

Human Capabilities and Instrumental Freedoms Relationship: An Empirical Investigation

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ABSTRACT

Keywords: Capability approach, Instrumental freedoms, Human development, Partial least squares approach.

Purpose of the study: In *Development as freedom*, Amartya Sen confirmed the crucial "instrumental" role of five kinds of freedoms in the promotion of capabilities and therefore in the process of human development in general. These are political freedoms, economic facilities, transparency guarantees, social opportunities, and protective security. This paper has three empirical objectives: 1) to measure the effect of instrumental freedoms on capabilities, 2) to verify if this effect becomes stronger once instrumental freedoms are interconnected, and 3) to verify whether this relationship is moderated by the level of economic development achieved by each country.

Methodology: To achieve these three objectives, this article confronts the second-order construct of "instrumental freedoms" (as an exogenous variable) with five first-order constructs (as endogenous variables). The five endogenous latent variables reflect the capabilities of health, education, housing, employment, and communication and mobility at the level of the sixty countries selected as the analysis samples. The estimation of the hierarchical structural model is done using the partial least squares approach and the repeated indicator method.

Main Findings: This study highlights three major results: 1) The existence of a significant effect of instrumental freedoms on the five relevant capabilities selected. 2) When instrumental freedoms interconnect, they reinforce each other and their effect on human capabilities becomes stronger. 3) The multi-group analysis suggests that instrumental freedoms positively and significantly impact human capabilities in the same way in both developed and developing countries.

Research implications: Freedom plays a "constitutive" and "instrumental" role in the development process. To provide people with the freedom to live according to their aspirations, public policies must be empowering. In other words, they should improve the instrumental perspective of at least three essential freedoms: political freedoms, economic facilities and transparency guarantees.

Novelty/Originality of this study: Apart from the works which attempted to operationalize Amartya Sen's capability approach, the relationship between instrumental freedoms and human capabilities has not been the subject of empirical studies. This paper is intended as a contribution to this field of investigation.

1. INTRODUCTION

Development would be better achieved when individuals enjoy more freedoms (Sen, 2009). When these freedoms interconnect, they reinforce each other and become the driving force of human development (Sen, 1999b). This is the thesis defended on many occasions by Amartya Sen. He argues that the interconnection between political freedoms, economic facilities, social opportunities, guarantees of transparency and guarantees of protective security directly promotes human capabilities (Sen, 1999b). He evokes examples of Asian countries like Japan, where the interconnection of instrumental freedoms, as mentioned above, creates a timely framework for development. This logic drives the Indian economist to question the matter even if a country has no chance to improve the well-being of its population, if it is not rich, or if it does not record an important economic growth rate. In particular, he considers that it is more appropriate to perceive poverty as a deficit of minimum essential human capabilities and that the inequitable distribution of these real freedoms is the source of inter and / or intranational inequalities in human development (Aguenane, 2020). This article is, humbly, an empirical verification of these theoretical statements. Amartya Sen, through his capability approach, insisted on the importance of an ethical reflection for the economic analysis (Aguenane, 2019c). It is part of an economic model of development based on freedom and ethics (Sen, 2009). Thus, for Sen, the development of the social states of the members of a community must be evaluated in a way that exceeds the primary goods, utility or other resources (Sen, 1992). Other aspects that need to be considered in this assessment as highlighted by Sen (1999a) include:

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- **Functioning:** It “is an achievement of a person: what he or she manages to do or to be. It reflects, as it were, a part of the ‘state’ of that person” (Sen, 1992) (for example, having a decent income, living as long as possible in good health, having a good level of education, etc.). Having such information about individuals makes it possible to assess the level of well-being that they have achieved (Aguenane, 2019b).
- **Capability:** It “is thus a kind of freedom: the substantive freedom to achieve alternative functioning combinations (or, less formally put, the freedom to achieve various lifestyles) (Sen, 1999). The capability is, therefore, a set of functioning vectors, which indicates that an individual is free to lead the life project that he values (Ayalew, 2019)

