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Social Institutions as a Form of Intangible Capital

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Abstract[1], [2]

In recent years there has been growing interest in including estimates of 'intangible' capital, such as knowledge, skills, and institutions, in national asset accounting. In accordance with these efforts, this paper attempts to provide the first worldwide evaluations of 'social' institutions, understood as the norms and networks that reduce transaction costs and enable collective action, as a proportion of national wealth. Using a new dataset that combines over 200 items from 25 sources, a composite of indices – measuring intergroup cohesion, gender equity, the strength of local community, the extent of crime and interpersonal trust, and levels of civic engagement – is formed and used to explain variance in the intangible capital residual, the proportion of national income that is left over after physical and natural capital have been accounted for. We show that social institutions are one of the main components of national wealth and a major productive asset for societies and their constituent communities around the world.

Keywords

Social institutions, intangible capital

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Social Institutions as a Form of Intangible Capital

1 Introduction

In recent years there has been growing interest in including estimates of 'intangible' capital, such as knowledge, skills, and institutions, in national asset accounting. Intangible capital encompasses human capital, which includes the sum of the knowledge, skills, and know-how possessed by population as well as the level of trust in a society and the quality of its formal and informal social institutions (World Bank, 2006). The majority of wealth in the world lays in the form of intangible capital- an amalgam including human and social capital, which reflects the quality of formal and informal institutions. Intangible wealth – human, institutional and social capital – contributes 59-80% of social welfare, and the relative contribution rises with income across all regions and income classes (Hamilton and Ruta, 2006). Rich countries are largely rich because of the skills of their populations and the quality of the institutions supporting economic activity. This is well reflected in the relationship between natural capital and income. The share of natural capital in total wealth tends to fall with income, while the share of intangible capital rises (World Bank, 2006). Thus, using a panel dataset with observations for 115 countries for the years 1995, 2000 and 2005, Ferreira and Hamilton (2010) show that the shares of produced, natural and intangible capital in production are 32%, 7% and 18% respectively. However, when the sample was limited to OECD countries, the only statistically significant factor of production was intangible capital, with a 50% share. The findings reinforce the fact that intangible factors, rather than produced or natural capital, are the principal sources of consumption growth in high-income countries. Labor productivity, which is comparatively high in the western developed countries, can be attributed to higher intangible capital. Investment on intangible capital has shown to have a positive impact on labor productivity. Using international comparable data on intangible capital investment by business within a panel analysis from 1995-2005 in EU-15 country, Roth and Thum (2010), show a positive and significant relationship between intangible capital investment by business and labor productivity growth.

As well as having a major impact upon labor productivity and rates of economic growth, intangible capital has an important role in reducing levels of absolute and relative poverty. Minh Quang Dao (2008) shows that the fraction of the population below the poverty line is linearly dependent upon a range of human capital variables, including the gender parity ratio in primary and secondary schools, and the maternal mortality rate. Using another sample of 35 developing countries, he also finds that income inequality linearly depends on the same explanatory variables plus the infant mortality rate and the primary school completion rate, which suggests that both relative as well as absolute poverty depend upon human capital accumulation. Specific country and regional studies have suggested similar conclusions, for example in Nigeria (Okunmadewa 2005), Pakistan (Kurosaki and Khan, 2001), the Philippines

(Asian Development Bank, 2005), or Ghana (Rolleston, 2009). Further studies have also shown that not only human capital, but also other aspects of social norms and behavior, commonly referred to as 'social' or 'cultural' capital, are critical in explaining why certain groups are able to exit poverty more rapidly than others. Narayan and Pritchett (1997) report findings from a study of 6,000 people living in 87 villages in Tanzania, showing that a one standard deviation increase in village-level social capital predicts a 20 to 30 percent increase in expenditure per person, for each household in the village. In a follow-up publication, Narayan and Pritchett (1999) explain this statistical relationship by arguing that higher group membership rates imply more enjoyment of public services, the use of more advanced agricultural practices, joining in communal activities, and participation in credit programs. Other scholars have suggested further mechanisms linking social institutions and poverty reduction, including norms of gender equity (Van Staveren, 2003) tolerance and trust (Knack and Keefer 1997, Tabellini 2010), or attitudes to work and saving (Inglehart 1997).

