Contents lists available at ScienceDirect

World Development

The Quality of Employment (QoE) in nine Latin American countries: A multidimensional perspective

Kirsten Sehnbruch [a,*], Pablo González [b], Mauricio Apablaza [c], Rocío Méndez [d], Verónica Arriagada [e]

[a] International Inequalities Institute, London School of Economics and Political Science, UK
[b] Centro de Sistemas Públicos y Centro de Investigación para la Educación Inclusiva, at the Departmentof Industrial Engineering, Faculty of Physical Sciences and Mathematics, Universidad de Chile, Chile
[c] Facultad de Gobierno, Universidad del Desarrollo, Chile and Oxford Poverty and Human DevelopmentInitiative (OPHI), University of Oxford, UK
[d] London School of Economics and Political Science, UK and Centro de Sistemas Públicos, at the Department of Industrial Engineering, Faculty of Physical Sciences and Mathematics, Universidad de Chile, Chile
[e] School of Business and Economics, Universidad del Desarrollo, Chile

ARTICLE INFO

ABSTRACT

This paper proposes a methodology for measuring the quality of employment from a multidimensional and public policy perspective in Latin American developing countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, and Uruguay) using household and labour force survey data from 2015. The purpose of this paper is to demonstrate that the QoE can be measured using a multidimensional methodology that can inform policy makers about the state of their labour markets in a way that complements traditional variables such as participation or unemployment rates, which are not always good indicators of labour market performance in developing countries with large informal sectors.

Building on the framework of the capability approach as well as on previous work on multidimensional poverty, we use the Alkire/Foster (AF) method to construct a synthetic indicator of the quality of employment (QoE) *at an individual level*. We select three dimensions that must be considered as both instrumentally and intrinsically important to workers and the functions and capabilities generated by their employment situation: income, job security and employment conditions. Job security is then divided into two sub-dimensions (occupational status and job tenure), as is employment conditions (social security affiliation and excessive working hours). A threshold is then established within each dimension and sub-dimension to determine whether a person is deprived or not within each dimension, before establishing an overall cut-off line and calculating composite levels of deprivation.The results generated by this indicator are, first, highly relevant to policy makers as they allow for the precise identification of groups of vulnerable workers as well as of dimensions and indicators, which contribute to deprivation in the labour market. Second, they extend the debate about employment in developing countries to variables not commonly considered by the literature as being critical to the well-being of workers and their dependents, such as occupational status and job tenure. Third, this paper highlights important difference between Latin American countries, both in terms of the overall QoE Index result as well as its component dimensions. While Chile presents the best results in the region, Paraguay presents the worst, followed by Mexico, Bolivia and Peru. However, Chile, Peru, Columbia and Brazil, for example, have the biggest problem with job rotation. Finally, the paper highlights that low rates of unemployment are not necessarily related to low rates of deprivation in terms of the QoE. In fact, in some countries analysed (e.g. Mexico) the opposite is true.

1. Introduction

In recent years, the quality of employment (QoE) has attracted increasing attention from policymakers in both developed and developing countries.[1] In developing countries, awareness of the fact that economic growth alone does not necessarily improve employment conditions has increased, along with the realisation

* Corresponding author.
E-mail addresses: ksehnbruch@lse.ac.uk (K. Sehnbruch), pgonzale@dii.uchile.cl (P. González), mapablaza@udd.cl (M. Apablaza), mendezpi@lse.ac.uk (R. Méndez).

[1] Muñoz de Bustillo et al. (2011), Eurofound (2012), OECD (2014), Burchell, Sehnbruch, Piasna, and Agloni (2014), Sehnbruch et al. (2015) and Soffia (2018) provide detailed accounts of how and why the subject of the QoE has acquired more importance in recent years.

that adequate social security systems cannot be established when contributions to these systems depend on labour markets in which precarious jobs predominate. Similarly, policymakers have been alerted to the fact that it is impossible to increase the productivity levels of a labour force when QoE levels are low.[2] It has therefore become increasingly necessary to develop a measure of the *quality* of jobs, which can capture the development of a labour market beyond merely considering the *quantity* of jobs generated. The Sustainable Development Goals (SDGs) put forward by the UN thus include "Decent Work for all" as an objective, but the indicators specified for measuring progress towards this goal are macro-indicators that must be gleaned from multiple data sources and thus do not allow governments to identify individuals with particularly precarious employment conditions, which is the purpose of the index specified in this paper (SDG 8, United Nations, 2015, 2017).[3] In particular, an index using micro-data from a single source (individual country household surveys) will allow policy makers to follow a deprivation perspective to identify and focus on vulnerable workers, "who are forced to live deprived lives" (Anand & Sen, 1997: 1).

This also responds to the objective of the SDGs that no one is left behind (United Nations, 2017). From the outset, however, it is important to emphasise that this QoE indicator is designed to be used in addition to and not instead of traditional labour market indicators (such as employment rates) as well as in addition to other macro-level indicators specified by international institutions to monitor progress towards the goal of decent work (United Nations, 2017).

At present, little consensus exists in the academic and institutional literature on what Decent Work, job quality or the QoE really mean.[4] Contentious views regarding the necessary dimensions that should be included in such a definition as well as differences over what constitutes minimum standards of QoE have produced a significant degree of conceptual dispersion and a concomitant lack of reliable measures. Furthermore, the absence of a coherent theoretical framework for understanding and measuring QoE has been a significant drawback for defining useful public policy approaches to the subject.[5]

This paper adopts the Alkire Foster (AF) method and builds on the literature on multidimensional indicators to break up traditional perspectives of the performance of labour markets in developing countries.[6] To the best of the authors' knowledge, this is the first academic paper that constructs a multidimensional synthetic indicator of the QoE across a group of developing countries with comparable data sets using the AF method to show that the QoE can be summarised in a single indicator, which is methodologically sound. This paper therefore illustrates that this method can be used to measure progress towards SDG8 "Decent Work for All", in the same way that it can be used to measure multi-dimensional poverty, particularly if governments in developing countries as well as international institutions invest more effort and resources in gathering and homogenising data on employment conditions. In addition, it shows how QoE indicators relate to existing measures of labour market performance, such as the unemployment rate and the rate of vulnerable employment (or informal sector).[7] These relationships provide crucial insights for policymakers as they highlight how existing indicators can be usefully complemented by QoE measures.

