



Panel Data Analysis to Identify The Relationship Between Human Capital, Social Capital and the Possibility of Community Income Decline in Indonesia Big Cities

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Abstract

This study aims to empirically evaluate the importance of social capital on the likelihood of falling into poverty. The expanded survey employs user-based research, focusing on the household unit of analysis. The results of the analysis seem to confirm the hypothesis that social ties have the potential to reduce poverty. In this context, it is important to differentiate the impact of social capital in the context of survival and mobility. The results of this study tend to support a subsistence effect of social capital rather than a mobility effect. This shows that social capital itself is still not an effective enough instrument to reduce the risk of falling into poverty. However, realizing the positive role of social capital in promoting upward socio-economic mobility requires considering its interaction with family human capital, reinforcing the notion that social capital alone is insufficient to combat social segregation. In this context, coexistence, characterized by enormous diversity in the content and quality of social contacts, appears to play a role in the formation of social capital. Underlying social issues need to be considered. If this is a reality, it is important to establish policies aimed at restoring the construction processes between various social ties to achieve greater sociocultural diversity within each network formed. While different alternative strategies can achieve policy objectives, this research does not address the potential impact of combining educational and spatial integration policies to counteract educational segmentation and urban segregation.

Keywords: Social Capital, Poverty, Family, Human Capital, Panel Data.

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1. Introduction

The concept of social capital opens up broad horizons in its influence on the social and economic dynamics of society. In everyday life, social capital includes everything from networks of interaction between individuals and groups to the norms and values that regulate social behavior and interactions [1]. By having strong access to social capital, individuals can gain significant advantages in various aspects of life. Social capital significantly impacts the area of employment access. Through their social networks, a person can get information about job openings, strong references, or even direct support in the job search process [2]. A robust social network not only provides access to employment opportunities but also broadens the knowledge and skills essential for success in the workplace. Not only that, but social capital is also key to solving problems. When someone faces difficulties or challenges, social capital provides invaluable resources such as knowledge, skills, or practical help from network members. In difficult situations, a strong social network can be an effective bulwark, allowing individuals or groups to better overcome problems. Overall, social capital not only influences the economic aspects of society but also becomes a strong foundation for building and strengthening positive social relationships. By having strong social capital, individuals and groups can collaborate better, overcome challenges together, and create a more inclusive and empowering social environment [3].

In developing a concept of social capital based on the ability to benefit from social networks, it is important to explore the different types of social networks that exist, including strong ties and weak ties, and their impact on access to information, resources, and support. Studying differences in information access between individuals connected by strong and weak ties can also provide valuable insight into how these ties influence decision-making and social mobility [4]. Applying the principles of homophily and heterophily to career development or access to economic opportunities can help understand how these relationships influence individual opportunities. Additionally, analysis of the bridging role that weak ties play in increasing opportunities for social and economic mobility is also an interesting area to explore. The influence of technology and social media on the formation and

use of social networks is also an important thing to consider [5]. A review of the impact of technology and social media on access to information and support can provide a better understanding of how social networks influence the social and economic lives of individuals. By developing these concepts, we can deepen our understanding of how social networks influence an individual's ability to obtain benefits and access needed resources in various aspects of life [6].

This growing concern about social capital issues coincides with the emergence of several problems that particularly affect the region's economy. In this context, its consolidation as a new development paradigm coincided with a worsening of the living conditions of the population, reflected by, among other things, a general deterioration in the functioning of the labor market, an increase in poverty, and an increase in inequality. We can further explore several concepts in this context to gain a deeper understanding of the relationship between social capital issues and economic conditions [7]. Firstly, we can analyze social capital's impact on the regional economy to comprehend its role in mitigating poverty, enhancing access to economic opportunities, and diminishing socio-economic disparities. Second, case studies of the implementation of social capital in regional development can provide a real picture of the impact on the economic and social conditions of local communities. Furthermore, analysis of factors that influence the effectiveness of social capital in improving economic conditions, such as cultural, political, or local economic factors, can provide deeper insights. A comparison of the implementation of social capital in various regions experiencing similar economic problems is also important to see the differences in approaches and impacts that occur [8]. Lastly, the creation of social capital-based development models, tailored to regions facing similar economic challenges and considering local cultural and social contexts, could significantly enhance economic conditions. We hope to gain a deeper understanding of how social capital can improve the economic conditions of areas affected by socioeconomic problems by developing these concepts [9].

