

Social structures + Agency = "power-with/to". A methodological proposal to approach to female coffee growers' empowerment in Colombia.

Empowerment is a multidimensional, situated, and contextualized process; any measurement proposal should consider these elements. This paper presents a transcultural adaptation (Kabeer, Mahmud & Tasneem, 2011) and a proposal for an index to measure empowerment with female coffee growers in Colombia. We conducted a content validation using a basic Angoff technique and cognitive interviews; we validated the theoretical construct through an Exploratory Factor Analysis using Principal Components (N=251). Results allow us to propose a test built upon 26 items grouped in four dimensions: 1) competences, abilities, and capacities; 2) economic resources; 3) Agency -relational autonomy-; 4) Results -"power with/to"-. These dimensions explain 42% of the variance, have an adjustment of 89%, and a confidence of 64%. Theoretically, this test shows the difference between resources as capabilities and abilities and as economic assets. It also identifies agency as a multidimensional construct that incorporates decision-making and other dimensions such as power-within and self-authorization. Finally, we found evidence of a third dimension: "Results," which addresses several manifestations of power-with/to.

Introduction

Since the Action Platform of Beijing (1995), female empowerment as a strategy to link women to development has had significant growth (Cirujano, 2006). However, its consolidation as a strategy to improve women's quality of life has raised concerns regarding its measurement. In order to evaluate what tools and mechanisms work to promote it and what elements we should encourage; it is necessary to have some indexes or measurements to be able to monitor the advances and obstacles to female empowerment.

How to measure empowerment is one of the most complex challenges that this strategy faces. These difficulties relate to the conceptualization of empowerment itself; the process specificity, because of its social character that implies empowering set of behaviors and attitudes in one part of the world may be disempowering in some other place; and its process character that means the existence of flying checkpoints complicating capture and comparability of information. Other additional challenges are constructing direct measures

or using proxies, collecting longitudinal information, the process's inherent subjectivity, and changes in the relevance of indicators through time (Malhotra, Schuler, & Boender, 2002; Martínez-Restrepo & Ramos-Jaimes, 2017).

Ibrahim & Alkire (2007) point out as significant challenges to address to measure female empowerment eight topics.

- Intrinsic or instrumental - We should measure the value people give to empowerment or powers they have even though they do not value them?
- Universal or specific - We should privilege data comparability over the specificity of what agency expansion means in a determined context?
- Application-level - We should measure empowerment at the individual, group, communal, local, governmental, national, or global level?
- Individual or Collective - Can we measure group agency using individual data?
- Dynamics - How to measure changes in the empowerment process?
- Establishing causalities - How can we know if empowerment is useful to achieve development?
- Who measures? - Is it better to use subjective or "objective" data?
- Qualitative or quantitative

Following Malhotra, Schuler & Boender (2002), Table 1 synthesizes current tendencies to measure empowerment quantitatively. We review 19 documents whose dependent variable was empowerment, as a general construct, or in any of its dimensions (economic, socio-cultural, familial/interpersonal, legal, psychological, political). These papers were collected from the Scopus database, and they were published between 1997 and 2018.

Table 1.

Characteristics of empirical papers reviewed by region, methodology, level of analysis and information source.

		Quantity	Included by Malhotra, Schuler & Boender (2002)
Region	Africa	6	1
	Middle East and North Africa	-	-
	Asia	6	11
	Latinamerica and The Caribbean	3	2
	Compared	4	2
Methodology	Quantitative	13	7
	Mixed	5	7
	Measurement across time	1	2

Level of analysis	Individual/household	8	9
	Community	1	-
	District or state	2	-
	Contry		3
	Multiple levels	8	4
Data source	Primary data	13	11
	Secondary data	6	5
Total		19	16

The main set of literature focuses on empowerment in the household and in the different spheres in which women act. The most frequent indicators to measure empowerment are household decision-making (financial, resources, expenses decisions, redistribution of household work, childbearing, so forth), access and resource control, and mobility freedom. Finally, this review shows the lack of indicators to measure power-within, such as self-esteem and self-efficacy (Malhotra et al., 2002; Martínez-Restrepo & Ramos-Jaimes, 2017).

To summarize, an adequate measure of the empowerment process implies acknowledging that it is situated and intersectional (Carbado, Crenshaw, Mays, & Tomlinson, 2013). This means understanding that some decisions may be empowering in a context but disempowering in another (Cornwall, 2016; Klein & Ballon, 2018), that practical and strategical necessities are different according to the context (Molyneux, 1985), and that expressions of agency can imply multiple manifestations, not only in the form of open challenges to social structures or independent decision-making (Charrad, 2010; Kandiyoti, 1988; Khader, 2016).