The perspective of functionings and capabilities considers freedom as a goal and also as a means of human development. The utilitarian system based on the monetary standard neglects this central place of freedom in the development process (Aguenane, 2019a). In his book *Development as Freedom*, Amartya Sen distinguishes five instrumental freedoms that, he claims, contribute to the general capability of a person. They are:

- **Political freedoms:** These contain civil rights (to elect, control and criticize those who govern; to express themselves freely; to join a party among several political parties, etc.) and political rights (democratic dialogue, the right to opposition, the right of selection of legislative institutions, etc.).
- **Economic facilities:** These refer to the various opportunities offered to the population to appropriate economic resources (Alkir, 2010) (access to financing, investment, consumption, and exchange). If so, the wealth of the nation would translate into the wealth of individuals.
- **Transparency guarantees:** For Sen, the guarantees of transparency “play a decisive instrumental role” which protects the society from all illicit practices such as corruption and abuse of power and creates a climate of trust and clarity.
- **Social opportunities:** These are the opportunities people have to benefit from basic services such as education, health, and housing. They promote the “social effectiveness” of individuals and social cohesion by eliminating the sources of social exclusion (illiteracy, avoidable morbidity, or premature mortality).
- **Protective security:** This includes institutional arrangements for the poor such as unemployment benefits and other exceptional social protections for good intervention in case of crises, disasters and the spread of deadly epidemics and viruses.

2. METHODOLOGY

1.1. Operationalization of hierarchical structural model variables

1.1.1. Endogenous latent variables: capabilities as dimensions of human development

Selecting capabilities or functionings is not an end in itself. It must be done based on a set of criteria (Robeyns, 2005; Alkire, 2013) to find a compromise between the theoretical ambitions and the empirical constraints (Sen, 1992). The model combines five fundamental dimensions of human development namely health, education, shelter, employment, and mobility and communication. These capabilities are latent, unobservable, and endogenous in our model. However, functionings, which are the achievements in each dimension, are observable and directly measurable through statistical indicators. Only one indicator can be used, but it is more appropriate to use a set of available indicators to measure the performance achieved in each dimension (Krishnakumar, 2007; Bhatti & Akram, 2020; Choudhury, 2019)

Thus, in the field of education, three indicators are proposed: the gross enrollment ratio (*Enrolment*), the adult literacy rate (*Literacy*) and the average years of total schooling (*Schooling*). Three indicators are also selected in the field of health: healthy life expectancy at birth (*Expectancy*), survival to age 65 (*Survival*) and disability-adjusted life expectancy (*Disability*). The level of achievement in the employment field is assessed by three indicators: the employment-to-population ratio (*Employment*), the labor force participation rate (*Laborforce*) and the female labor force (*Femalabor*). In the field of housing, two indicators are selected: access to electricity (*Electricity*) and access to an improved water source (*Water*). Finally, in the field of mobility and communication, three indicators are selected: the number of fixed telephone subscriptions (*Telephone*), the number of internet users (*Internet*) and the average pump price for gasoline (*Gasoline*).

It can be said, thus, that the latent variables associated with these dimensions reflect the national level attained in each of the dimensions of human development. To have an overall view of the level of development, the model introduces a second-order construct formed from the five selected dimensions and named “generic capability” (Figure 1).

1.1.2. Exogenous latent variables: instrumental freedoms

Three of the five instrumental freedoms mentioned above are retained in the model: political freedoms, economic facilities, and transparency guarantees. To measure the “political freedoms” latent variable, four statistical indicators are proposed: the plurality and quality of the electoral process (*Plurality*), the level of political participation (*Participation*), democratic culture (*Democulture*) and civil liberties (*Civiliberties*). To assess the “economic facilities” construct, the indicators of economic freedom are suggested: the degree of freedom of trade (*Trade*), the degree of financial freedom (*Finance*), the degree of monetary freedom (*Currency*), and the degree of freedom to invest (*Investment*). To assess the “transparency guarantees”

construct, the following governance indicators are selected: the control of corruption (*Corruption*), the authority of the law (*Law authority*), the quality of regulation (*Regulation*), and government effectiveness (*Effectiveness*). The combination of the three categories of freedoms constitutes the exogenous second-order variable namely “instrumental freedoms” (Figure 1).