This paper proceeds as follows: in the following section it presents a much-abbreviated literature review on the QoE as it relates to both developed and developing countries. Section 3 offers a concise presentation of the country selection and the datasets used for this paper. Section 4 explains how the AF method has been adapted to measure the QoE. It describes the rationale for the dimensions included in the indicator, as well as the cut-off lines established and the weights used. Section 5 presents the country selection and data sources used for this paper, while Section 6 analyses the results produced by the QoE index in the nine Latin American countries studied, its robustness and stability under changing parameters. Section 7 concludes and discusses the implications of this research.

2. Literature review and context

2.1. The Alkire/Foster framework for multidimensional indicators

Sen's critique of using GDP per capita as the sole indicator of development is both well-known and well-documented, as well as having been extremely influential (Stiglitz, Sen, & Fitoussi, 2009). These critiques led to a range of indices, beginning with the Human Development Index, which aims to measure progress on key functionings, that in turn allow an individual to develop a broad range of capabilities. On many topics relevant to developing such functionings and capabilities, as, for instance, multidimensional poverty, education and health, the academic literature has flourished.[8] Yet when it comes to the subject of employment, however, this literature has been relatively thin on the ground, leading Alkire and Lugo to identify this topic as a missing dimension (Alkire, 2007; Lugo, 2007).

In part, this relative dearth of literature may be due to a lack of internationally comparable data across a broad range of countries that go beyond key indicators such as employment rates, wage levels, and whether a worker is formerly employed or not.[9] These

---

[2] High levels of job rotation along with the persistence of informal jobs generate inconsistent contributions to social security systems and stymie investment in vocational training (ILO, 2015b andIDB, 2017).

[3] SDG 8.5 specifies achieving "full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value." Monitoring progress towards this goal is crucial because employment and the resources and capabilities it generates will contribute to improving SDG 1 (End poverty), SDG 3 (Achieve universal health coverage), SDG 5 (Achieve gender equality and empower all women and girls), and SDG 10 (Reduce inequalities).The indicators specified by the United Nations (2017) to measure progress towards SDG 8.5 are: the proportion of informal employment in nonagriculture employment, by sex; average hourly earnings of female and male employees; the unemployment rate; the proportion of youth (aged 15-24 years) not in education, employment or training; the proportion and number of children aged 517 years engaged in child labour; the frequency of fatal and non-fatal occupational injuries; national compliance of labour rights; and total government spending in social protection and employment programmes as a proportion of the national budgets and GDP.

[4] These terms are used interchangeably in the literature. Often, the term used depends on the institution: for instance, the ILO and the EU talk about decent work, while the OECD uses the term job quality, and the IBD talks about better jobs.

[5] These statements are based on Burchell et al. (2014), Sehnbruch et al. (2015) and Piasna et al. (2019), which explain in detail how the concepts related to job quality have evolved in the literature, and why Decent Work as an approach has been successful in putting job quality on the rhetorical agenda of national and international policymakers, but why the ILO's official decision not to measure the concept (taken in 2008) has limited its practical impact on actual policy-making.

[6] See also Sehnbruch (2006, 2008), Lugo (2007), Decancq and Lugo (2012a,b) and Leßmann (2012) on employment and the capability approach. This paper further adapts the framework of Alkire and Santos (2014) on multidimensional poverty published by World Development to the subject of the QoE.

[7] Unemployment and vulnerable employment rates for the countries included in this study are shown in Table 2. The latter follows the definition used by ILOSTAT.

[8] A significant number of academic articles that apply the capability approach to subjects such as education, health, and other aspects of the standard of living can be found in the journal for Human Development and Capabilities as well as on the website of the Human Development and Capabilities Association. Specific edited volumes that illustrate this point are Comim, Qizilbash, and Alkire (2008); Comim and Nussbaum (2014); and Comim, Fennell, and Anand (2018).

[9] For example, the UNDP's 2015 Human Development Report, which focused on "work for human development" included the following variables in its statistical annex: Employment to population ratio, labour force participation, employment by primary, secondary and tertiary sector, long-term unemployment, youth unemployment, youth not in school or employment, output per worker and hours worked per week. Similarly, recent ILO reports use labour force participation rate, total labour force population, employment-to-population ratio, employed population, unemployment rate, unemployed population, rate of labour underutilization, potential labour force, extreme working poverty rate, moderate working poverty rate, wage and salaried employment, percentage of employers, percentage of own-account workers, contributing family workers and productivity growth.

data are generally presented as macro-level percentages, and do not let us analyse whether individual workers are simultaneously deprived across these indicators: for instance, employed but with a low wage *and* working informally.

In this context, the literature on multidimensional indicators provides a useful conceptual framework that emphasises, first, that employment is a multidimensional phenomenon, which cannot simply be summed up through basic statistics, such as whether or not a worker is employed and at which wage.[10] Second, it focuses on individual workers and the characteristics of their jobs. Third, it considers that having a job may not be enough to sustain even the most basic level of human functioning as a result of poor conditions associated with it and the market conditions that workers are operating in.[11]

However, measuring the QoE is a complex undertaking. When it comes to multidimensional poverty, there is a near universal consensus that more education, better health and longevity, and better living conditions are preferable. Yet when it comes to the QoE, there is no such normative consensus in terms of what constitutes the appropriate level of achievement in a particular dimension or indicator. For example, what is the ideal occupational status? Some workers may prefer to be self-employed rather than salaried workers with formal written contracts even if – in Latin America – this generally means that they will not be contributing to social security systems (such as pensions, unemployment or disability insurance). Similarly, what is the ideal duration of a job? Again, the preferences of individual workers may vary significantly depending on their situations: younger workers may actively seek short term jobs (for instance while enrolled in higher education), while older workers with dependents will probably prefer job stability. This raises the question of how to account for such different individual preferences?

This is a conundrum that other proponents of multidimensional indicators have also had to resolve. For instance, in measures of multidimensional poverty, the living conditions of individual families are included in one of the dimensions of the index, so that overcrowding in the family home, for example, would lead to a poor result in this indicator. However, individual families may prefer to live in slum conditions, but closer to employment opportunities, potential customers and public transport rather than living further away in better accommodation and material circumstances with access to utilities and other services, but where finding transportation to potential jobs may be more complicated and time-consuming. The multidimensional poverty literature has thus also used normative value judgements to define its dimensions, indicators and cut-off lines (Alkire et al., 2015).