Therefore, several methodological proposals have surged (Ballon, 2017; Perezniето & Taylor, 2014; Pradhan, 2003; Richardson, 2018; Sharaunga, Mudhara, & Bogale, 2019). among those, two pathways have emerged: 1) methodological proposals built upon Self-Determination Theory -SDT- (Alkire, 2007; Klein & Ballon, 2018; Vaz, Pratley, & Alkire, 2016), and 2) alternative measurements based on Kabeer's empowerment theory (Kabeer, 2018; Kabeer, Mahmud, & Isaza Castro, 2012; Kabeer, Mahmud, & Tasneem, 2011; Mahmud & Tasneem, 2014).

Proposals based on SDT measure empowerment as an agency expansion, understanding agency as an increase in the capacity to make decisions and an individual's ability to act according to what she values as important. According to the SDT, a person is more autonomous when she acts considering the values she is committed to; in other words, an individual is more autonomous when pursuing her interests and desires.

An example of an index based on SDT is the -Relative Autonomy Index-. This index values an individual's motivation to act, starting with the most extrinsic one, guided by reward or fear of punishment, to the most intrinsic one in which self-interest and enjoyment control behavior. Authors propose to measure this autonomy in three interrelated dimensions: what extent people perceive their lives as meaningful, individual psychological needs (autonomy, competence, and relationships), and general satisfaction with their lives (Seymour & Peterman, 2018; Vaz et al., 2016).

As a result of this theoretical and methodological proposal, Alkire, Vaz, Meinzen-Dick, Peterman, Quisumbing, and Seymour (2013) built the Women's Empowerment in Agriculture Index -WEAI-. This index looks to identify the effects that different programs devoted to promoting agriculture in vulnerable areas have had on women's empowerment. The WEAI has five domains that reflect the most significant elements in the chosen agriculture programs:

Production - decisions about crops' management and autonomy in agricultural production.

Resources - Property, access, and control over productive resources.

Income - Control over the use of income and expenses.

Leadership - Economic and social groups' membership.

Time - Time distribution between reproductive and productive activities and satisfaction with their available leisure time.

The RAI and WEAI indexes allow us to analyze empowerment in the economic dimension while capturing information about productive resources, business decision-making process, and the results of these in the use of time and participation in the public sphere. However, because of how these indexes understand agency, they have a limited approach to women's resources -for example, neglecting other kinds of resources besides the economic ones and women's comprehension of social structures-. Also, agency as relative autonomy faces critics because of its individualism, which puts aside the decision-making process's relational element (Friedman, 2014; Piper, 2016; Veltman & Piper, 2014). Finally, they acknowledge as a result of the empowerment process only the open participation in the public sphere ignoring other exercises of the "power to/with" and how individuals relate to the broadest subordination structures.

The second group of measurement proposals results from Naila Kabeer's (1999) works about empowerment as a process of three dimensions: resources, agency, and results. In these approaches, instruments to measure empowerment focuses on evaluating its relationship with the economic activities through other resources than economics, such as mobility in the public domain and knowledge of the state functioning. They also consider the decision-making process in the personal, familiar, and community spheres. Finally, they analyze results beyond access and control over income, including changes in behaviors, attitudes, and perceptions (Kabeer et al., 2011).

Consequently, this second group of works is useful to analyze the relationships between economic participation and empowerment in a way broader than the productive dimension. These proposals evaluate a higher set of resources, decision-making processes in different women's acting spheres, and results, not just as control, but as "power within" and "power with/to". Nevertheless, measurement still focusing on individual elements and do not consider women's comprehension of social structures that oppressed them.

Therefore, this study proposes an index to measure empowerment built upon the instrument "Building citizenship and promoting participation" (Kabeer, Mahmud, & Isaza, 2010; Kabeer et al., 2011). First, we present a theoretical framework to understand female empowerment; then, we describe the method to adapt and validate our instrument theoretically; finally, we present our findings and discuss them.

A proposal to conceptualize female empowerment

Even though it has become popular in the last twenty years, the term empowerment has a long tradition in social sciences. It appeared in the middle of the social movements of the 1970s as a strategy to demand access to power, a transformative power that would allow vulnerable groups to take control over their lives and transform the social structures that subordinate them (Batliwala, 1997; Cirujano, 2006). The feminist movements, mostly radical feminism, focused on collective consciousness-raising and searched for a transformative change of social structures that rules how women participate in society. In other words, empowerment was about transformation and revolution.

After the Beijing Platform of Action in 1995, empowerment became part of the strategies adopted from the Gender and Development -GAD- to question the relationship

between women and development programs (Cirujano, 2006; López Méndez, 2006; Rodríguez Manzano, 2006). Several programs to promote international development had been implemented since the 1970s; but, in the 1990s, it was clear that these programs to tackle poverty through income generation and increase agricultural productivity and so forth have mixed effects on women's lives. Even though these interventions improve access to resources and economic independence, they did almost anything to challenge the deeper social structures that oppressed women (Benería, Berik, & Floro, 2015; Kabeer, 2008).