Social capital is not only an aspect of sustainability in society but is also key to understanding how society can survive and develop [10]. By strengthening social relationships and networks, social capital allows individuals and groups to access resources that are important for everyday life, including information, emotional support, and practical help [11]. In the context of poverty, social capital can be a powerful tool to empower poor and vulnerable communities by giving them access to resources that can help them escape the cycle of poverty. However, it is important to remember that social capital is not always enough to overcome poverty completely. We still face challenges like economic inequality and access to critical resources [12]. Therefore, there is a need for a holistic and integrated approach to designing sustainable economic policies. This approach must consider the role of social capital as an integral part of the solution, but it must also take into account other structural and economic policy factors that may influence poverty [13]. Continuous evaluation of the role of social capital is also very important in ensuring that the policies implemented are effective and relevant to community conditions. Thus, understanding the role of social capital in depth can provide valuable insights in formulating more effective and inclusive economic policies, which can ultimately help reduce poverty and advance overall societal development [14].

In this context, research examining the impact of social capital on poverty becomes increasingly important. Although economic research often emphasizes economic factors in explaining poverty, social capital has the potential to make a significant contribution to understanding and overcoming poverty [15]. This research highlights that social resources can act as informal insurance for the least protected sectors in society. The strength of social networks and solidarity among individuals demonstrates this, facilitating the exchange of information, assistance, and support during emergencies or economic crises [16]. Thus, social capital can increase people's resilience to poverty and strengthen their ability to face economic challenges. This research also highlights the importance of understanding that the influence of social capital is not always homogeneous among various social groups [17]. Factors such as social structure, access to resources, and the level of trust in social networks can influence the extent to which social capital can contribute to reducing poverty [18]. Therefore, this research seeks to offer a more profound understanding of the use of social capital as a tool to combat poverty, particularly during economic crises. Thus, this research not only enriches our understanding of the role of social capital in reducing poverty but also provides a strong basis for designing more effective and inclusive policies to overcome the economic challenges faced by society.

2. Research Methods

We use the expanded survey user base, along with the household analysis unit, to estimate the impact of social capital on poverty conditions. The choice of household as the unit of analysis was based on two main reasons. First, the definition of poverty considers the household as the unit of analysis, both in comparing individual family income indicators with the poverty line and in assessing the availability of certain goods or services for households in the area. Second, applying the concept of social capital at the household level is more appropriate than at the individual level. We do this because the age of the family head can impact the family's access to economic opportunities and social resources. We hope that by considering the unit of analysis and demographic

criteria, we can make estimates of the impact of social capital on poverty conditions more accurate and relevant to the socio-economic realities faced by households in the region.

3. Results and Discussion

The analysis reveals that 50% of households who have never used health services face some form of poverty, with only 5% not falling into this category. In the context of a transition situation, there are cases such as absolute poverty (30%) and absolute and relative poverty (20%). Sorting the data based on time waves shows interesting findings. There was a significant decrease in the non-poor category (20%), which indicates a significant increase in the proportion of absolute poor (5% to 20%) and absolute poor and disadvantaged (25% to 30%). Thus, these data reflect the significant impact of changes in the social and economic situation on household poverty levels in the region during this period. This analysis provides a clearer picture of the relationship between access to health services and poverty levels. The fact that the majority of households that have never used health services experience poverty highlights the importance of better access to health services as a strategy to reduce hardship. The decline in the non-poor category also shows that changes in social and economic situations can have a significant impact on household poverty conditions. We can formulate policies to increase access to health services and reduce poverty more effectively by better understanding these patterns.

The results of the analysis showing a high recurrence rate of poverty provide a quite complex picture of the challenges faced in overcoming poverty. Despite efforts to reduce poverty, the recurrence of poverty suggests the need for a more holistic and sustainable approach to address the root of the problem. Understanding the type of poverty households experience is also crucial. Noting that poverty can be relative, absolute, or even extreme, policies and programs must take these nuances into account. This emphasizes the need for an approach that not only looks at poverty alleviation directly but also pays attention to factors that can prevent poverty from recurring in the future. The importance of providing appropriate assistance to groups in need is also a key point in formulating effective policies. By understanding recurring patterns of poverty, policies can be more focused and targeted, thereby having a greater impact on reducing poverty and improving the welfare of society as a whole. In this context, further research and in-depth analysis of poverty recurrence patterns can provide valuable insights into formulating more effective and sustainable policies for overcoming poverty.