1.2. Estimation method

The framework taken in this paper is based on the structural equation models (SEM). For estimating the model, the partial least squares (PLS) approach is used. This choice is explained by several reasons: its statistical flexibility that does not require strict statistical conditions on model variables, its compatibility with small samples (Lacroux, 2009), its adaptability with often imperfect and overly correlated data (Sosik, Kahai & Piovoso, 2009; Jakobowicz, 2007), and its ability to calculate scores of latent variables to predict their levels and to evaluate structural relationships between them.

According to Chin (1998) and Law et al. (1998) (as quoted in Becker, Klein & Wetzels, 2012), hierarchical latent models or higher-order constructs are an explicit representation of multidimensional concepts with a high level of abstraction. However, the classical problem that arises for the estimation of hierarchical models is that the items necessary for the estimation of the constructs of higher levels no longer exist since they have already been used to estimate the first-order constructs. To overcome this limit, three solutions have been proposed, according to Becker, Klein and Wetzels (2012) namely: (1) the repeated indicator approach, (2) the two-step approach, and (3) the hybrid approach.

Without giving in to a long comparison between these approaches, three reasons are sufficient to favor the approach of the repeated indicators. The first advantage is that the upper-level latent variable is constructed from all the items of the lower-level constructs. The second advantage comes from the fact that this approach simultaneously estimates both the lower level and higher level constructs, which allows all parts of the model to be taken into account and thus producing a better interpretation of the results (Wilson & Henseler 2007). The third advantage is that this method makes it possible to evaluate the effect of the manifest variables not only on the latent variables of the first level, but also on those of higher levels (Ciavolino & Nitti 2010).

1.3. Conceptual model

The structural equation model of the study is designed in such a way that it allows to measure the direct effects of instrumental freedoms on the five selected human capabilities. But it will also capture the indirect effects between all the latent variables (Figure 1).

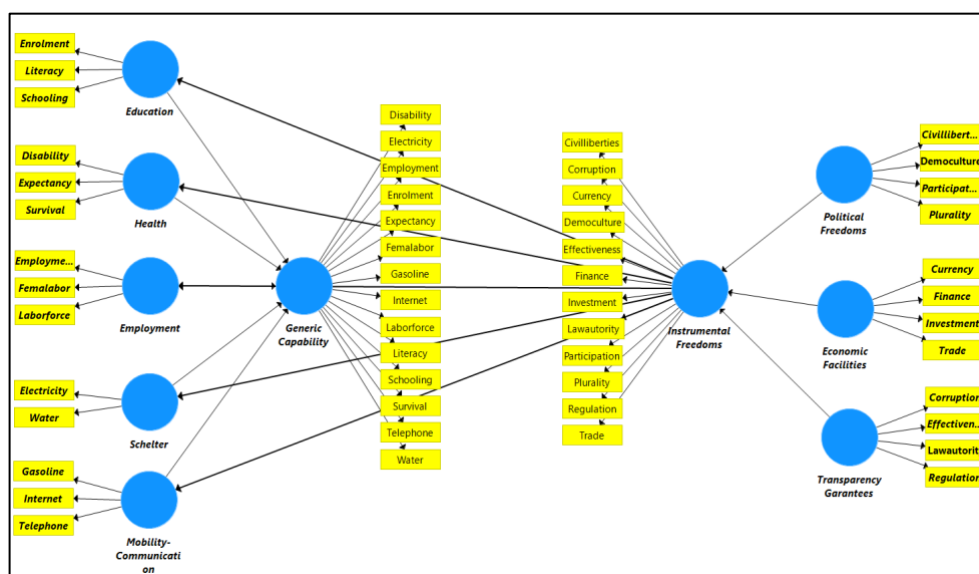


Figure 1:
Conceptual model
Source: Author's computation /SmartPLS (Version 3.3.2) Output

1.4. Data source

This empirical study is a cross-section of 60 countries for the year 2010. The main source of data is the World Bank Group (World Development Indicators) excluding health indicators which are from the World Health Organization.