There were several reasons because these programs did not (still do not) have the expected results were related to how they were conceived. On the one hand, according to the orthodox view of development, policymakers thought of a woman who does not exist, a unique woman. However, as GAD feminists showed, women face different restrictions and come from different backgrounds; therefore, empowerment processes should be situated and understood as results of women's environments' specific characteristics (Kabeer, McFadden, Arnfred, Dominguez, & Saadallah, 2000; Rowlands, 1997).

On the other hand, international organizations have incorporated equity as the final goal of the feminists' movements. They have focused on showing how the current economic model can help achieve this goal if countries improve access to resources that allow women to expand their capacities and *functionings*. Then, women who reach power positions have become the new paradigm of empowerment, showing that it is only necessary an appropriate "institutional environment" to improve women's quality of life. This transformation has become empowerment in an individual, economic, and practical endeavor over its transformative, collective, and strategical nature (Batliwala, 2010; Kabeer, 2005, 2018; O'Hara & Clement, 2018).

In the new century, another element linked to empowerment has started to be in the spotlight: agency. Amartya Sen (2000) defined agency as what a person can do or achieve when pursuing goals that consider as valuable for her/his life. This idea of agency has become dominant in the international organizations' discourses understood as the expansion of the ability to make decisions; consequently, most of the current literature on female empowerment focuses on strengthening the female decision-making process through increasing access and control over resources, leaving aside the bidirectional relationship

between agency - oppression structures and agency's collective dimension (Gammage, Kabeer, & van der Meulen Rodgers, 2016).

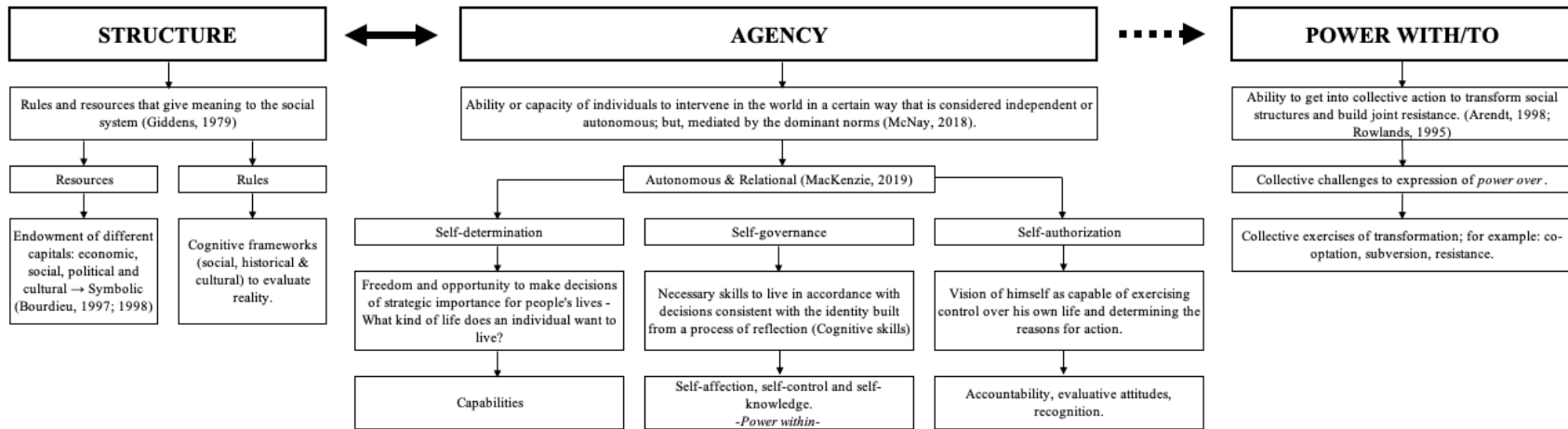
This "excessive" attention to assets and resources may lead to policies devoted to promoting development focused on making available micro-credits and business opportunities over interventions to rise women' consciousness of subordination and oppression conditions and catalyze ideas to transform the culturally constructed ideas about gender, power, and change (Cornwall, 2016).

Thus, here it is proposed that the two positions previously described should not be mutually exclusive. In other words, we propose to understand empowerment, as de Beauvoir expresses it about feminism, as "a way of living individually and fighting collectively." Then, we define empowerment as:

A process of agency's expansion -agency as relational autonomy- that implies an understanding of the social structures -rules and resources- that intervene in the decision-making process; leading to manifestations of "power for/with" as a strategy to resist and challenge "power over".

Figure 1 shows the theoretical structure of this proposal to define empowerment.