The same logic applies to defining and measuring the QoE: previous studies show that subjective indicators of job quality have various disadvantages in that they vary little over time and between countries, as well as showing no clear relationship with objective criteria of job quality.[12] Looking at objective criteria of job quality should therefore be a priority, i.e. whether a worker

has a contract and legal entitlements to employment protection legislation; whether a worker contributes to a social security system even if this worker would prefer present over future income; or whether working conditions are safe and not detrimental to a worker's health.[13]

2.2. Academic and Institutional Literature: Which dimensions of the QoE matter?

Developed countries have made some progress with regard to conceptualising and measuring job quality. Jencks, Perman, and Rainwater (1998), for example, proposed an 'index of job desirability', Olsthoorn (2014) elaborated a proposal for two indicators of precarious employment for the Netherlands, Leschke and Watt (2014) constructed a 'Job Quality Index', while Eurofound (2012) used data from the European Working Conditions Survey (EWCS) to produce dashboard indicators of individual dimensions of job quality. This research has contributed greatly to understanding the drivers of job quality and has made significant progress in generating a consensus on which dimensions of the QoE are important as many indicators and dimensions are repeated in these studies. Leschke and Watt (2014), for example, use measures of wages; non-standard forms of employment; working time and work-life balance; working conditions and job security; skills and career development; and collective interest representation as component indicators of their Job Quality Index.[14]

International institutions, in particular the International Labour Organisation (ILO), the European Union (EU), the Organisation for Economic Cooperation and Development (OECD), and more recently the Inter-American Development Bank (IDB) have also drawn from this literature and have put forward their own proposals for conceptualising and measuring the QoE (ILO, 2008, 2009; Eurofound, 2012; OECD, 2014, 2015; and Busso et al., 2017).

Although the ILO launched the concept of Decent Work almost 20 years ago, it has not compiled a synthetic indicator of Decent Work, which has significantly limited the concept's impact. Initial attempts were made to measure Decent Work, for example in a special issue produced by the International Labour Review in 2003.[15] However, the articles published here required data that is not easily available in developing countries as is illustrated by Bescond and Mehran (2003), who proposes seven indicators for measuring decent work deprivations, which are then summed up by means of a simple average. However, of the 40 countries included in this study, only Mexico, Jordan and Costa Rica had data on all seven indicators. After much debate about how Decent Work could be conceptualised and measured, an ILO tripartite meeting of experts in 2008 proposed a new list of 52 indicators for measuring Decent Work (ILO, 2012), that could be compiled in any way possible (given data constraints) to portray Decent Work on a country by country basis.[16] This means that while individual countries can theoretically monitor their progress on Decent Work indicators over time, international comparisons of Decent Work across countries are not possible. In addition, and following Ward (2004), it is not easy to explain

---

[10] Even the neoclassical literature on labour markets recognises that there are other dimensions that matter aside from the wage level and that are related to the wage rate through the theory of compensating wage differentials (Smith, 1776 and Rosen, 1986). In this theory, any difference in job quality for a similar human capital endowment is compensated for, by virtue of perfect competition, with differences in wage rates. This renders the exercise of measuring these other job characteristics futile. Although the arguments are compelling, empirical support for this theory is weak and more consistent with market failures (see Brown, 2006, Sullivan and To, 2013, Guardado and Ziebarth, 2019), therefore the empirical measure of these other valuable dimensions of QoE is of practical importance.

[11] These statements are based on Sehnbruch (2008), which were the first studies to examine employment by means of a summary index that brought a multidimensional and capability perspective to the subject.

[12] See Muñoz de Bustillo et al. (2011: 245), who relate their European Index of Job Quality to the variable job satisfaction.

[13] An extreme example of worker preferences is the 2010 Chilean mining accident in which 33 miners were trapped 700 m underground for 69 days after the mine caved in on them. All of the miners knew that they were working in unsafe conditions, but made a choice to take that risk in exchange for higher wages.

[14] See Muñoz de Bustillo et al. (2011) for a comprehensive overview of this literature, which has been updated by Soffia (2018) and Piasna et al. (2019).

[15] See for example Anker, Chernyshev, Egger, Mehran, and Ritter (2003) and Ghai (2003).

[16] As a result, the ILO published as series of "Country Profiles" that reported on Decent Work in a particular country, but these reports are not comparable because the data they include vary from country to country. Recently, the ILO has stopped producing country profiles, with the last one having been published in 2014 on Pakistan. For more detail on this process, see Burchell et al. (2014).

and communicate a methodology that works with 52 separate indicators. As a result, Decent Work has not penetrated academic research and policy-making debates in developing countries to the same extent as in more advanced economies, while academic research has mostly been limited to single country studies (Sehnbruch, Burchell, Piasna, & Agloni, 2015).[17]

The EU has experienced analogous problems with conceptualising and measuring job quality and has proposed different methodologies and indicator lists, that include proposals produced by the European Commission in 2001 and 2008, as well as a new list put forward by the United Nations Economic Commission for Europe (United Nations Economic Commission for Europe, 2015).[18] Piasna, Sehnbruch, and Burchel (2019: 5) argue that "actors involved in the job quality debate within the EU employment policy represented diverging views on what constitutes desired aspects of jobs, with wages and non-standard contracts among the most contentious issues" and highlight the often contradictory policy advice given to member countries (2019: 9).

However, unlike the ILO, the EU has extensive comparable data on employment conditions in its member countries, and can therefore monitor progress both over time and across countries. This data was used, for example, by the OECD, which has put forward a valuable proposal for measuring and assessing job quality based on a dashboard of three dimensions: good-quality earnings, high labour market security and a good working environment (OECD, 2014: 116). Based on an extensive review of the literature, the OECD then proposes two sub-indicators for each dimension of their index: average earnings and inequality in earnings; unemployment risk and insurance in job security; and job demands and job resources in the working environment.[19] The simplicity of the indicator makes it both useful and relatively easy to calculate across a broad set of developed countries. This paper therefore builds on the OECD's work and uses the three dimensions highlighted by the institution as a model for thinking about the QoE in developing countries.

