		
Average CSCI per Household	0.0660*	0.213***
	(0.0367)	(0.0420)
Population Density	1.707***	0.934***
	(0.134)	(0.116)
Athrho	0.648***	0.391**
	(0.111)	(0.188)

Lnsigma	-0.981***	-1.198***
	(0.00685)	(0.0101)
Wald Exogeneity Test (chi2)	34.12	4.30
Probability (P)	0.000	0.038
Observations	8,822	8,525

The standard deviations are in parentheses () ; *** p<0.01 ** p<0.05 * p<0.1

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

Just like in the previous tables, Table 7 shows that the instruments used are valid, all else being equal. Regarding the qualification equation, Table 7 shows a negative and statistically significant effect of the use of social capital on worker qualification in both the young sub-sample at the 1% level and the senior sub-sample at the 5% level. In other words, an increase of 1% and 5% in the stock of social capital respectively leads to a reduction of 1.64% and 1.29% in the probability of worker qualification respectively among the young and the seniors, all else being equal. It is noted, however, that this negative effect of capital on the qualification of workers is more pronounced among young workers than among senior workers. This result can be explained by the fact that, generally, senior workers have accumulated significant experience over time; which tends to dilute the negative effect of social capital compared to young workers who are most often in their first work experience and are more vulnerable to the perverse effects of social capital that prevail in the context. Moreover, as we demonstrated in Essay 1, compared to seniors, young people make more use of social capital because they are more exposed to unemployment and underemployment. This predisposes them to suffer relatively more from the negative effects of social capital on their qualifications than their senior counterparts.

Moreover, Table 7 shows that regardless of the young and senior sub-sample considered, working in the industrial, commercial, and service sectors improves the probability of qualification for employed individuals. Similarly, the formal sector increases the chances of qualification for workers by 24% in the male sub-sample and by 39.6% in the senior sub-sample. These results can be explained by the strong regulation of these sectors in terms of training and knowledge updating, which leads to the continuous updating and improvement of workers' skills. Thus, our results align with those of Shevchuk and Strebkov (2023) in the Russian context.

Table 8: Effects of social capital on worker qualification according to informality

Variables	**Marginal effect**	
	Formal sector	**Informal sector**

Equation of worker qualification		
Social Capital	2.801**	-1.744***
	(0.791)	(0.161)
Young peoples	0.145	-0.0184***
	(0.145)	(0.0601)
Seniors	0.182	-0.0536***
	(0.141)	(0.0790)
Man	0.110*	-0.0735
	(0.0615)	(0.0493)
Couple	0.150**	0.0721***
	(0.0666)	(0.0257)
Primary	0.067	0.069
	(0.2172)	(0.0522)
Secondary	0.315	0.030
	(0.2172)	(0.0651)
Higher	0.422*	0.013
	(0.2544)	(0.0942)
Urban	0.061	-0.0228***
	(0.0537)	(0.0358)
Logarithm of Houselod size	0.062	0.149
	(0.0412)	(0.273)
Industrial Sector	0.149**	0.924***
	(0.0187)	(0.0933)
Commercial sector	0.107	0.0942*
	(0.185)	(0.0547)
Service sector	0.356**	0.493***
	(0.0544)	(0.0783)
ITC	0.027**	0.595
	(0.0527)	(0.1770)
FTC	0.264	0.291
	(0.167)	(0.161)
Instrumentale Equation		
Average CSCI per Household	0.055**	0.063**
	(0.0207)	(0.0285)
Population Density	-0.082**	1.540***
	(0.127)	(0.107)
Athrho	-2.153	0.704***
	(1.530)	(0.101)
Lnsigma	-1.948***	-0.983***
	(0.0701)	(0.00513)
Wald Exogeneity Test (chi2)	46.50	48.65
Probability (P)	0.000	0.000
Observations	2,170	15,515

The standard deviations are in parentheses () ; *** p<0.01 ** p<0.05 * p<0.1

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

The estimates in Table 7 validate population density and average social capital per household as instruments. Regarding the effect of social capital on worker qualification, Table 7 shows a

negative and statistically significant effect at the 1% level in the informal sector, while this effect is positive and statistically significant at the 5% level in the formal sector, all else being equal. More specifically, the use of social capital deteriorates the worker's qualification by 1.74 percentage points in the informal sector, compared to an improvement of 2.8 percentage points in the formal sector in Cameroon. This result can be explained by at least two reasons: firstly, the difference in size between the two sectors. Indeed, the number of workers in the formal sector is less than 10% compared to the informal sector, which absorbs more than 80% of the workforce. This small size of the formal sector can allow workers in this sector to connect easily, thus creating high-quality social capital that can be mobilized to benefit from training programs for the improvement of their qualifications. On the other hand, the informal sector is characterized by mass social capital (quantitative), generally of poor quality, which can have a negative or neutral effect. Secondly, the formal sector is often more focused on the recognition of official qualifications, such as diplomas and certifications. In this context, social capital can play a positive role by helping workers obtain formal recognition of their qualifications. Professional networks can provide information on job requirements, necessary training, and skill development opportunities, which improves workers' qualifications. Regarding the other explanatory variables, Table 7 shows that, in the informal sector, being a young or senior worker or working in an urban environment significantly deteriorates their qualification by 1.8%, 5.8%, and 2.2% respectively, while this effect, although not significant, is positive in the formal sector. Furthermore, workers on permanent contracts in the formal sector benefit from better qualifications, with an improvement of 2.7% compared to their counterparts in the informal sector.