Figure 1.
Theoretical proposal to approach female empowerment



The first element corresponds to the "social structures" understood as the rules and resources that shape social systems (Giddens, 1979). Individuals have or can acquire a broad set of resources or capital in different ways; these resources create the world of "the desirable" -what is and is not imaginable for individuals-. These resources, available to subjects, determine which social spaces they can access; each one of these spaces has its own set of rules that specifies what is allowed or prohibited; then, these social structures - rules and resources- determine the set of options that are in reality available to individuals creating the world of "the possible" (Bourdieu, 1997, 1998).

These social structures are related to how individuals should behave according to their social roles and positions. For instance, a woman who does not have access to education, economic assets, or relational capital is limited to participating in social spaces where lacking these resources is seen as not problematic, such as the household sphere. However, in addition to lacking options, there is also an issue of adaptative expectations; in the end, she probably will adapt to what she expects, not desiring what she thinks is impossible to obtain (Khader, 2016).

The second element of the empowerment process is agency. We understand this construct in the broad sense of an individual's ability to decide what she wants to do and to act accordingly, understanding to act as an intervention in the social world. We propose to understand this agency in the sense of the framework proposed by Catriona MacKenzie (2014, 2019); this is, agency as relational autonomy. This conception goes beyond the rationalist idea that equates autonomy with independence, and, on the contrary, it vindicates the high relational component of our choices. This relational factor implies that care, recognition of others, and vulnerability are at the center of the choice process; but that there are also relationships with external forces -structures- that make a choice possible or restricted.

Understanding agency as relational autonomy implies committing to conditions that the election process must meet to ensure that it is an autonomous process. MacKenzie points out that the three conditions that must be satisfied are: self-determination, understood as the freedom to decide what kind of life an individual want to live; self-government, as the skills necessary to reconcile this notion of life with one's own identity;

and, self-authorization, as the vision of oneself as capable of controlling and responding to oneself and others for the motivations of choice.

Note that the last two conditions for an autonomous exercise of the agency require an exercise of reflection; In the words of Giddens, of an exercise in "reflective monitoring of action", which allows the transition from the tacit explanation of the action via "practical consciousness" to the explicit explanation of the action derived from an exercise of "discursive consciousness." In this step, individuals move from an acceptance without questioning to a state of affairs, that is to say, to the set of options that the structure has for them, to an in-depth reflection process that can lead to accepting or challenging the *status quo*.

In our consideration, it is the latter process that is desirable for all individuals. Thus, in normative terms, we believe the achieving of this reflective stage concerning their strategic life choices is desirable for all individuals; that is, they are able to meet the three conditions found at the base of an autonomous exercise of the agency.

As a result of the agency process as an exercise in relational autonomy, individuals can take three paths: 1) They choose to act following what is socially established and engage in processes of acquiescence or collaboration; they reflect and accept that the set of options created by the structure is the most appropriate and that the interaction should be maintained as established. 2) They question the nature of the established order, recognize it as unjust and consider that it must be transformed; but, they do not want or agree with an "open conflict" therefore, they concentrate on small individual actions such as co-option, subversion or resistance to transform the structures using more subtle means. 3) They question the nature of the established order, recognize it as unjust and consider that it must be transformed; however, they believe an open confrontation is necessary against the institutions -formal and informal- that represent this order that is perpetuated thanks to their exercises of *power over*. Then, they pass to the sphere of social mobilization and the construction of collective power, "*power with/to*" transform social systems.

Thus, empowerment is a process of constructing the collective ability to exercise *power with/to* which implies processes of social mobilization and even political activism with the objective, and this is the normative and substantive component, of subverting and resisting power over together.

Considering this theoretical proposal as a starting point, in the following sections, we describe the process of adaptation and validation for Colombian female coffee growers of the instrument proposed by Kabeer, Mahmud & Isaza (2011) to evaluate the empowerment of peasant women in Bangladesh.; and we present our findings.

Method

This study follows an instrumental method (Ato, López, & Benavente, 2013; Montero & León, 2002) of cross-cultural adaptation and subsequent validation from a factorial analysis technique using principal components of the instrument "Building citizenship and promoting participation" for Colombian female coffee growers (Beaton, Bombardier, Guillemin, & Ferraz, 2000). First, we translate the instrument from English into Spanish; two translators - an expert and not an expert on gender issues carried out this translation. Second, we synthesized the translations into a single version that was again translated into English by a non-expert translator to ensure that the translated and original versions evaluate the same elements.

Once we obtain the final version of the translation, we reviewed all the items to validate their relevance to the Colombian case. For this process, we analyzed surveys with a gender perspective carried out in Colombia, such as the National Time Use Survey - ENUT-, the Large Integrated Household Survey -GEIH- and the Quality of Life Survey - ECV-; Additionally, we reviewed other proposals, such as the questionnaire for the "Measurement of Women's Autonomy" from the Observatory for Women's Equity and the Survey Directed to Women from Coffee Growing Families in Colombia (Pineda, Piniero, & Ramírez, 2019).