2.3. Measuring the QoE in developing Countries: What type of indicator is best?

Although the OECD's indicator of job quality serves as a useful model for an index on the QoE in developed countries where there is greater availability of internationally comparable data, the index is not as easily applicable in developing countries where such data is not readily available. The recent proposal put forward by the IDB for measuring job quality illustrates how data limitations require a simplification of component indicators (Busso et al., 2017). The IDB's job quality index combines indicators of the *quantity* of employment (participation and employment rates) with indicators of their *quality* (formality and earning a living wage), and summarises them in a single index that is simple to understand and easy to communicate. The index is thus likely to have an impact on how policymakers across Latin America think about the QoE. However, the IDB's indicator only captures variables produced at the macro level, which limits its analytical potential and its ability to inform public policy in individual countries as it will not allow them to identify vulnerable individuals in the labour market.[20]

The job quality indices reviewed so far therefore suffer from important limitations: the dashboard indicators produced by the ILO, the EU, the OECD and several academic studies suffer from a drawback that is neatly summed up by Leschke and Watt (2014: 2) "our index allows for both country comparisons and tracing developments separately for various fields of job quality, and thus provides a basis for assessing policies and structural shifts in different areas. *The approach has notable limitations for policy assessment; however, arguably the most important being that within-country job-quality inequality is not depicted* [italics added by authors]." The IDB's index, on the other hand, creates a synthetic indicator, which brings together some dimensions in a single figure, but ultimately suffers from the same limitation as it only uses macro-level data, which means that it does not allow policymakers to consider the distribution of the QoE across a labour force, or consider the joint distribution of deprivations. This is an important drawback when it comes to a subject that should be measured in a way that not only allows us to compute progress towards a specific SDG, but that should also comply with the UN's objective of leaving no one behind when it comes to achieving this progress (United Nations, 2015, 2017).

The QoE index presented in this paper therefore attempts to address these drawbacks. It applies the consensus achieved by the OECD on which dimensions of job quality are important with the idea that it is necessary to construct a synthetic index of the QoE that can inform public policy in a way that allows policymakers to identify and focus on vulnerable workers or groups of workers in the labour force. It therefore uses available micro-data from household and labour force surveys in Latin America to construct such an index, which following Sen, Stiglitz and Fitoussi (2009) would allow policymakers to evaluate the general evolution of the QoE at the country level as well as for individual groups within the labour force. Before engaging with the question of which methodology is most suitable for this purpose, however, the important limitations associated with synthetic indices must be acknowledged *ex-ante*.

While these indices have significant advantages for public policymakers, these come at the cost of simplifying the potential complexity of a multidimensional phenomenon that can mean different things to different people. This is the main argument put forward by the academic and institutional literature reviewed in the previous section for not synthesising information on the QoE. However, this paper takes the view that, first, in developing countries such simplification is already imposed by the lack of comparable data; and, second, that it can in part be compensated for by the possibility of examining the relationships between a synthetic index and other variables. For instance, we know that unionised workers often have better employment conditions than non-unionised workers.[21] However, rather than including collective interest representation in this index as Leschke and Watt (2014) do, this paper argues that the relation between unions and good jobs can better be examined by analysing the relationship between unionisation and the QoE index. Similarly, access to vocational training and its outcomes, indicators of job satisfaction, accident and safety rates, or work-related health risks can be examined in this way, assuming that individual countries have data on these issues.

This paper therefore puts forward a synthetic indicator using microdata from household surveys that measures the extent of deprivation both at the individual (micro) and at the national

---

[17] See Sehnbruch (2006) and Huneeus, Leiva, and Micco (2012) on Chile; Ortega (2013) on Mexico; Huneeus, Landerretche, Puentes, and Selman (2015) on Brazil; Villacís and Reis (2016) on Ecuador; and Gómez-Salcedo, Galvis-Aponte, and Royuela (2017) on Colombia. The only notable exceptions are Soffia (2018) on Central America and IDB (2017) on Latin America.

[18] Piasna et al. (2019) provide a detailed account of the EU's institutional process as it relates to Decent Work why these international institutions have not been able to produce useful synthetic indicators of.

[19] The literature cited uses a combination of data from Eurostat, ILOStat, the European Union Statistics on Income and Living Conditions (EU-SILC), the European Working Conditions Survey (EWCS) and the labour force surveys of individual countries to construct measures of the QoE.

[20] The IDB's indicator could, however, hypothetically be produced at the individual (micro)-level. The authors thank James Foster for pointing this out.

[21] See Freeman and Medoff (1984), Tzannatos (2008) or Kalleberg (2011) for the inverse argument of how declining union power deteriorates employment conditions.

(macro) level. This decision, however, prompts the question as to which methodology is best used for this purpose.

The creation of the Human Poverty Index (HPI) in 1997, the introduction of three new measures in the 2010 Human Development Report as well as improvements of the Human Development Index, have extended multidimensional analysis in the world (Anand, 2018). Notably, the HPI combines indicators of deprivation to estimate a composite index. However, the HPI "fails to account for the distribution and the role of multiple deprivations across the dimensions" (Duclos, 2011: 2). The 2010 Report replaces de HPI with the Multidimensional Poverty Index (MPI), which is based on the Alkire and Foster (AF) method. According to the UN, the MPI not only can be broken down by dimension and subgroup, but also it can capture how "many people experience overlapping deprivations and how many deprivations they face on average" (Klugman, 2010: 95).

For this paper, the AF method was chosen as a method of aggregation for both technical and policy reasons. On the technical side, the method allows us to examine the distribution of the QoE across the labour force, as well as the joint distribution of individuals in the labour force. This also allows for the analysis of horizontal inequalities between particular groups of workers in a labour force (such as men and women, age groups, regions, migrants, or ethnic minorities).[22] Thus, policymakers would be able to focus on the most vulnerable workers with a clear understanding of just how vulnerable they are. Such distributional differences are an even more important consideration in developing countries where labour markets are much more heterogeneous in terms of their composition, and where inequalities are higher while the differences between particular groups of workers can be considerable.

At the country, regional or group level, the AF method also allows for the decomposition of the index into its component dimensions and indicators. This analysis, for example, may highlight that dimensions not normally considered by experts as an area for policy concern are important to the analysis of the QoE. Such methodological rigour is essential for policy makers, who ultimately have to justify any distribution or redistribution of public resources based on (hopefully) rigorous information.

This argument leads to the policy reasons for which the AF method was chosen: First, the AF method is easy to communicate to policymakers, experts, users and the wider public. Second, the methodology is straightforward to replicate. Third, it can be adapted to the circumstances of individual countries to take into account their particular needs and concerns. Finally, the AF method has established itself as internationally influential in that it forms the basis of the UN's Multidimensional Poverty Index, which has given the MPI widespread credibility.