The results of the analysis show that there is a non-conditional relationship between social capital and poverty, where the average value of the three social capital indicators differs depending on the definition of poverty used. Regardless of the chosen definition of poverty, the averages of the weak tie indicators consistently show significant differences. This indicator shows a higher average for the non-poor group, so this difference is always positive. In the case of the strong ties indicator I, the differences are only significant in the extreme and relative poverty criteria, indicating a higher average in the poorer groups in the population. Meanwhile, for the strong ties II indicator, the mean difference is only significant in the case of relative poverty, indicating a higher mean for the poor strata. These results indicate that there is a significant relationship between social capital, especially in the form of weak ties, and poverty status. Weak ties tend to be more strongly associated with non-poor groups, while strong ties may have more complex relationships, depending on the type of poverty considered. These findings provide important insights into designing policies to reduce poverty by strengthening social capital in society. This shows that efforts to strengthen social networks and improve relationships between individuals in society can be an effective strategy for overcoming poverty, especially in the context of weak ties.

The estimation methodology faces several limitations in the context of the used panel data. The short temporal dimension of the panel, as well as the small number of households moving countries, impose serious limitations on the use of fixed effects estimation methods. This is due to the omission of a large number of households from the estimates when they do not change circumstances, which could result in biased estimates. In addition, the need to estimate a larger number of parameters, as well as the loss of degrees of freedom, can threaten the efficiency of the estimator. Therefore, in this context, a better approach is to model unobservable heterogeneity at the random effects level to minimize the bias that may arise in the estimates. Using a model with random effects is one possible approach. This method lets you model unobservable differences between people or between households as random effects. This way, you can account for how people respond differently to observed independent variables. By taking into account these random effects, estimates can be more accurate and efficient while still taking into account the limitations of existing panel data. Apart from that, using estimation techniques that are robust to assumptions about error distribution, such as estimation using the generalized method of moments, can also be a good choice. This technique can assist in resolving some of the limitations associated with estimation using panel data. By considering the limitations of these estimation methodologies and choosing appropriate approaches, analysis of the relationship between social capital and poverty in the context of panel data can provide more reliable and informative results.

It is important to consider the possibility of a simultaneous relationship between poverty and social capital, as well as potential correlations between social capital variables and other factors that may influence poverty. These two factors can create unobservable characteristics that influence the likelihood of poverty, which, if not taken

into account, can produce biased estimates. From a theoretical point of view, the use of methods such as instrumental variables can be the right solution. Exogenous variables known as instrumental variables exhibit a correlation with the endogenous variable, but not with the error term. The selection of appropriate instruments is an important step in overcoming the limitations encountered in applying this methodology, as poor instruments can introduce bias in the estimates. We can take several steps to overcome this problem. First, carefully identify instrumental variables that qualify as valid instruments, namely variables that have a strong correlation with endogenous variables but do not have a direct correlation with error variables. Second, carry out a validity test of the instrument to ensure that the selected instrument meets the requirements as a valid instrument. These steps are important to minimize the risk of biased estimates and produce more reliable results in the analysis of the relationship between social capital and poverty.

The research results provide insight into the combined significance of each model used. It is important to note that coefficient estimates for traditional variables may vary depending on the definition of poverty used and/or model specifications. In general, the variables show the expected signs. For example, in the context of absolute poverty, households headed by more educated and smaller bosses have a lower chance of being poor. On the other hand, households headed by women or single parents tend to have a higher risk of poverty. Boss age does not prove significant in the model, while regional and temporal control variables show that it can reduce the risk of poverty, although the risk increases. These results highlight the importance of considering various social and economic factors in formulating policies to reduce poverty. By understanding the complex relationship between household characteristics and their likelihood of experiencing poverty, governments and related organizations can design interventions that are more effective and appropriate to the needs of society's most vulnerable. Thus, this research not only provides valuable academic insights but also has strong practical implications for efforts to overcome poverty.

Including the influence of social ties yields some interesting results. Strong-ties indicators are almost always significant when comparing their relative importance, especially in the case of absolute, relative, and extreme poverty. On the other hand, weak ties only prove significant. It is important to note that, overall, in some cases, social ties exert a kind of threshold effect on poverty. In particular, the size of the social network has an impact that reduces the likelihood of poverty only in households with a high level of education. This suggests that the impact of social capital on poverty may depend greatly on the other family assets available. This interpretation shows the complexity of the relationship between social capital and poverty and that its impact may vary depending on the context and circumstances of the individual or family. These results highlight the importance of considering not only the existence of social ties but also their quality and context in understanding their impact on poverty. We can design policies to strengthen appropriate social capital for groups in need and account for other aspects of society's diversity and social complexity by understanding these more complex relationships.