We evaluated the content validity of the instrument with a basic Angoff method (Ricker, 2006), in which five judges - two experts in gender, two experts in psychometrics, and an expert in editing and style - evaluated six elements for all items: relevance, bias, coherence, relevance, syntax, and semantics. The agreement between judges was measured

through the r_{wg} (Lindell, Brandt, & Whitney, 1999) the items with an agreement value lower than 0.8 were discarded (3 items).

Additionally, we carried out cognitive interviews with six women coffee growers who are members of one of the associations with which we work in this research to identify the cognitive process followed by the subjects when answering the questionnaire (Padilla & Benítez, 2014). Once we completed the process, we evaluated the interviewees' responses on each item, and those that were considered confusing, offensive, or irrelevant (2 items) were discarded.

As a result of this process, we obtain an initial empowerment measurement survey, consisting of 68 questions divided into three dimensions: structure, agency, and results. Table 2 presents the theoretical structure of the test.

Table 2

Dimensions of the empowerment measurement instrument “Building citizenship and promoting participation” adapted to Colombia.

	Subdimension	Sphere	Questions
Structure	Comprehension of social structures	Gender	8
		Cultural	5
	Individual resources	Competences	6
		Economic	9
		Political	3
Agency	Collective resources	Social	3
	Individual agency	Personal	3
		Familial	2
		Economic	3
	Social agency	Social	4
Results	Results	Personal	3
		Familial	8
		Political	1
		Social	8
		Economic	2
			68

We validate the construct through a Principal Component Analysis -PCA- with varimax rotation, in such a way that it was possible to reduce the set of variables analyzed to a group of dimensions that allow evaluating the theoretical structure of the test. Finally, the reliability was evaluated through the general Cronbach's alpha and by dimensions.

Sample

We evaluated the instrument's validity and reliability with 251 female coffee growers from three coffee-producer locations in Colombia. We chose women who belong to coffee's productive associations to study the collective sphere of empowerment in a context where coffee growers start the associative process, and it was not a development intervention from NGO's or the Colombian government¹. The sampling was intentional and non-probabilistic under logical criteria (Rincón & Barreto, 2013). This type of sampling is based on prior knowledge of the problem, which allows selecting individuals according to the study's purpose and not necessarily by a variable that characterizes the individuals (Rincón & Barreto, 2013).

Findings

We first validated the relevance of applying a factor analysis with PCA for the proposed test. Thus, the determinant of the correlation matrix, which allows evaluating whether the variables have high intercorrelations, yielded a result of 0.00099, higher than the minimum 0.00001 necessary to advance the analysis (Field, Miles, & Field, 2012).

Next, we applied the Kaiser-Meyer-Olkin (KMO) test, which indicates how appropriate the analysis is to apply; the result obtained of 0.79 suggests continuing with the analysis. In addition to the above, the Bartlett sphericity test was used, whose null hypothesis is that the correlation matrix is an identity matrix (Chi-sq = 1663,11***; df = 325).

After validating the initial conditions to advance the factorial analysis, we made the factor extraction considering the scree plot. The results allowed identifying three components with 46,46% residuals, less than the recommended 50% (Field et al., 2012). Finally, the application of a Varimax orthogonal rotation yielded a model that explains 42%

¹ In terms of political administration, Colombia divides into 32 locations -departments-. In 22 of them, there are coffee crops, with approximately 541,000 families and 877,000 hectares. The Colombian Coffee Growers Federation (FNC) (2019) estimates that 20.332 are members of any productive association -10,998 men and 6,997 women-. We selected one of these locations for our sampling process, Tolima, which has 22 to 58 associations with 1690 to 3667 members.

of the variance and shows an 89% fit. Table 3 shows the factor loadings of the items included in the test.

Table 3

Exploratory factor analysis synthesis -PCA- for the empowerment test for female coffee growers (N = 251).