Other methods, such as the dominance approach, statistical approaches (e.g. principal components analysis, multiple correspondence analysis or factor analysis) or fuzzy set approaches are also valuable in this context but not as useful to the objective of measuring the QoE as the AF method, as they often have limitations as a result of the specific axiomatic properties they hold (Alkire et al., 2015: 99–100). For example, statistical methods for calculating indicators may violate axioms such as replication invariance property and deprivation focus. This means that it would be problematic to compare countries (with different sample sizes) as well as undertake analysis over time. Furthermore, with these indicators, overall results may improve when there is an increase in the achievement of non-deprived workers. As for dominance indicators, these have high data requirements when two or more dimensions are measured and consider stricter conditions on the individual deprivation function and are less intuitive (see

Duclos, Sahn, & Younger, 2006; Atkinson, 2003). In short, the AF method has all of the advantages of other methods without their shortcomings.

3. Adapting the AF method to measuring the QoE: Dimensions, Indicators, Cut-offs and weights

As discussed in the previous section, this paper draws on the capability approach in three important ways: first, it uses the approach as a theoretical framework to re-examine the role of employment in an individual's set of capabilities and functionings following Sehnbruch (2006, 2008). Second, it applies the conceptual logic behind the development of synthetic indicators based on the capability approach, such as the Human Development Index, to the subject of employment, following (UNDP, 1990). Third, it uses the AF method, which has been tried and tested in the construction of both national and internationally comparable multidimensional poverty indices, and which has an established track record of informing public policy; for example, the Multidimensional Poverty Index (MPI) has been calculated for 105 countries identifying multiple deprivations at the household level (Alkire & Santos, 2014; Alkire & Seth, 2015; UNDP, 2016).[23]

The QoE index's mathematical structure copies the family of AF indicators (Alkire & Foster, 2011; Alkire, 2007) and adapts the steps undertaken by Alkire and Foster, which are neatly summarised in Alkire and Santos (2014: 252-253).

First, to create a multidimensional QoE index, this method selects dimensions and indicators that are considered to be *instrumentally and/or intrinsically valuable* (Sen, 1992, 1999): income generated by work, job stability, and employment conditions.

Second, constructing a QoE indicator using only three dimensions follows the logic of *parsimony* (Alkire & Santos, 2014), and considers the lessons learned from other institutional attempts to measure the QoE (Section 2). Including only three dimensions in this index simplifies communication with key stakeholders and potential users (such as policy makers, international institutions, employers, unions, and the media), while at the same time summarising the essence of what is important when it comes to employment conditions and the capabilities they generate.

Third, a need for achieving a basic *consensus* on *which* employment dimensions to include in a QoE indicator also motivates this discussion. The dimensions selected are not only based on data availability, but also on the academic and institutional literature discussed above, which allows for the identification of the most important variables that can be compared across a range of developing countries.

The QoE indicator proposed in this paper assesses multidimensional quality of employment for individuals in nine different Latin American countries according to three dimensions, summarised in Table 1: labour income, employment stability and employment conditions. Two of these three dimensions subdivide into four variables, or sub-dimensions: occupational status, tenure, social security affiliation, and excessive working hours. In each of these dimensions or sub-dimensions, a deprivation cut-off line is established based on existing studies that demonstrate which dimensions of the QoE are important.

Each worker is then categorised according to whether he or she is deprived or non-deprived in each indicator, and a deprivation score is constructed based on the nested weight structure specified in Table 1: equal weights are assigned to each dimension, and

---

[22] See Stewart (2008) for a conceptualisation of horizontal inequalities.

[23] The MPI included 105 countries as of September 2018 (see https://ophi.org.uk/multidimensional-poverty-index/global-mpi-2018/). National Multidimensional poverty indicators are being used by countries as diverse as Armenia, Bhutan, Bangladesh, Chile, Colombia, the Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Mozambique, Nepal, Pakistan, Panama, and Vietnam.

Table 1
Dimensions, Indicators and Weights.

Dimensions (weight)	Labour income (1/3)	Employment Stability (1/3)		Employment conditions (1/3)	
Indicator (weight)	Income (1/3)	Occupational status (1/6)	Tenure (1/6)	Social security (1/6)	Excessive working hours (1/6)
Deprivation Cut-off	Less than 6 basic food baskets (monthly calculation) using CEPAL data	No contract, Self-employed	Less than 3 years employed in current occupation. Individuals between the ages of 18 and 24 are not considered deprived in this indicator.	No affiliation to social security	More than 45 h per week
Population	All occupied individuals between the age of 18–65, who report a monthly salary from their main occupation	All occupied individuals between the age of 18–65, who report on their occupational and contractual status	All occupied individuals between the ages of 18–65, who report the number of years employed in their current main occupation	All occupied individuals between the ages of 18–65, who report their affiliation to a pension scheme	All occupied individuals between the ages of 18–16, who report their hours worked during the past week

equal weights are also assigned to each sub-dimension. Finally, a multidimensional cut-off line of 33.33% is established to determine overall multidimensional deprivation across dimensions.

3.1. The dimension of income from labour

The dimension of income from labour is included in this indicator even though labour income should principally be considered as an important resource rather than as a functioning with intrinsic value. By including earnings, this paper follows (Santos & Villatoro, 2018), who argue that "income is a fungible resource [that] can be used to satisfy a variety of needs" and therefore include the dimension of income in their calculation of multidimensional poverty. Also, income is a valuable indicator for "public policy design, for example in the design of conditional cash transfer programmes." (Santos & Villatoro, 2018). Not including earnings in this index would also be highly questionable from the perspective of the literature that focuses on labour markets, where income from work is considered to be the summary expression of a worker's skills and employment conditions (Duncan & Bertil, 1983).

However, earnings from labour are not just a resource, but also an indicator of an individual worker's worth in the labour market as they tend to be a reflection of multiple worker characteristics (such as gender, age, education level, or years of experience).[24] Put differently, they can give workers a sense of self-worth and status as well as an appreciation of how others value them, which in turn will have an impact on their self-confidence and level of empowerment. In turn, this will generate an impact on a range of other capabilities, particularly as they relate to some of Nussbaum's core capabilities, such as affiliation (social interaction); having the social bases for self-respect and non-humiliation; and having control over one's environment, in particular the right "to seek employment on an equal basis with others" (Nussbaum, 2011: 33-34).

This dimension therefore considers the monthly income reported by each employed individual from his or her primary employment. Following the OECD (2014), the possibility of subdividing this dimension into absolute and relative indicators was tested, using 60% of the median wage as a cut-off of for relative income.[25] However, the inclusion of a relative income indicator generated misleading results due to the high levels of income inequality in Latin America (see Table 2 below), which led to homogeneously low rates of deprivation, especially in Brazil and Chile where inequality is the highest.