The impact of the variables of interest, expressed in predicted probabilities, varies quantitatively depending on the analyzed definition of poverty. The results of the analysis show the number of years of education of the head of the household, based on three different situations. The first situation identifies the most vulnerable cases, such as female-headed, single-parent households. The second situation illustrates what happens if the gender of the head of the household is different, while the third group does the same for single-parent households. These results provide a more detailed picture of how certain factors, such as the gender of the household head and single-parent status, may influence the probability of poverty in different contexts. This analysis highlights the significance of education, revealing that the head of the household's number of years of education significantly influences the probability of poverty. Additionally, gender and single-parent status also influence the probability of poverty, indicating complexity in the factors influencing household poverty status. We can design policies to provide more effective support to groups vulnerable to poverty by understanding the impact of these variables in more detail.

The results of the analysis show that years of education have a significant influence on the prediction of the probability of poverty for various levels of social capital. For example, in households with low social capital, a higher level of education for the head of the household is associated with a lower probability of experiencing poverty. This also applies to households with medium and high social capital, although the impact may vary. In the context of the range of social capital, this analysis also shows differences in the probability of poverty between more vulnerable households and less vulnerable ones. For example, households headed by a woman or a single parent tend to have a higher probability of poverty than households that do not share these characteristics, regardless of education level. By considering various combinations of these factors, this analysis helps understand how the education level of the head of the household, along with other factors such as gender and single-parent status, interact to influence household poverty risk. This shows that a holistic and integrated approach is needed in designing policies to reduce poverty, which includes improving access and quality of education as well as attention to other factors that also play a role in influencing neediness.

The results of the analysis show that the positive effect of social ties on poverty tends to emerge only when households have reached a certain educational threshold, which is equivalent to completing secondary school.

Below this threshold, the impact of social ties on poverty tends to be insignificant. This indicates that there is an interaction between social capital and human resources, which can complement each other in influencing poverty conditions. This phenomenon can also illustrate that the interaction variables used in this analysis reflect the quality of social capital itself. In this context, the indicators used in this study make it possible to assess not only the size but also the quality of the social networks owned by households. Thus, understanding the impact of social capital on poverty not only takes into account the size of social networks but also how the quality of those networks can influence a household's probability of poverty. This provides important insights for developing policies aimed at strengthening social capital as a strategy to reduce poverty.

It is important to distinguish between the statistical and economic significance of social capital. Statistically, it allows us to strengthen the two hypotheses proposed at the beginning of the research social capital is relevant to explaining this poverty score. We can obtain this by assigning an average value to another continuous variable. For the variables of interest, use the estimated coefficient values. By definition, the probability of poverty conditional on a vector of explanatory variables equals the evaluated distribution function at each of these values. To find the smallest change in this probability that is caused by a change in the indicator of social ties, you need to find the distribution function in each of its arguments. This will give you a density function, which is always positive. Then, multiply this by an extra term that shows the difference between the estimated values of the coefficients for each level of social capital, which are always positive, and the coefficient of the interaction variable, which is always negative. In this case, it is important to note that the resulting marginal effect is a priori indeterminate because it depends on the difference between the two values. Additionally, it should be noted that the quantitative impact of this variable is, at best, marginal or second-order. These results may indicate that poverty conditions fundamentally depend on factors other than social capital, such as the socioeconomic characteristics of leaders, demographic factors, or regional conditions, among others.

4. Conclusion

The results of this study tend to support a subsistence effect of social capital rather than a mobility effect. This shows that social capital itself is still not an effective enough instrument to reduce the risk of falling into poverty. However, realizing the positive role of social capital in promoting upward socio-economic mobility requires considering its interaction with family human capital, reinforcing the notion that social capital alone is insufficient to combat social segregation. In this context, coexistence, with enormous diversity in the content and quality of social contacts, appears to be associated with the formation of social capital. Underlying social issues need to be considered. If this is a reality, it is important to establish policies aimed at restoring the construction processes between various social ties to achieve greater sociocultural diversity within each network formed. While different alternative strategies can achieve policy objectives, this research does not address the potential impact of combining educational and spatial integration policies to counteract educational segmentation and urban segregation.

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