5. Conclusion

The objective of this article was to evaluate the effects of social capital on worker qualifications in the labor market in Cameroon. To successfully conduct this analysis, we first reviewed the approaches to measuring qualifications, then the determinants of qualifications, and finally the role of social capital. Thus, it follows the necessity to distinguish the triptych of job qualification, employment qualification, and worker qualification. Indeed, the qualification of work is related to the content of the work and the conditions under which it is performed, the qualification of the job refers to institutional aspects in terms of classification and job standards, and the qualification of the worker refers to the intrinsic skills of the individual. It is this latter

dimension that is the subject of study, on the one hand due to its contextual relevance through stylized facts and on the other hand due to the scarcity of related studies in our context. Although empirical studies on the subject are scarce, it should be noted that the theoretical literature has outlined factors that can explain the qualification of the worker. Thus, the factor highlighted in this study is social capital, whose positive effects are well defended by social capital theory through the analyses in terms of the strength of ties by Granovetter (1973) and by the social resources approach of Lin et al. (1981). To analyze the empirical link between social capital and worker qualification in the Cameroonian context, we employed a probit model with instrumental variables (IV) using data from the Fourth Cameroonian Household Survey conducted by NIS in 2014.

The main results suggest that social capital generally has a negative and statistically significant effect on the qualification of workers in the labor market in Cameroon. In other words, for an individual to use social capital reduces their chances of holding a job that matches their qualifications on the labor market in Cameroon by between 1.83 and 1.91 percentage points. Moreover, the level of education, being in a relationship, working in the formal sector, and being a man are positively associated with the worker's qualification. When considering the heterogeneity related to certain characteristics specific to workers and their work environment, it appears that the perverse effect of social capital on worker qualification is more pronounced among male workers, informal sector workers, and young workers compared to senior workers, female workers, and formal sector workers. These results suggest that public authorities should implement policies aimed at promoting the use of formal channels by job seekers, aligning training offers with the needs of companies or the market, and establishing mechanisms that encourage recruiters to seriously consider candidates' qualifications during the recruitment process. Future studies could explore the effect of social capital on other dimensions of qualification, particularly the work dimension and the employment dimension.

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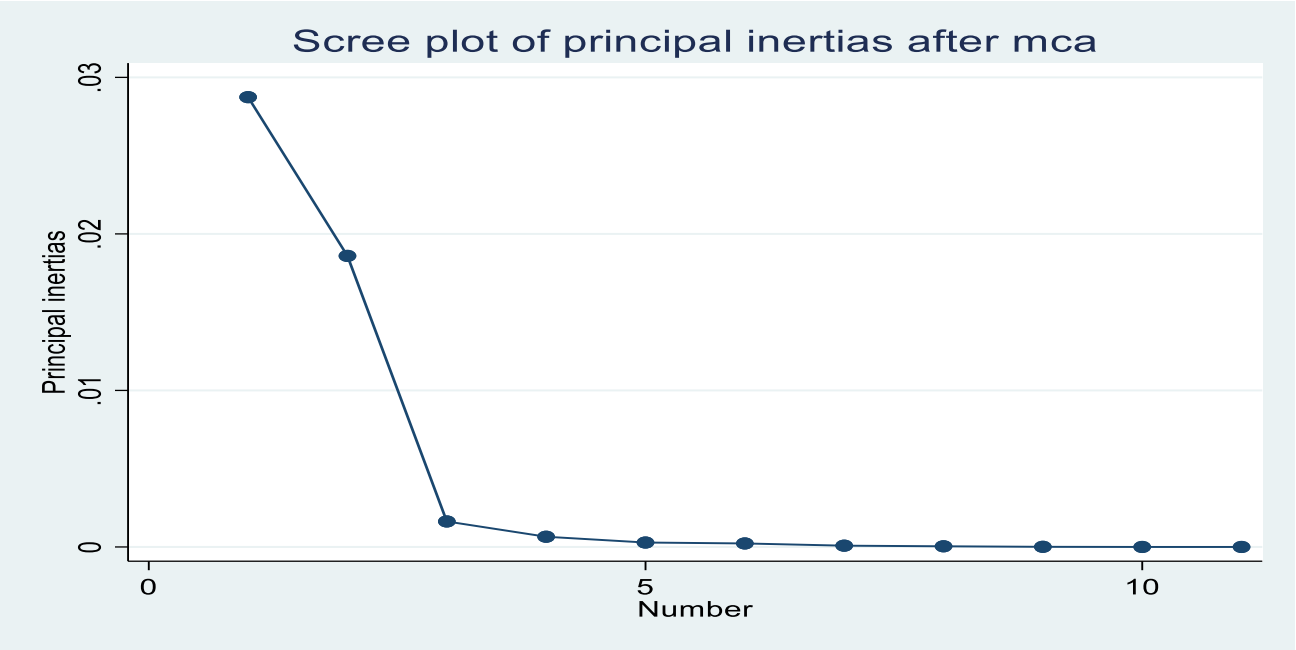
Appendix