Similarly, the option of using a minimum wage based cut-off line was also discarded, as the value of the latter is set arbitrarily in each country according to political preferences as a result of which the results derived from a minimum wage cut-off line were not robust. (Appendix A, Table A1).

To establish an absolute deprivation cut-off, official data was used from the Economic Commission for Latin America and the Caribbean, which recollects the value of each country's basic food basket: Income equivalent to two food baskets *per person* is considered to be the official poverty line in Latin American countries. As Latin American workers have at least one dependent, generally a child, a worker must earn a minimum of four food baskets to live above the poverty line.[26] However, living just above the poverty line still only constitutes a minimal level of income with which a worker would find it difficult to sustain basic functionings or overcome any kind of external shock.[27] The literature on vulnerability definitions was therefore used to define a cut-off line that considers how much more income workers would need (above and beyond the absolute minimum) to be able to function in the labour market. This literature considers a range of income levels for Latin American countries that translate into the equivalent of 6 or 8 foodbaskets.[28] A sensitivity analysis was then undertaken that considered one worker and at least one dependent. (See Table A1). Although 8 foodbaskets would also fall into this income bracket, the sensitivity analysis produced overall deprivation levels that were so high as to render the index impracticable as it left some countries in the region with deprivation levels that exceed 80%.

The cut-off line for income from labour is therefore set at *six food baskets per worker* in recognition of the fact that more income is required for a worker to be able to develop and exercise basic capabilities, both for him/herself and at least one dependent. For instance, a valuable contribution to the labour market is the ability to participate *productively* in the labour market and achieve personal development as well as contributing to society in the context of an employment relationship. A worker earning only four food baskets would find it extremely difficult to achieve such capabilities as such a minimal level of income would not even provide

---

[24] The authors would like to thank XXX for making this important point in a discussion of this paper. (The name of the person referred to will be inserted once the review process of this paper is complete.)

[25] This would follow the methodology used in the OECD's (2014, 2015) employment reports.

---

[26] A simple average of the number of dependents per worker in the nine countries studied here is 1.25. The average household size is 3.37.

[27] See Jones and Tvedten (2019) for a discussion of how households remain vulnerable to changes in external conditions (e.g. disability or health crisis) unless they have substantial savings to full back on in times of crises. See Ravallion (2011) for a discussion of how income from labour interacts with poverty levels.

[28] This calculation of vulnerability is broadly consistent with Lopez-Calva and Ortiz-Juarez (2014), who also propose a cut off line of USD10 per day per person and with Stampini, Robles, Sáenz, Ibarrarán, and Medellín (2016) who also define vulnerability in Latin America as ranging between 4 and 10USD per day per person. These studies also coincide with studies by Banerjee and Duflo (2008), who calculate a vulnerability cut-off of 2-10USD and with Ravallion (2011), who puts this line at between US$2-13.

Table 2
General Country Data and Databases Used.

Country	Databases used	Year[a]	Employed (ages 18–65)[b]	Sample Subpop[c]	% of sample used	HDI[d]	GDP per capita[e]	Po-verty[f]	GINI[g]	Labour Force Participation[h]	Unem-ployment[i]	Vulnerable employ-ment[j]
Bolivia	Encuesta Continua de Hogares (MECOVI)	2015	15,561	13,363	85.9	0.68	$ 2390.20	35	0.45	58.9	4.4	56.6
Brazil	Pesquisa Nacional por Amostra de Domicílios (PNAD)	2015	159,122	128,326	80.6	0.76	$ 11,250.60	18.8	0.51	56.1	9.3	26.9
Chile	Encuesta de Caracterización Socioeconómica (CASEN)	2015	110,499	101,356	91.7	0.84	$ 14,739.30	13.7	0.45	56.0	6.2	22.8
Colombia	Gran Encuesta Integrada de Hogares (GEIH)	2015	28,241	24,603	87.1	0.74	$ 7461.20	30.5	0.52	59.0	9.2	46.9
Ecuador	Encuesta Nacional de Empleo, Desempleo y Subempleo (ENEMDU)	2015	26,500	21,368	80.6	0.74	$ 5352.90	22.9	0.46	63.3	4.7	41.6
Mexico	La Encuesta Nacional de Ocupación y Empleo (ENOE)	2015	138,777	129,886	92.500	0.77	$ 9815.40	43.7	0.50	57.2	4.7	27.7
Paraguay	Encuesta Permanente de Hogares (EPH)	2015	14,300	11,041	77.2	0.70	$ 4985.30	23.4	0.49	58.7	6.5	38.8
Peru	Encuesta Nacional de Hogares (ENAHO)	2015	55,317	46,143	83.4	0.75	$ 5936.50	19	0.45	69.1	4.4	50.1
Uruguay	Encuesta Continua de Hogares (ECH)	2015	57,120	54,015	94.6	0.80	$ 13,864.60	4.1	0.39	59.0	7.8	23.1

a. Year: represents the year of the cross-sectional data source used for each country.
b. Employed: Refers to the sample number in national household or labour force surveys classified as employed workers between the ages of 18–65.
c. The sample subpopulation refers to all employed individuals from each survey without missing variables in the dimensions included in the multidimensional QoE.
d. Human Development Index (2015 HDI – UNDP).
e. ECLAC GDP per capita (2015): Annual gross domestic product (GDP) per capita at constant prices in dollars.
f. ECLAC Poverty rate (% of total population – 2015): living below the national poverty lines. Data for Mexico is from 2016.
g. ECLAC GINI index (2015): Data for Mexico is from 2016.
h & i. Labour force participation rate and unemployment rate (% of total population – 2015) from ECLAC.
j. Vulnerable employment (% of total employment – 2015): Vulnerable employment is contributing family workers and own-account workers as a percentage of total employment, obtained from World Bank Data.

enough resources (capital) to be self-employed productively in the most basic activities.[29]

3.2. The dimension of employment stability

Employment stability must be considered as a crucial second dimension of the QoE as the ability of a worker to develop capabilities in the labour market depends not only on having a job, but also on the stability of this job.[30] This dimension therefore considers the two key components of job stability, namely the occupational status of a worker as well as job tenure. The combination of these two variables is important as research shows that job rotation has become a significant problem in Latin America, where open-ended contracts no longer guarantee a stable employment relationship (Busso et al., 2017). In addition, job insecurity is a major concern among poor workers, and job instability is the leading cause and expression of poverty (Bocquier, Nordman, & Vescovo, 2010).[31] The occupational status of a worker thus serves as an indicator of the legal rights associated with a job, while job tenure serves as an indicator of its stability. Together, these variables combine to serve as a proxy for unemployment risk (Arriagada, Apablaza, González,

Sehnbruch, & Mendez, 2018).[32] Overall, job stability must be considered as a key characteristic of the QoE from the perspective of the capability approach because it allows workers to develop their personal and professional capabilities in a job, including the freedom to develop meaningful relationships and affiliations at work as well as their ability to contribute to society in a meaningful way, while the anxiety produced by the threat of job loss will negatively affect their emotional and psychological well-being (Nussbaum, 2011).