Item	Factor loadings (Varimax rotation)			
	RC1	RC2	RC4	RC3
Have you been employed in any job in the last year?	0.16	-0.03	0.67	0.14
Do you know how to calculate the interest on a loan?	0.06	0.08	0.55	0.2
Can you recognize Diarrheal Disease or Respiratory Infection in boys and girls?	0.08	0.13	0.50	0.09
Do you include the value of your work in the final price of the product you sell?	0.20	-0.05	0.45	-0.1
Do you feel ok when you assign members of your family to tasks of cleaning the house or taking care of children and the elderly?	0.02	0.11	0.46	-0.04
Do people in your community come to you for advice or help?	0.35	0.01	0.40	0.29
Have your property rights (land, house, business) improved as a result of your association membership?	-0.05	0.38	0.40	0.09
Do you usually accompany people who request your help to carry out proceedings before institutions such as government offices, health centers, and police stations and courts?	0.27	-0.01	0.38	0.12
Have you ever asked for a loan?	0.24	0.05	0.17	0.79
Are you able to pay regular loan fees?	0.29	0.01	0.18	0.72
Do you have a coffee card?	0.03	0.05	-0.13	0.69
Do you have a bank account in your name?	-0.04	-0.10	0.34	0.65
Has your family's recognition and treatment improved as a result of your association membership?	0.72	0.11	0.03	0.05
Has your ability and confidence to express/explain your ideas and positions improved as a result of your association membership?	0.65	0.30	0.06	0.16
Have you carried out your plans even when you had to argue with your family to do so?	0.59	-0.16	0.18	-0.02
Do you feel guilty when you lack time to participate in the meetings of the association or meetings with your friends and keep an eye on the house?	-0.60	0.14	0,00	-0.21
Has your ability to help others in your community improved as a result of your association membership?	0.44	0.39	-0.05	0.20
In your home, do you lose control and there are situations of physical and verbal violence between the members of the household?	0.47	0.02	0.19	-0.01
Are political or women's rights issues discussed in the Association?	0.45	0.10	0.29	0.07
Who made the decision to participate in the association?	0.42	-0.06	0.3	0.25
Who makes the decisions about investing in the micro coffee lot?	0.35	-0.11	0.31	0.23
Who makes the decisions about how to divide the household expenses?	0.27	0.08	0.27	0.24
Has your ability to defend yourself against violence in public spaces improved?	-0.08	0.8	0.11	-0.04

Has your ability to demand your rights and fight for them improved if they are denied?	-0.15	0.78	0.02	-0.09
Has your ability to defend yourself against domestic violence as a result of your association membership?	0.13	0.73	-0.01	0.05
Has your ability to report/confront what seems socially unfair to you (inequality, poverty, violence, etc.) improved?	0.33	0.54	0.23	0.02
Eigenvalues	3.23	2.59	2.53	2.57
% of variance	0.12	0.22	0.32	0.42
Cronbach's Alpha	0.71	0.72	0.65	0.7

Table 3 also presents the reliability of the test, which we validated through Cronbach's alpha. For the test as a whole, an alpha of 0.73 was obtained, which indicates that the construct is multidimensional.

Instrument for measuring the empowerment of female coffee growers in Colombia

Based on the above, we obtained a 27-item instrument to measure the empowerment of female coffee growers. The results of the factorial analysis indicate that these items are grouped into four components. Component 1 refers to women's resources in terms of their competences, abilities, and capacities. Component 2 captures the economic assets to which women have access. Component 3 refers to the agency; here, it is striking that there are not only items related to decision-making but also how women perceive themselves (self-government) and self-authorization. Finally, the last component refers to the results of the empowerment process, which, as stated in the theoretical proposal, focuses on women's capacity to express their opinion in public and to oppose the manifestations of *power over*.

Table 4

Factorial Structure for the empowerment test for female coffee growers

Dimension	Item	Response Codification
Competences, abilities, and capacities.	Have you been employed in any job in the last year?	1 = Yes
	Do you know how to calculate the interest on a loan?	-1 = No
	Can you recognize Diarrheal Disease or Respiratory Infection in boys and girls?	
	Do you include the value of your work in the final price of the product you sell?	
	Do people in your community come to you for advice or help?	
	Do you usually accompany people who request your help to carry out proceedings before institutions such as government offices, health centers, and police stations and courts?	
	Do you feel ok when you assign members of your family to tasks of cleaning the house or taking care of children and the elderly?	1 = Totally agree 2 = Agree 3 = Disagree 4 = Totally disagree

	Have your property rights (land, house, business) improved as a result of your association membership?	-1 = Worse 0 = Same 1 = Better
Economic resources	Have you ever asked for a loan?	1 = Yes
	Are you able to pay regular loan fees?	-1 = No
	Do you have a coffee card?	
	Do you have a bank account in your name?	
Agency	Who made the decision to participate in the association?	-1 = Others 1 = She/Joint decision
	Who makes the decisions about investing in the micro coffee lot?	
	Are political or women's rights issues discussed in the Association?	1 = Yes -1 = No
	Has your ability to help others in your community improved as a result of your association membership?	-1 = Worse 0 = Same 1 = Better
	Has your family's recognition and treatment improved as a result of your association membership?	
	Has your ability and confidence to express/explain your ideas and positions improved as a result of your association membership?	
	Do you feel guilty when you lack time to participate in the meetings of the association or meetings with your friends and keep an eye on the house?	1 = Totally agree 2 = Agree 3 = Disagree 4 = Totally disagree
	In your home, do you lose control and there are situations of physical and verbal violence between the members of the household?	
	Have you carried out your plans even when you had to argue with your family to do so?	
Results "Power with/to"	Has your ability to defend yourself against violence in public spaces improved?	-1 = Worse 0 = Same 1 = Better
	Has your ability to demand your rights and fight for them improved if they are denied?	
	Has your ability to defend yourself against domestic violence as a result of your association membership?	
	Has your ability to report/confront what seems socially unfair to you (inequality, poverty, violence, etc.) improved?	