3. RESULTS / ANALYSIS

To validate the model, it is recommended by Hult, Sarstedt, Ringle and Hair (2016) to go through three steps: 1) examination of the statistical indicators chosen (manifest variables), 2) evaluation of the measurement model (relationships

between the manifest variables and the latent variables with which they are associated) to ensure the relevance of the different blocks of items, and 3) evaluation of the internal or structural model (relationships between the latent variables).

3.1 Examination of statistical indicators

The robustness of the measurement instruments depends on the internal consistency reliability and the unidimensionality of the blocks of items. These two preliminary conditions are verified through the calculation of the Cronbach's alpha and the application of the principal component analysis (PCA) to each block of items. The significance of the two calculated normality tests namely the Kolmogorov-Smirnov test (K-S) and the Shapiro-Wilk test (S-W) proves that the variables retained do not follow a normal distribution (Table 1).

Table 1
Examination of statistical variables

Latent variables	Items	Principal component analysis		Reliability analysis	Normality tests	
		Component Matrix	Variance explained (%)	Cronbach's alpha	K-S ^a (Seg) ^b	S-W (Seg)
Endogenous variables						
Education	Schooling	0,900	74,091	0,825	,002	,002
	Literacy	0,843			,000	,000
	Enrolment	0,838			,010	,379
Health	Disability	0,965	83,437	0,900	,056	,000
	Expectancy	0,910			,023	,001
	Survival	0,863			,003	,000
Shelter	Electricity	0,96	92,227	0,916	,000	,000
	Water	0,96			,000	,000
Employment	Laborforce	0,966	78,330	0,856	,200*	,855
	Employment	0,925			,200*	,996
	Femalabor	0,749			,000	,000
Mobility/ Communication	Internet	0,923	77,299	0,852	,200*	,061
	Telephone	0,873			,032	,042
	Gasoline	0,840			,200*	,675
Exogenous variables						
Political Freedoms	Civiliberties	0,906	76,297	0,874	,000	,000
	Plurality	0,895			,000	,000
	Participation	0,880			,048	,619
	Democulture	0,810			,002	,013
Economic Freedoms	Finance	0,930	73,548	0,877	,001	,021
	Investment	0,914			,010	,009
	Trade	0,824			,000	,000
	Currency	0,751			,000	,022
Transparency guarantees	Lawauthority	0,987	95,289	0,983	,165	,002
	Effectiveness	0,985			,200*	,122
	Corruption	0,973			,010	,002
	Regulation	0,959			,008	,010

^a Lilliefors Significance Correction

b. Significance

*. This is a lower bound of the true significance.

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

3.2 Validation of measurement model

According to [Hult et al. \(2016\)](#), the validity of the measurement model is determined through a procedure of three important steps: (1) evaluation of the internal consistency of the measurement instruments, (2) assessment of the convergent validity, and (3) assessment of the discriminant validity.

Reliability of indicators and validity of constructs

Table 2 shows that all the latent variables have good composite reliability (CR) for exceeding the threshold value of 0.7 which is commonly recommended ([Henseler, Ringle & Sinkovics, 2009](#)). The loadings of items are consolidated by analyzing their statistical significance using the bootstrapping technique (Table 2).