3.2.1. Occupational status

This sub-dimension categorises workers as deprived if they are wage earners *without* formal written contracts or if they are self-employed as these categories of occupational status are not protected by employment legislation or collective organisations, they have no employment rights, and would find it difficult to sustain any kind of legal recourse in relation to their employment relationship.[33]

By contrast, employers and workers with contracts (regardless of whether these are short-term or permanent) are not considered to be deprived as their work relationships are governed by a legal status, which gives them access to a series of employment rights (such as employment protection legislation, paid holidays and the right to collective organisation, as well as legal recourse in case of disputes.

Ideally, in this dimension the type of contract of workers would also be considered: for example, whether a contract is open-ended,

---

[29] As an example of this principle, consider the *cartonero* (informal worker who gathers cardboard and sells it on for recycling): without a minimal level of resources in excess of the poverty line, the *cartonero* would be confined to scouring his or her own – in all likelihood poor – neighbourhood on foot for both gathering and selling on cardboard. With a converted bicycle (that would allow for the transportation of more cardboard), more neighbourhoods can be searched, and more cardboard can be transported and recycled, leading to higher income levels. However, if the worker's income level does not allow for the acquisition and maintenance of such a bicycle, he or she would not be able to participate productively in the labour market.
[30] Sehnbruch (2006); Cazes and Tonin (2010); Muñoz de Bustillo et al. (2011); Eurofound (2012); and OECD (2014).
[31] Bocquier et al. (2010) define instability in employment as a change of job without an improvement or with a drop in status in the last five years.

[32] Note that unemployment risk based on the OECD (2014) methodology cannot be calculated in Latin America as we do not have consistent information on unemployment spells.
[33] The ILO's "Transition from the Informal to the Formal Economy" Recommendation No. 204 (ILO, 2015a) describes informality as referring to all economic activities by workers and economic units that are in law or in practice not covered or insufficiently covered by formal arrangements. See also Loayza and Rigolini (2011) on the problems of informal employment and Gindling and Newhouse (2014) for a discussion of definitions.

short-term, temporary or task-based. In Latin America, workers are also frequently hired on a free-lance *(honorario)* or subcontracted basis. Unfortunately, this paper cannot make these distinctions as comparable data on the type of contractual relationship is not available in the region.

3.2.2. Job tenure

A more complex sub-dimension of employment stability is job tenure. Here, a distinction must be made between younger and older workers, as young adults are often working while studying or are recent entrants into the labour market, and therefore unlikely to have accumulated a significant degree of tenure in their job. Moreover, it must be recognised that there is no linear relationship between longer job duration and higher job quality. In particular, workers may become "stuck" in highly precarious jobs.

However, this paper takes the view that excessive job rotation is definitely a bad thing. For instance, in Chile, arguably Latin America's most developed labour market, Sehnbruch, Carranza, and Prieto (2019) show that 30% of formal workers have short-term contracts, which on average last less than one year.[34] The results presented in this paper show that tenure levels in other Latin American countries are also low. As high levels of job rotation both increase periods during which workers do not contribute to social security systems (Madero-Cabib, Corna, & Bauman, 2019) and also prevent long-term investment in vocational training, skills and career progression (IDB, 2017), this has the potential to affect adversely the ability of workers to develop their capabilities at work. In addition, the psychological stress produced by high levels of job insecurity is significant and likely to affect negatively the well-being of workers, especially if they have dependants (Hellgren, Sverke, & Isaksson, 1999; Sverke, Gallagher, & Hellgren, 2000).

Accordingly, this indicator considers workers to be deprived if they have been employed for less than three years in their primary occupation. The cut-off line of three years was used because Latin American countries have labour codes, which establish employment protection legislation that entitles workers to severance pay of an average of one month's wage per year of tenure. Job tenure of three years therefore entitles wage-earners with open-ended contracts to three monthly wages of severance pay, which is enough to weather the average duration of unemployment in Latin America (approximately 4–6) months at a replacement rate of between 75 and 50%.[35]

In the case of younger workers (aged 18–24), a cut-off line of one year was used to reflect the fact that they are likely to be recent entrants into the labour market, who may not be working for long enough to accumulate three years of tenure. Again, these cut-off lines represent an approximation to the employment situation of young adults. Ideally, the precise detail of each worker's educational situation and transition into the labour market would be taken into account to produce individual cut-off lines depending on the varying circumstances of each worker. However, household surveys do not provide information with this level of detail. A cut-off of one year was used to reflect the fact that workers are covered by employment protection legislation after 12 months in a job.

3.3. The dimension of employment conditions

The dimension employment conditions comprises the indicators of social security affiliation and excessive working hours. Including these variables also follows the consensus of the international literature as well as recognising their intrinsic and instrumental value to workers.[36] Like occupational status, social security affiliation is also an indicator of employment formality. However, in this dimension, it is included as a proxy for other employment benefits rather than as an indicator of a workers' legal rights.

Excessive working hours, on the other hand, have been included in this dimension as an indicator of work-life balance, following not only the international literature, which indicates that excessive working hours produce job strain, stress and generally negative consequences for a worker's health, but also following international conventions.[37]

3.3.1. Social security affiliation

This indicator considers if an individual is affiliated to a pension scheme, which is a pre-requisite for sustaining the resource of income so that an individual can develop functionings and capabilities over the life cycle (Rofman & Carranza, 2005). The variable also serves as a proxy for other benefits, such as health, accident, disability or unemployment insurance as contributions to these insurance systems are normally linked together in a single payment mechanism.[38] Individuals not affiliated to a pension scheme are considered to be deprived in this dimension.