2 Theoretical Overview

Intangible capital is the difference between total wealth and the sum of produced and natural capital and is calculated as a residual. Solow's residual and Tobin's Q are the most famous examples used. Solow's Residual measures the actual productivity which cannot be attributed to labor or capital accumulation and has to be attributed to technology. Tobin's Q is the ratio of the market value of a company versus the recorded asset value with the difference attributed to intangibles. The intangible capital residual includes all assets that are neither natural nor produced, and includes both human and social capital that are not accounted in wealth estimates. In other words, it consists of all forms of capital not immediately manifested in tangible matter (Webster and Jensen, 2006). Webster and Jensen argue that, since the stock of available tangible matter is fixed, the sole source of productivity growth and the only way to enhance the (material) quality of life must be through the growth and deployment of intangible capital in the production process. According to Cummins (2004), although intangible capital is not a distinct factor as is physical capital or labor, it is the "glue," that creates value from other factor inputs. Goldfinger (1997) acknowledges the role of intangible assets in wealth creation and argues that, the creation and manipulation of the intangible assets to be the source of economic value and wealth rather than the production of material goods. As the sustainable competitive advantage of a nation is to a large extent dependent on the possession of relevant capability differentials, having a larger stock of capability differentials in the form of intangible capital - better human resources and social institutions - could in part help answer the question as to why some countries have more sustained economic growth and development, whereas others do not.

2.1 The Valuation of Intangible Capital

We distinguish between two kinds of intangibles that contribute to the residual: human capital and social institutions, or social capital. For the purpose of this study, we define human capital as the knowledge, skills, and attributes possessed by individuals that contribute to personal and societal well-being, and social capital as the informal institutions which reduce transaction costs and facilitate collective action. Although human capital has often been defined and measured with reference to educational attainment, it is a broader concept that includes attributes that reflect how various non-cognitive skills and attributes contribute to the greater well-being under different socioeconomic and cultural conditions. Meanwhile, social capital has variously defined as general social trust (Fukuyama 1995), networks of civic engagement (Putnam 1993), non-discrimination, rule of law (Knack and Keefer, 1997), or communal cooperation (Ostrom 2000).

Human capital has been most extensively studied in the form of education (Cohen and Soto, 2007; World Bank, 1999; World Bank, 2000, Psacharopoulos and Patrinos, 2004; Kimenyi et. al. 2006; Wigley and Akkoyunlu-Wigley, 2006; Vinod and Kaushik, 2007). An investment in improving the skills and knowledge of the labor force determines the stock of human capital and returns to investment in education. Psacharopoulos and Patrinos (2004) empirically demonstrate the positive returns of investment in education. They show that the average rate of return to an additional year of schooling is 10 percent and that education produces the highest returns in low and middle-income countries. Using time series and panel regressions for data on a group of eighteen large developing countries, Vinod and Kaushik (2007), empirically demonstrate that human capital has a statistically significant impact on economic growth. They cite India as an example where knowledge-based industries, notably computer software, telecommunications, pharmaceuticals, chemicals, and biotechnology have emerged as a result of sustained investment in institutes of higher education. Finally, Anderson and Keys (2007) demonstrate that if introduced at a young age education does contribute to future earning capacity (Anderson and Keys 2007), while other studies show that education also plays role in economic growth (Vinod and Kausik, 2007), and promoting social cohesion by reducing ethnic tensions (Gradstein and Justman, 2000).

Following Barro and Lee (2000), we measure human capital using the average number of years of schooling. This follows an established precedent whereby years of schooling has been used as a measure of educational achievement (Cohen and Soto, 2001; World Bank, 1999; World Bank, 2000, Scarpetta and Visco, 2000; Psacharopoulos and Patrinos, 2004; Kimenyi, 2006; Wigley and Akkoyunlu-Wigley, 2006; Mamuneas et. al. 2006; Vinod and Kaushik, 2007).