Table 2:
Reliability of indicators and validity of constructs

Latent variables	Reliability of indicators			Composite reliability (CR)	Average variance extracted (AVE)		
	Items	Loading (λ_i)	Significance (T) (P)				
Endogenous variables	Education	Schooling	0,912	42,150	0.000	0,895	0,740
		Literacy	0,820	8,579	0.000		
		Enrolment	0,846	25,384	0.000		
	Health	Disability	0,966	71,684	0.000	0,937	0,834
		Expectancy	0,923	40,991	0.000		
		Survival	0,846	14,858	0.000		
	Shelter	Electricity	0,951	10,263	0.000	0,959	0,921
		Water	0,969	26,065	0.000		
	Employment	Laborforce	0,911	11,291	0.000	0,906	0,762
		Employment	0,846	8,757	0.000		
		Femalabor	0,861	22,375	0.000		
	Communication and mobility	Internet	0,932	65,576	0.000	0,910	0,773
		Telephone	0,874	25,843	0.000		
		Gasoline	0,828	12,390	0.000		
	SOC	Generic capability				0,936	0,521
Exogenous variables	Political freedoms	Civiliberties	0,861	24,138	0.000	0,913	0,725
		Plurality	0,827	24,026	0.000		
		Participation	0,898	37,610	0.000		
		Democulture	0,819	21,552	0.000		
	Economic freedoms	Finance	0,932	57,958	0.000	0,917	0,735
		Investment	0,911	45,549	0.000		
		Trade	0,824	23,470	0.000		
	Transparency guarantees	Currency	0,746	10,953	0.000	0,987	0,951
		Lawauthority	0,987	307,418	0.000		
		Effectiveness	0,983	232,411	0.000		
		Corruption	0,972	156,501	0.000		
		Regulation	0,959	138,865	0.000		
	SOC	Instrumental freedoms				0,962	0,681

FOC: First order constructs /SOC: Second order constructs

T : T Statistics

P : P Values

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

Convergent validity

The convergent validity of the constructs is checked using the average variance extracted (AVE) (Fornell & Larcker, 1981; Picot-Coupey, 2009). Table 2 shows that each latent variable shares more than 50% of the variance with its own items (AVE > 0.5).

Discriminant validity of constructs

Discriminant validity is proven when each latent variable shares more variance with its items than with those of the other latent variables (Chin, 1998). Table 3 shows that the factorial contributions of each item are higher than its cross-loadings.

Table 3:
Discriminant validity of constructs

	Education	Health	Shelter	Employment	Mobility-Com	Political Freedoms	Economic Facilities	Transparency guarantees
Schooling	0.912	0.548	0.581	0.508	0.686	0.674	0.647	0.634
Literacy	0.820	0.435	0.751	0.515	0.401	0.393	0.327	0.232
Enrolment	0.846	0.539	0.504	0.424	0.636	0.563	0.460	0.491
Disability	0.565	0.966	0.638	0.271	0.758	0.566	0.631	0.717
Expectancy	0.655	0.923	0.623	0.473	0.784	0.654	0.609	0.698
Survival	0.372	0.846	0.509	0.223	0.598	0.440	0.551	0.527
Electricity	0.606	0.596	0.951	0.236	0.393	0.261	0.269	0.309
Water	0.722	0.649	0.969	0.360	0.572	0.471	0.364	0.462
Laborforce	0.268	0.192	0.091	0.911	0.242	0.444	0.349	0.294
Employment	0.252	0.287	0.211	0.846	0.266	0.454	0.262	0.306
Femalabor	0.746	0.402	0.420	0.861	0.629	0.644	0.548	0.495
Internet	0.676	0.773	0.525	0.495	0.932	0.792	0.774	0.892
Telephone	0.624	0.722	0.476	0.432	0.874	0.636	0.512	0.704
Gasoline	0.481	0.567	0.331	0.356	0.828	0.637	0.578	0.638
Civilliberties	0.567	0.394	0.261	0.585	0.595	0.861	0.644	0.632
Plurality	0.586	0.510	0.410	0.568	0.625	0.827	0.476	0.575
Participation	0.594	0.542	0.311	0.595	0.705	0.898	0.636	0.717
Democulture	0.461	0.639	0.366	0.375	0.751	0.819	0.570	0.824
Finance	0.516	0.548	0.344	0.424	0.637	0.682	0.932	0.761
Investment	0.466	0.588	0.290	0.398	0.665	0.591	0.915	0.754
Trade	0.692	0.527	0.337	0.543	0.644	0.616	0.924	0.586
Currency	0.278	0.601	0.159	0.274	0.501	0.446	0.946	0.601
Lawauthority	0.523	0.686	0.392	0.391	0.849	0.790	0.732	0.987
Effectiveness	0.528	0.707	0.421	0.432	0.833	0.799	0.745	0.983
Corruption	0.484	0.690	0.341	0.442	0.830	0.783	0.753	0.972
Regulation	0.601	0.711	0.443	0.484	0.833	0.797	0.859	0.959

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

3.3 Validation of structural model

As with the measurement model, the validation of the structural model requires a series of tests. Hult et al. (2016) summarized the procedure for validating the structural model in five important steps: (1) evaluation of the collinearity level of the model, (2) evaluation of the coefficient of determination levels, (3) evaluation of the relevance and significance of structural relationships, (4) evaluation of the effect size, and (5) evaluation of the predictive relevance of the model and its total quality.