Discussion

Measuring empowerment is a challenging task due to the multiple elements that must be considered. It is necessary to consider that the process is multidimensional and it is contextual. It implies recognizing the interactions between different conditions of

women, all this to identify factors that evaluate the process of agency's expansion and exercise of power *with/to*.

In this study, we proposed a theoretical approach to address female empowerment. We based upon on Kabeer's definition of empowerment as a process; however, we proposed to define agency as a multidimensional construct, broader than decision-making, this is, considering it as relational autonomy (self-determination, self-authorization, and self-governance). We also understand the empowerment process results in terms of the individuals' capability to exercise "power with/to" transform social structures and challenge what they consider socially unfair.

We carried out an exploratory factorial analysis using a Principal Components' technique to validate this theoretical approach. This method allowed us to create a test with 27 items to measure female empowerment in coffee growers in Colombia who are members of a productive association. We identified four dimensions that we proposed to define as 1) competences, abilities, and capacities; 2) economic resources; 3) Agency -relational autonomy-; 4) Results -"power with/to"-.

The first component relates to competences, abilities, and capacities. This dimension refers to what women feel/know they are capable of doing; then, these items could be seen as capabilities in the sense of Sen's human development theory. It is interesting how this dimension refers to relationships with others (family, community, association) and how women see themselves in these relationships.

Three of the items in this dimension seem to be related to the economic sphere - property rights, employment, pricing-. However, when we asked directly about assets and income, these questions were not as relevant as the one we finally chose to include in the instrument; cognitive interviews gave us some clues about this. Property rights over land, house, and business provide economic welfare; but, besides, they provide socio-cultural status. For instance, for a woman to be a member of The Colombian Coffee Growers Federation (FNC), it is mandatory to be a landowner; be part of the Federation gave members the right to vote and be elected, access to credits, programs to expand coffee crops and training, publicity, so forth. Consequently, women who belong to the FNC are frequently leaders in their regions and trigger different social processes.

When analyzing employment, we saw something similar. Having employment allows women to satisfy practical and strategic needs. For example, when women have to leave their households, they are intended to learn how to mobilize (for instance, driving motorcycles or taking public transportation); this allows them to mobilize freely without any help. Even though mobilization is a practical need, it opens the path to work to approach strategic needs. If women can mobilize, they are able to attend meetings, visit friends, and create social networks; in other words, to build social, cultural, and political capital that expands their options among which they can choose the lives they want to live.

The second dimension relates to economic resources. Here, we chose to ask questions to measure a certain degree of women's assets control. As we mentioned, to be elected as a member of the FNC, women have to be the owners of their land; when women become members, they receive a coffee card (*cédula cafetera*). When we asked a woman if she has her coffee card, we can know if she possesses land and crops. Also, we asked about loans and what use they gave them to these. We found out that most women who own land, have asked for loans to invest in their coffee crops, and they have been able to pay the fees; we consider this as another expression of possession and control over economic resources.

The third dimension is one of the most exciting findings of this methodological proposal. As we pointed out in the literature review, most methodological approaches to measuring agency focus on autonomy -as to control- and decision-making. Here, we proposed a multidimensional definition of agency as relational autonomy; this means understanding autonomy beyond its most liberal definition.

We found evidence of the existence of three interrelated components when we talk about agency. The first one, self-determining, refers to freedom or opportunity to make strategic importance decisions; we asked for 12 types of strategical decisions - contraceptives use, having kids, childbearing-; but, two of them, association and decisions over coffee crops, proved to be significant to the test's structure. We consider this related to an identity element; female coffee growers define themselves as peasants and coffee growers, so these decisions are crucial.

The second component in agency is self-governance. This element relates to "power within", the skills which women possess to exercise to live following their identity.

This dimension then captures self-afection, self-control, and how they see themselves in private and public spheres. One item which clearly states what we understand as self-governance is the one about time distribution; note that we asked if they feel guilty when they lack time to attend meetings. A response of "totally agree" or "agree" would imply that women consider their public participation an essential element of who they are and what they think they should do.

Finally, we identified a third element: self-governance. Even though this item was captured by just one question, it is a remarkable element. Self-governance relates to accountability, to be able to explain and defend one's choices and positions. This process implies recognizing what is essential for individuals, why this is important, and being capable of defending and taking responsibility for what is chosen.

Because of cultural characteristics, Colombian people have strong attachments to family. Almost any decision, even those in the most private sphere, is expected to be discussed with one's family. Arguing with family can lead to abandoning social networks, losing inheritance and property rights, or even becoming unemployed because of the high familiar/informal working rates. Then, we consider as self-governance evidence the ability to fight for what is considered crucial for one's life, even against one's own family.