Following Woolcock and Narayan, we define social capital as the norms and networks that enable collective action (Woolcock and Narayan,

2000). A range of studies have examined the contribution of social institutions to economic outcomes. Based on their study of Tsimane', a native Amazonian society of foragers and farmers in Bolivia, Godoy et. al. (2007) report that social capital is positively and significantly associated with private investments in social capital, even after controlling for individual-level variables from an optimal investment model, spillovers from group social capital, village income inequality, and market openness. They also found that village income inequality and market openness were negatively associated with private investments in social capital. Similar results have been reported by Narayan and Pritchett (2002), who show that community level social capital has high and significant effects upon per capita income, based upon their sample of 87 villages in Tanzania.

Multi-regional and cross-country studies have replicated the results cited based on household and village surveys. Using a sample of 20 regions in Italy, Helliwell and Putnam (1995) demonstrate that social capital has strong and significant relationship with economic growth, reconfirming earlier findings by Putnam, Leonardi and Nanetti (1993). Knack and Keefer (1997) have expanded the study of social institutions and growth to a cross-country sample, using data from 29 nations empirically demonstrate the role of generalized trust and strength of civic norms on average annual growth in per capita income from 1980 to 1992, with the finding that countries with a higher starting level of 'social trust' saw greater subsequent economic expansion. Similar studies have been conducted in the growing literature on the institutional determinants of growth; Easterly and Levine (1997), for example, use a sample of 96 nations to demonstrate that low level of social capital resulting from ethno-linguistic fractionalization impacts average annual growth in per capita, both directly and indirectly.

3 The Data and Model Estimates

In our study, we have chosen human capital and social capital as intangibles because the two-part taxonomy suits our empirical model and data. As human capital has been most widely analyzed in the economics literature among the components of intangible capital, it is also included in our study to see what percentage of the variation in the IC residual is explained by human capital (in form of number of years of schooling). Although the human capital variable does not take into account the quality of education of those trained, it is highly unlikely to bias the coefficients, given the high correlation between this measure and direct assessments of educational outcomes (Mamuneas et. al. 2006; Vinod and Kaushik 2007). Following the precedent of World Bank (2006), in our study, immigrants settled abroad are considered as a special form of human capital. As emigrant workers send money to their families in the form of remittances, they are a part of total national wealth even though they are not physically present in the country. We include remittances in our model because the workers that choose to immigrate to foreign shores in order to find better employment opportunities do send money back to the country of their origin

to support their families and in some cases own businesses. The variable ***WORKREM*** in the model is the percentage of migrant remittances ad compensation of employees working abroad as a share of GDP, which includes all the legal economic flows generated by migrants to their country of origin. The role of remittances in influencing development through increase in the investment level in the source country has been widely acknowledged (Taylor, 1999; Nyberg-Sørenson et al. 2002; León-Ledesma and Piracha, 2004; Tewolde, 2005). Emigrants have been known to raise incomes of their families at home significantly through remittances (Grubel and Scott, 1966).

Despite the enormous interest in immigrant remittances on economic development and income growth in the emigrants' country of origin, empirical investigations have been limited by the availability of good quality data. It is extremely difficult to gather accurate data on remittances because many remittances are not channeled through the proper payment system and hence do not appear in the official statistics on remittances (Chami et. al. 2005). Due to the unavailability of good quality data for cross-country comparisons, most study on effects of remittances has been limited to the particular immigrant group. As data collected to study the impact of remittances are gathered from various sources, conflicting results are reported, which has made extremely difficult to draw general inference. For the purpose this study, we use a series of aggregate data on remittances and years of schooling from the World Bank's World Development Indicators (WDI) database.

3.1 Social Institutions

The major innovation of our analysis is to include a composite index of social institutions in our decomposition of the intangible capital residual. This measure of the 'stock' of social capital is an index compiled from five sub-indices, each measuring an aspect of social institutional quality. The source of these measures is the Indices of Social Development project hosted at the Institute for Social Studies (ISS), which combines 200 items from some 25 sources into five estimates of how social institutions vary across countries (Foa, 2011, Foa and Tanner, 2011). The project adopts a working definition of social institutions as the informal norms and conventions that pattern human interaction (North, 1991), and among the universe of all social institutions, those constitute *social capital* which serve to reduce transaction costs and enable collective action.