Collinearity assessment

The tool conventionally used to judge the level of collinearity i.e. whether tolerable or not is the variance inflation factor (VIF) (Henseler et al., 2009). The commonly accepted threshold is a VIF value of less than 10. In other words, a VIF greater than 10 reveals a critical collinearity level for model estimation, whereas a VIF of less than 3 is generally considered to be excellent. Table 4 shows that the calculated VIF is below the recommended thresholds.

Table 4:
Collinearity assessment

Collinearity Statistics (Inner VIF values)		
	Generic capability	Instrumental freedoms
Education	3.190	
Health	3.508	
Shelter	2.578	
Employment	1.533	
Mobility-Communication	3.646	
Economic Facilities		2.729
Political Freedoms		2.988
Transparency Guarantees		4.250

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

The relevance and significance of the structural model path coefficients

In this study, the path coefficients are greater than 0.5. The analysis of the relevance of structural relationships is supplemented by evaluating the significance levels of the different structural model path coefficients obtained using the bootstrapping procedure (Table 5).

Table 5:
Relevance and significance of the structural model path coefficients

Path coefficients, STDEV, T-Values, P-Values a				
Structural paths	Original Sample (O)	Standard Deviation (STDEV)	T Statisticsb (O/STDEV)	P Values
Instrumental Freedoms -> Education	0.639	0.072	8.845	0.000
Instrumental Freedoms -> Employment	0.557	0.084	6.616	0.000
Instrumental Freedoms -> Health	0.725	0.043	16.981	0.000
Instrumental Freedoms -> Mobility-Communication	0.864	0.030	28.569	0.000
Instrumental Freedoms -> Shelter	0.418	0.081	5.157	0.000

a Standard deviation, T-value and P-value are generated by the bootstrap procedure (n = 5000)

b (T > 1.58, significance at the 10% threshold)

(T > 1.96, significance at the 5% threshold)

(T > 2.58, significance at the 1% threshold)

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

Evaluation of coefficients of determination and effect size

Referring to Chin (1998) and Hult et al. (2016), we can interpret the R^2 value for mobility and communication capability ($R^2 = 0.747$) as very high, and for health ($R^2 = 0.526$), education ($R^2 = 0.409$) and employment ($R^2 = 0.310$) as moderate whilst for housing capability ($R^2 = 0.175$) as low. Based on the evaluation of the R^2 changes following the omission of an exogenous variable, the effect size f^2 is used to evaluate whether the omitted exogenous variable has a high, medium, or low impact on the endogenous variables. According to the criteria of the PLS approach (Hult et al., 2016), we can interpret the effect of the capabilities of mobility and communication ($f^2 = 2.957$), health ($f^2 = 1.110$), education ($f^2 = 0.691$), and employment ($f^2 = 0.449$) as very strong, and that of housing capability ($f^2 = 0.212$) as moderate.

Table 6:
Coefficients of determination and effect size

Endogenous latent variables	R Square	F Square
Education	0.409	0.691
Employment	0.310	0.449
Health	0.526	1.110
Shelter	0.175	0.212
Mobility-Communication	0.747	2.957

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

Testing the predictive relevance of the model

The blindfolding procedure is used to generate the Stone-Geisser Q^2 which is a commonly accepted indicator of the predictive relevance of models. A Q^2 of Stone-Geisser greater than 0 indicates a predictive relevance of the model (Henseler et al., 2009; Hult et al., 2016). Table 7 presents the results of the Stone and Geisser test. The cross-validation test of the Stone-Geisser Q^2 calculated for the hierarchical model is much greater than 0. This result proves that the model has significant predictive relevance.