To conclude, the fourth component refers to the results of the agency's expansion process. Here, it is relevant to point out that, as indicated in the theoretical proposal, the results concentrate on expressions of power "with/to". Thus, factors such as the ability and confidence to express ideas in a public sphere and defend oneself from violence in private and public spaces are part of this component. However, the most exciting thing is that several of the items with a higher factor load are related to subordination structures understanding, for instance, the ability to demand their rights, oppose injustice, and gender violence.

The results obtained from the factor analysis and the good adjustment results of the test could be the first indicator that the proposed theoretical proposal is adequate to explain female coffee growers' empowerment process in Colombia. Unlike other tests that we reviewed to measure empowerment at the individual level and for the Colombian case, the test allows analyzing the empowerment process in a multidimensional way. It includes measurement indicators related to a broader vision of the agency than associated with

decision-making and evaluates the results of the expansion of agency as "power with/to" influence and transform the social structures that cause women's subordination.

However, despite the high explained variance (42%), the findings are subject to limitations. The first of them has to do with the sample's selection process; the test's validation does not respond to a representative sample of the Colombian coffee or peasant population. The second limitation is directly associated with using quantitative methods to approach a process as complex as empowerment; identifying causal mechanisms behind the process and the correlations found show the need to include other sources and types of information to understand the empowerment process.

This proposal vindicates the role of the relational component in the female empowerment process. Most of the items that were finally considered because of their theoretical and methodological properties deal with how women relate to their families, friends, and other coffee growers. This finding leads us to consider that understanding empowerment as a relational process, versus liberal definitions of empowerment as independence, is a promising path. We think empowerment should be about transformation and revolution; in other words, about manifestations of "power over" to change social structures that oppressed women. This theoretical proposal, focused on relational elements, could contribute to this transformative change goal.

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Annex

A1. Items distributions

	-1 No/worse/others	0 Same/Don't know	1 Yes/Better/Totally Agree/She-Joint	2 Agree	3 Disagree	4 Totally disagree
Have you been employed in any job in the last year?	74,10%	0,00%	25,90%			
Do you know how to calculate the interest on a loan?	49,40%	0,00%	50,60%			
Can you recognize Diarrheal Disease or Respiratory Infection in boys and girls?	17,53%	0,00%	82,47%			
Do you include the value of your work in the final price of the product you sell?	29,08%	0,00%	70,92%			
Do people in your community come to you for advice or help?	20,72%	0,00%	79,28%			
Do you usually accompany people who request your help to carry out proceedings before institutions such as government offices, health centers, and police stations and courts?	17,93%	0,00%	82,07%			
Do you feel ok when you assign members of your family to tasks of cleaning the house or taking care of children and the elderly?	0,00%	3,59%	39,44%	42,23%	25,90%	2,39%
Have your property rights (land, house, business) improved as a result of your association membership?	0,00%	34,26%	65,74%			
Have you ever asked for a loan?	20,32%	0,00%	79,28%			
Are you able to pay regular loan fees?	2,79%	17,13%	80,08%			
Do you have a coffee card?	47,01%	0,00%	52,99%			
Do you have a bank account in your name?	37,45%	1,59%	60,96%			
Who made the decision to participate in the association?	16,73%	1,99%	81,27%			
Who makes the decisions about investing in the micro coffee lot?	14,34%	0,00%	85,66%			
Are political or women's rights issues discussed in the Association?	17,13%	15,54%	67,33%			
Has your ability to help others in your community improved as a result of your association membership?	0,40%	41,43%	58,17%			
Has your family's recognition and treatment improved as a result of your association membership?	0,40%	48,21%	51,39%			
Has your ability and confidence to express/explain your ideas and positions	0,00%	34,26%	65,74%			

improved as a result of your association membership?

Do you feel guilty when you lack time to participate in the meetings of the association or meetings with your friends and keep an eye on the house?

0,00% 3,59% 39,44% 25,50% 26,69% 4,78%

In your home, do you lose control and there are situations of physical and verbal violence between the members of the household?

0,00% 19,12% 1,99% 2,39% 69,72% 6,77%

Have you carried out your plans even when you had to argue with your family to do so?

0,00% 4,38% 7,57% 32,27% 53,39% 2,39%

Has your ability to defend yourself against violence in public spaces improved?

0,00% 72,91% 27,09%

Has your ability to demand your rights and fight for them improved if they are denied?

0,00% 64,94% 35,06%

Has your ability to defend yourself against domestic violence as a result of your association membership?

0,40% 72,91% 26,69%

Has your ability to report/confront what seems socially unfair to you (inequality, poverty, violence, etc.) improved?

0,00% 53,78% 46,22%