Reflecting the definitions of social institutions and social capital, the 200 items are siloed into five subareas where social norms serve to reduce transaction costs and facilitate collective action: crime and social trust, intergroup cohesion, gender equity, civic engagement, and strength of local community. The first area, gender equity, specifically estimates the level of discrimination against women. Included in this subindex are data on gender

health, educational, and wage disparities, as well as data on the norms of discrimination that sustain these over time, such as the proportion of managers who believe men have more right to a job than women, or the proportion of parents who believe that boys should be prioritised in access to education. The second area, inter-group cohesion, reflects the extent of social conflict among ethnic, religious, or other social identity groups. It is measured by data such as ratings on the level of ethnic and religious tensions as well as the number of riots, assassinations, and acts of terrorism. The third area is crime and personal trust. Included in this subindex are data on citizens' trust in their society, neighbors, and community, data on crime victimization, and data on homicide and other acts of interpersonal aggression. The fourth area, strength of community, and measures the level of engagement in local associations and networks. Strength of community is measured using data on levels of engagement in local voluntary associations, time spent socializing in community groups, and membership of developmental organizations. Finally, the fifth area is the level of civic engagement, which measures the extent to which social practices encourage more active and critical engagement with political authorities. The strength of civil society is measured using survey data on participation in civic activities such as petitions or marches, access to media through newspaper and radio, and the density of international civil society organizations.

Why do these measures of social institutions act a form of 'capital'? They do so, because they facilitate the exchange of goods and information through their effect in reducing transaction costs. Norms of inclusion and non-discrimination, for example, serve to reduce the distortions in the labor market that are introduced by arbitrary exclusion of ethnic or other minorities. Likewise, norms of gender equity also enhance allocative efficiency, allowing women to translate human and economic capital into returns in the workplace. Crime and low social trust impose additional monitoring and enforcement costs in economic life, potentially inhibiting exchanges that might otherwise have occurred, while the presence of systemic intergroup violence, even below the level of open civil conflict, can have a similar effect. Finally, the norms that enable collective action, whether in the local community or in the nation as a whole, facilitate public goods provision, the exchange of information among individuals and between citizens and the public service providers. The general effect of social capital is therefore to reduce transaction costs, whether between transacting parties in the private sector, or between public service providers and citizens.

For the purposes of empirical testing, the five subindices are combined into a single variable reflective of the 'stock' of social capital in that society. This is done by summing the standardized score for each subindex, weighted by the average correlation between that subindex and the others (pairwise correlations used in the weighting schema are shown in Table 1.0). The full five subindices were available for 85 countries, yielding an initial 85 scores, and to ensure the efficient use of information, we also impute social capital scores for an additional 74 countries for which between 3 and 5 subindices were

available. This yields a total of 159 country observations for the composite social capital variable.

TABLE 1.0
Correlation Between Sub-Indices Used in the Social Capital Index

	Civic Activism	Interpersonal Safety and Trust	Intergroup Cohesion	Clubs and Associations	Gender Equity
Civic Activism	1				
Interpersonal Safety and Trust	0.5836	1			
Intergroup Cohesion	0.590	0.4154	1		
Clubs and Associations	0.0915	-0.067	-0.1029	1	
Gender Equity	0.5755	0.2397	0.5638	-.1438	1

The model basically represents the residual as a function of human capital within the nation and abroad and social capital expressed as institutional quality. The per capita years of schooling of the working population is to capture domestic human capital and remittances by those outside the country.

We use Cobb-Douglas function:

$$R = AS^{a}_{S} F^{a}_{F} P^{a}_{I}$$

R = Intangible residual
A = Constant
S = Years of Schooling per worker
F = Remittances from Abroad
P = Social Capital
α_s = Elasticity of the residual

4 Empirical Results

The result of the regression analysis shown in Table 2 reveals that our independent variables explain 88 percent variation in the residual. The result indicates goodness of fit of the model evaluated by means of the adjusted r^2 (0.88).The coefficients for all three independent variables are positive and different from zero at the 95% confidence interval. The coefficient of ***school years*** suggests that a 1 percent increase in school years will increase the intangible capital by 0.47 percent. Whereas 1 percent increase in remittance from abroad will increase intangible capital by 0.14 percent. Out of three variables selected, social capital however shows the most significant association with the intangible capital residual. The estimation shows that a 1 percent increase in the stock of social capital results in a 1.10 percent increase in intangible capital. However, coefficients lower than one indicates decreasing marginal returns. The negative dummy coefficients support the general assumption that low-income, middle-income, and upper-middle income countries possess lower levels of intangible residual capital.