Table 7:
The predictive relevance of the model

Construct	SSO ^a	SSE ^b	$Q^2 (=1-SSE/SSO)$
Education	180.000	131.138	0.271
Employment	180.000	144.241	0.199
Health	180.000	106.224	0.410
Mobility-Communication	180.000	82.949	0.539
Shelter	120.000	102.151	0.149
Generic Capability	840.000	446.941	0.468
Instrumental Freedoms	720.000	269.485	0.626

^a SSO: Sum of squares observations

^b SSE: Sum of squares of prediction errors

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

3.4 The multi-group analysis

The Partial Least Squares Multi-Group Analysis (PLS-MGA) is a specific method (Hult et al., 2016) to determine if the model changes significantly depending on whether it is in the context of developed or developing countries. Table 8 shows that the level of development does not moderate the effect of instrumental freedoms on the various capabilities.

Table 8:
PLS-MGA results

Structural paths	Path Coefficients-diff (GROUP_A - GROUP_B)	p-Value (GROUP_A vs GROUP_B)
Instrumental Freedoms -> Health	0.076 ^{NS}	0.349
Instrumental Freedoms -> Education	1.087 ^{NS}	0.934
Instrumental Freedoms -> Employment	0.389 ^S	0.013
Instrumental Freedoms -> Shelter	0.016 ^{NS}	0.441
Instrumental Freedoms -> Mobility-Communication	0.246 ^{NS}	0.048

^{NS}: Not significant (0.05 < p < 0.95)

^S : Significant at 5% level

GROUP_A: Developed Countries

GROUP_B: Developing Countries

Source: Author's calculation/SmartPLS (Version 3.3.2) Output

4. DISCUSSION

4.1. The effects of transparency guarantees on capabilities

The results of the model provide empirical support for Amartya Sen's comments, which repeatedly emphasize the crucial instrumental role that transparency guarantees can play in promoting human development. Assuming a 1% significance level, the guarantees of transparency have a positive effect on the five capabilities: health (0.313; $t = 17.227$), education (0.276; $t = 8.383$), housing (0.181; $t = 5.099$), employment (0.241; $t = 7.013$) and mobility and communication (0.374; $t = 22.950$). This conclusion is confirmed by the positive effect of transparency guarantees on generic capability (0.349; $t = 18.379$). The high significance of all these effects ($p = 0.000$) indicates that the improvement of basic capabilities depends on the level of trust and clarity of the information one receives. A public policy of human development would be "capacitating" if it is accompanied by anti-corruption measures - likely to consolidate the general interest to the detriment of the private interests of the elites - and authority of the law which sets the milestones of the rule of law. Of course, this requires the adoption of a total quality approach of public services and an upgrade of the regulations since the credibility of public policies depends on them scrupulously.

4.2. The effects of political freedoms on capabilities

At 1% significance level, the model also recorded a positive effect of political freedoms on the selected capabilities: health (0.245; $t = 9.947$), education (0.216; $t = 7.084$), housing (0.141; $t = 5.227$), employment (0.188; $t = 5.495$) and mobility and communication (0.292; $t = 11.083$). This is easily seen from the relevance of the structural relationship between political freedoms and generic capability (0.273; $t = 10.363$). These results suggest, therefore, that when people elect, control, and fairly criticize their governments, they will be more likely to benefit from a good level of capabilities. In other words, the achievements of people in the different dimensions of human development would improve if: 1) there is respect for plurality and diversity of expression, which creates a favorable context for political debate and disadvantages, on the other hand, including passivity, apathy and obedience, 2) there is respect for civil liberties such as freedom of association, expression and the press, 3) there is respect for democratic rules through fair elections, for all participants, without the influence of foreign forces, and 4) there is a high level of political participation by citizens knowing that participation does not only refer to elections, but also to multiple forms of civic engagements such as civil society organizations, political parties, social movements, etc.