Appendix 1 : Scree test of Cattell



Source: Author based on data from Fourth Cameroonian Household Survey (2014)

Appendix 2 : Axes and percentage of inertia

Unadjusted results (BURT)				Adjusted results (JCA)			Alpha of Cronbach
Axis	**Inertia principal**	**% Percent**	**% Cumul Percent**	**Inertia principal**	**% Percent**	**% Cumul Percent**	
dim 1	0.029	46.160	46.160	0.037	**49.920**	49.920	**0.89**
dim 2	0.019	29.870	76.040	0.030	**40.340**	90.260	**0.73**
dim 3	0.002	2.620	78.660	0.004	**5.010**	**95.270**	0.49
dim 4	0.001	1.050	79.710	-	-	100	
dim 5	0.000	0.460	80.170	-	-		
dim 6	0.000	0.360	80.530	-	-		
dim 7	0.000	0.130	80.660	-	-		
dim 8	0.000	0.070	80.730	-	-		
dim 9	0.000	0.020	80.750	-	-		
dim 10	0.000	0.000	80.750	-	-		
dim 11	0.000	0.000	80.750	-	-		
Total	0.062	80.750	100.000	0.075	95.270		

Source: Author based on data from Fourth Cameroonian Household Survey (2014)

Appendix 3 : Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Qualification	1																		
(2) Social capital	-0.199	1																	
(3) Man	0.150	-0.236	1																
(4) Young	0.062	0.036	0.012	1															
(5) Seniors	0.004	-0.228	-0.007	-0.610	1														
(6) Couple	0.052	-0.076	0.024	-0.136	0.285	1													
(7) Urban	0.234	-0.304	0.071	0.076	-0.008	-0.046	1												
(8) No schooling	-0.184	0.186	-0.129	-0.124	0.165	0.097	-0.228	1											
(9) Primary	-0.102	0.106	-0.031	-0.066	-0.034	-0.006	-0.137	-0.387	1										
(10) Secondary	0.119	-0.185	0.090	0.143	-0.097	-0.076	0.218	-0.368	-0.577	1									
(11) Higher	0.258	-0.147	0.092	0.053	-0.010	0.002	0.209	-0.136	-0.214	-0.203	1								
(12) Ln Household size	-0.087	0.262	-0.097	-0.066	-0.013	0.142	-0.119	0.055	0.052	-0.045	-0.103	1							
(13) Primary sector	-0.373	0.315	-0.108	-0.146	0.050	0.025	-0.578	0.227	0.145	-0.224	-0.212	0.128	1						
(14) Industrial sector	0.251	-0.083	0.082	0.078	-0.050	-0.027	0.168	-0.072	0.006	0.065	-0.020	-0.031	-0.377	1					
(15) Commercial sector	-0.093	-0.095	-0.016	0.034	-0.009	-0.010	0.226	-0.050	-0.014	0.071	-0.027	-0.032	-0.393	-0.188	1				
(16) Service sector	0.302	-0.214	0.070	0.074	-0.008	0.003	0.334	-0.159	-0.161	0.143	0.287	-0.096	-0.502	-0.240	-0.250	1			
(17) Formal	0.371	-0.190	0.116	-0.017	0.075	0.075	0.213	-0.158	-0.186	0.102	0.408	-0.093	-0.291	0.015	-0.088	0.400	1		
(18) ITC	0.356	-0.165	0.097	-0.026	0.078	0.079	0.198	-0.138	-0.168	0.099	0.350	-0.070	-0.245	-0.010	-0.093	0.372	0.614	1	
(19) FTC	0.135	-0.072	0.055	0.026	-0.001	0.015	0.078	-0.061	-0.072	0.048	0.141	-0.035	-0.117	0.045	-0.050	0.141	0.248	-0.049	1

Source: Author based on data from Fourth Cameroonian Household Survey (2014)