TABLE 2.0
Elasticities of IC with Schooling, Remittances and Social Capital

LIC	-2.346
	(0.445)***
LMI	-1.69
	(0.342)***
UMI	-1.316
	(0.315)***
log social capital	16.182
	(6.056)**
log schooling	0.470
	(0.215)*
log remittances	0.139
	(0.048)**
constant	-22.468
	(12.434)
N	74
adj. r^2	0.88

	Marginal Returns to Schooling	**Marginal Returns to Social Capital**	**Marginal Returns to Remittances**
Low Income countries	903	127	17
Lower Middle Income countries	1,723	412	15
Upper Middle Income countries	2,537	547	84
High Income OECD	15,805	3,274	153

4.1 Country Case Studies

Country examples can increase our intuitive understanding of the decomposition of intangible wealth. In this section, we illustrate the relative contributions of human capital, social capital, and remittances to national wealth by comparing three landlocked, low-income countries in Sub-Saharan Africa: Mali, Rwanda, and Lesotho. While all three share important characteristics and have substantial intangible capital residuals, these residuals can be explained by the different relative endowments of the three countries. This can be seen from table 3.0, which decomposes the intangible capital residual for each of the three cases.

FIGURE 1
Decomposition of Intangible Capital

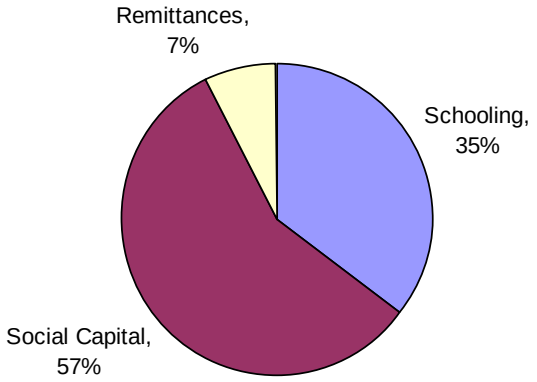

TABLE 3.0

Country	Income per capita ($)	Intangible residual (% GNI)	Shares of residual (%)			Levels		
			schooling	social capital	Remittances	Schooling (yrs)	social capital	remittances ($ per capita)
Rwanda	226	54%	54	45	1	3	15	2
Mali	208	47%	13	82	5	1	40	18
Lesotho	480	76%	25	33	42	4	40	393

Mali, a landlocked Sahelian country in West Africa, is the poorest among the three countries with a per capita income of just $208. Nonetheless, the country has an intangible capital residual that accounts for about half of per capita wealth. Of this, over four-fifths (82%) rests in the country's stock of social capital, and one-eighth (13%) in the country's human capital. From among the six social development subindices, Mali scores strongly on local community and on intergroup cohesion, and has a strong civil society relative to other countries of a similar economic level. Intergroup cohesion has helped avert the kind of civil conflict experienced by neighboring states such as Niger or Cote d'Ivoire, while civic engagement has since 1991 supported a successful process of democratization. Stability and openness may in part explain the country's strong 5% annual rate of growth since 1994. The estimates here suggest that growth might be yet stronger still, were there a higher degree of human capital; at present, the average citizen experiences just one year of schooling.

Rwanda, a small landlocked country in central Africa, has a similar GDP per capita to Mali, estimated at $226. Yet the country has a very different distribution between social and human capital. Social capital accounts for only 45% of the residual, while schooling account for 54%. A country with a historically centralized but very effective state, Rwanda's human capital is result of a comprehensive system of primary education that has raised average years of schooling to 3 years per capita – about treble the level found in Mali. Yet Rwanda has a very low stock of social capital. On the index used in this paper, Rwanda has a score of just 15, compared to 40 in Mali. 17 years after a genocide that killed 15 per cent of the country's population, Rwanda remains a country plagued by low social trust, disputes over justice and land rights, and disengagement from civil society (Human Rights Watch, 2007). The primary medium-term growth risk in Rwanda remains political instability from ethnic insurgency. Efforts to enhance national unity, equitable growth, and justice and reconciliation will remain central in bolstering the country's long-run growth prospects.