4.3. The effects of economic facilities on capabilities

At the economic level, the model confirms the positive effects of political freedoms on capabilities: health (0.228; $t = 10.494$), education (0.201; $t = 7.110$), housing (0.132; $t = 4.076$), employment (0.175; $t = 5.887$) and mobility and communication (0.272; $t = 12.060$). Indeed, a good level of human capabilities could be reached when: 1) trade is easy, and without many legislative or regulatory limits, 2) there is little government involvement in the financial area, which strengthens bank independence and limits governments to ensuring compliance with contracts or preventing fraud, 3) the currency is not constrained by policymakers according to their objectives, and 4) domestic and foreign investments can be made with few financial and bureaucratic barriers.

4.4. The effects of the interconnection of instrumental freedoms on capabilities

One of the main objectives of this paper is to determine, empirically, whether instrumental freedoms, once interconnected, reinforce each other. As a result, their effect on improving the level of human capabilities becomes much stronger. Indeed, by analyzing the structural model relationships (Table 5), one can see that the second-order construct i.e. “instrumental freedoms” has a substantial effect on health (0.725; $t = 10.494$; $p = 0.000$). This result is valid for both developed (0.474; $t = 3.085$; $p = 0.002$) and developing countries (0.398; $t = 2.258$; $p = 0.011$). As far as education is concerned, instrumental freedoms when interconnected exercise a positive and significant effect (0.639; $t = 8.515$; $p = 0.000$). This conclusion is valid for developing countries (0.451; $t = 2.241$; $p = 0.015$). Whereas at the level of developed countries, the positive effect is always substantial but its significance is not validated by the model (0.636; $t = 1.494$; $p = 0.135$). The capability of employment is also substantially affected by the interconnection of instrumental freedoms (0.557; $t = 6.724$; $p = 0.000$). But our comparative analysis shows that this result is much more relevant to developed countries (0.752; $t = 9.623$; $p = 0.000$) than developing countries (0.363; $t = 1.883$; $p = 0.060$). Their lowest effect is recorded at the level of housing capability (0.418; $t = 5.057$; $p = 0.000$). The two sub-groups of countries are concerned in the same proportions (developing countries: 0.240; $t = 1.623$; $p = 0.105$, and developed countries: 0.256; $t = 1.538$; $p = 0.124$). Finally, the strongest effect is recorded at the level of mobility and communication capabilities (0.864; $t = 28.478$; $p = 0.000$). The relevance and significance of this structural relationship remains valid, whether at the level of developed (0.741; $t = 5.879$; $p = 0.000$) or developing countries (0.495; $t = 3.070$; $p = 0.002$).

4.5. Is there a moderating effect of development level on the effect of instrumental freedoms on human capabilities?

The estimated parameters differ from one group of observations to another. It is, therefore, necessary to know whether these differences between developed and developing countries are statistically significant, or is it only a numerical difference inherent to the change of observations. The results of the PLS-MGA approach applied to the model suggest that the latter does not differ significantly between developed and developing countries. It can be concluded that instrumental freedoms when interconnected can positively and significantly impact capabilities in the same way in both developed and developing countries.

5. CONCLUSION

This paper has shown that the various kinds of instrumental freedoms promote human capabilities, as advanced by Amartya Sen in *Development as freedom*. In other words, it provides an answer to a question often asked in literature (Alkir, 2010) i.e. “how instrumental freedoms, often considered as a large part of human development, are linked to the ends of human development if these are perceived as capabilities”. Indeed, the study has shown that the three instrumental freedoms (political freedoms, economic facilities, and guarantees of transparency) have separate positive and significant effects on the five substantial human capabilities studied namely education, health, housing, employment, and mobility and communication.

More importantly, this paper measured the changes that take place on the strength of these effects once instrumental freedoms are interconnected. For example, the capability of mobility and communication is affected by each of the instrumental freedoms by positive effects around 0.200, but when these freedoms interconnect, their effect on this capability significantly exceeds 0.850.

6. LIMITATIONS AND FUTURE RECOMMENDATIONS

Several questions remain open at the end of this work. Among these, it is important to know how political freedoms, economic facilities, and transparency guarantees are mutually reinforcing. In other words, further empirical studies should be conducted to measure the effect of each kind of instrumental freedom on the others, while capturing the effect of their interconnection on the level of the main human capabilities like health and education.

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