Lesotho - also a small, landlocked country in Sub-Saharan Africa – is by far the richest of the three countries, with a per capita GDP of $480 in

2000. However, as our decomposition of the intangible capital residual shows, this is not due to higher levels of social or human capital. Levels of average schooling, at 4 years per capita, are similar to Rwanda, while the stock of social capital is comparable to Mali. By contrast, the country's relatively greater wealth is entirely a product of the large inflow of remittances from abroad: the average Mosotho receives $393 per capita a year in remittances, primarily from Basotho working as miners in neighboring South Africa. Consequently, remittances account for 42% of Lesotho's stock of intangible capital, compared to less than 5 per cent in Mali or Rwanda.

These findings suggest very different possibilities for raising the stock of intangible capital in developing countries that face geographical restraints. Mali has clearly achieved nascent growth through its stock of social capital. Ethnic cohesion, civic engagement, and community development have in turn ensured political stability, accountability, and the better management of collective resources, and these factors have sustained productivity increases in agriculture, fishing, and mining over the course of the last decade. The example suggests that a similar level of cohesion in a country such as Rwanda would yield a large marginal gain, by creating the expectations of stability and transparency that enable sustained (physical) capital accumulation. On the other hand, Rwanda, unlike Mali, has attained a level of state organization that is unusual for a low-income country, and this has enabled sustained investment in primary education and skills. Provided the country can maintain its current political stability, this stock of human capital will constitute a vital resource that can be leveraged to support growth through technology transfer and improved quality in management and administration. Finally, Lesotho has achieved important secondary growth by relying on an migrant labor force that brings substantial remittances home every year to their dependents within the country. The key challenge for such a country is to channel this inflow into expenditures that will support long-run sustainable growth within the country; this in turn will in no small degree this will involve solving domestic political and social conflicts which inhibit inward investment and domestic job creation. The outbreak of violence after disputed elections in 1998, for example, led to widespread destruction and disinvestment, and in part this instability is the consequence of a weak civil society, which if stronger would help build political consensus, reduce elite capture, and foster transparency. The social development indices give a very low civil society score for Lesotho, and strengthening the conduits between citizens and the state would help approximate the peaceful political transition seen in a country such as Mali.

5 Conclusion

This paper represents an addition to the relatively sparse literature on intangible capital. We argue that cross-country differences in intangible capital stock may be explained by differences in human and social capital. The evidence provided by this study helps policymakers by showing that intangible

capital is among the fundamental determinants of the developmental status of countries, and consequent success in poverty reduction. The major hurdle that developing nations face today is their lower stock of intangible capital and the inability to convert human and social capital into revenue, cost savings and other forms of tangible benefits.

The intangible residual obtained from the wealth estimates has provided researchers with an opportunity to carry out cross-country valuation of human and social capital. In our study, by decomposing the intangible wealth residual, we have tried to highlight the importance of social capital, remittances, and years of schooling. Developing countries with lower stock of human and social capital can produce high levels of out put per worker in the long run and work to reduce poverty by investing in education and improvement of institutional quality.

As a result of our analysis, we find that among the most important aspects of intangible wealth is social capital – the norms and networks that reduce transaction costs and enable collective action. Social trust, non-discrimination, cohesion across social and ethnic groups, and engagement in civic and community associations are all important dimensions of this stock, and together account for 57% of the world's intangible capital. By serving to reduce transaction costs, these institutions facilitate processes of production, exchange, and the provision of public goods. Social trust, for example, ensures the maintenance of informal, non-legally binding agreements; non-discrimination enables individuals to enter into contracts of work or exchange with those of differing backgrounds or beliefs; and intergroup cohesion ensures the continuity of institutions and therefore the expectations upon which investment and negotiation decisions are made. We are a long way from a complete knowledge of the policies that serve to build up or deplete social capital stocks over time, yet by recognizing the place of social capital in contributing to societal wealth, we can make an important contribution towards showing how long-term social effects can be factored into cost-benefit analyses of programs and projects.

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