Unfortunately, it was impossible to use the variable "*contributing* to a pension system" for this indicator as this information was only available for Chile and Peru, while household surveys from the other countries do not distinguish between workers, who are merely registered in a social security system and those, who are actively contributing. This variable therefore obliges us to concede to data constraints, and use affiliation as a proxy for contributions.

3.3.2. Excessive working hours

This indicator is created based on the weekly working hours for each employed individual. Any individual who works more than 48 h is considered deprived. This cut-off is based on statutory working hour limits established by individual countries as well as on the ILO's Hours of Work Conventions, which introduced a maximum standard working time of 48 h per week and eight hours per day as an international norm.[39]

Studies undertaken by the OECD show a strong positive correlation between long hours and job strain across a broad group of countries where both measures can be constructed. Furthermore, excessive working hours negatively impact a workers' physical and mental health when they do not have control over their working hour schedule (Muñoz de Bustillo, Fernández-Macías, Antón, & Esteve, 2011; OECD, 2015). Excessive hours create risks for worker's safety and health, can lead to conflicts over work-life balance,

[34] Among workers with these short-term contracts, 50% last less than three months in the same job (Sehnbruch et al., 2019).
[35] See Holzmann and Vodopivec (2012) for details on severance pay legislation in Latin America and Sehnbruch et al. (2019) for details on the relationship between job tenure, contracts and the duration of unemployment.
[36] See for example the ILO's document on Social Protection Floors (2011). Social Security affiliation is also linked to SDG 3, which aims to achieve universal health coverage.
[37] Unfortunately, data restrictions do not allow us to consider under-employment in this dimension as not all Latin American household surveys ask part-time workers whether their situation is voluntary or involuntary, and how many hours they would like to work if they could.
[38] At the moment, not all Latin American countries considered in this paper have fully fledged welfare states that include these components of social security. However, if they do not have them yet, they have to work towards establishing them in the medium term.
[39] The principle underlying this dimension of "decent working time" is that unhealthy working hours should not be a means of improving firms' profitability, a principle which underlies the EU Directive on Working Time (93/104/EC; Europen Union, 1993). The protection of workers' health through limitations on working hours also underlies the ILO's Hours of Work (Industry) Convention, 1919a,b (No. 1) and the Hours of Work (Commerce and Offices) Convention, 1930 (No. 30), which both stress the limits of the 8-hourwork day and the 48-hour work week (with certain exceptions).

and ultimately may negatively affect the well-being and capabilities of an individual.

From a public policy perspective, excessive working hours are important not only because they have implications for the social services required to support workers (e.g. childcare facilities), but also because excessive working hours in the long run are likely to generate greater costs to national health insurance systems in terms of treatments for both physical and mental ailments. Moreover, the effects of long and/or prohibitive working hours are not limited to individual workers and their capabilities, but also affect their families and society at large (Spurgeon & Cooper, 2001).

3.4. Weighting

As has been widely discussed in the literature on multidimensional indicators, the relative values of different deprivations in multidimensional approaches can be obtained in three ways: data-driven statistical analysis; market price approaches; and normative methods.[40] Even though the statistical techniques for assigning weights (e.g. factor, principle component or cluster analysis) reduce arbitrariness, these methods are not necessarily aligned with the purposes of public policy and a consensus on the importance of indicator dimensions. In addition, these techniques can produce counterintuitive results, and in the case of international and intertemporal comparisons require normative decisions about comparative parameters (Brandolini & D'Alessio, 1998).

The method of using market prices to assign weights is also widely used. However, several limitations exist relating to the absence of market prices when it comes to the measurement of poverty or welfare. For instance, which market price should be assigned to indicators of health or education? In the case of the QoE, only the dimension income has a market value, while job stability and employment conditions would be extremely difficult to wait according to market prices.

One of the most frequently used methods for assigning weights to different dimensions is the normative decision, which has frequently been neglected by the literature (Sen, 1973; Atkinson, 1987). Although conceptually equal weighting is potentially more arbitrary than other methods (Esposito & Chiappero-Martinetti, 2010), previous work suggests that equal weighting can be justified if one is agnostic about the relative importance of the dimensions included in an index or if the intention is to minimise intervention (Brandolini & D'Alessio, 1998) or in the face of an absence of social consensus (Mayer & Jencks, 1989). Generally, equal weighting is recommended when balanced dimensions that do not overlap are used or when the dimensions included are considered to be equally important. It is also the most commonly used approach to weighting in multi-dimensional indices of well-being.[41] xli

Regardless of the weighting method used, Sen and Muellbauer (1988) and later Foster and Sen (1997) suggest using multiple weights to evaluate the vastness of the data. This paper follows Sen (1996) in proposing that the values (or weights) of an indicator should be explicit and transparent so as to be open to public debate. In this index, equal weighting is used for the three dimensions included in this indicator to illustrate that income, employment stability, and employment conditions are equally important. Equal weights across dimensions, of course, make an indicator easier to interpret, especially in the realm of policymaking and when results have to be communicated to a wider audience of stakeholders and users (Atkinson, 2003). This weighting structure reflects the value judgement that objective achievements across the dimensions included in this index are equally and fundamentally valuable to individual workers, *as well as* to public policymakers.

Table 1 presents the weights of the multi-dimensional QoE index. Each dimension represents 1/3 of the indicator, while the indicators included within each dimension are also equally weighted, which follows the nested weighting principle. As these weights represent a normative choice, robustness tests were undertaken to ensure that the index is robust to a plausible range of weights (Appendix A, Table A2).

3.5. Cut-off k and the direction of the index

The deprivation cut-off k reflects the deprivation score of weighted indicators in which a person must be disadvantaged to be considered multi-dimensionally deprived. This means that individuals with a score below the threshold have poor QoE. When calculating the QoE Index, a full range of possible cut-offs were tested. A cut-off k of 33.33% was selected for the following normative reasons. First, conceptually each dimension of the index represents a basic aspect of the QoE. The absence of one of them will imply a precarious employment condition, which is consistent with the 33.3% cut-off. The proposed weights and a cut-off of 33% are also determined by the crucial importance of income from employment in Latin American labour markets where many workers are still poor. In recognition of this fact, the cut-off helps to identify the working poor at first glance as those workers who are deprived in the first dimension of the indicator (see Table 3).

In the other dimensions, two deprived indicators should concur for a worker to be considered deprived. The cut-off line allows for substitution across indicators excluding income, i.e. the individual worker could be in a well-paid job and choose not to achieve one of the other indicators (e.g. not contribute to social security or be self-employed or work excessive hours). This individual can therefore value and choose to substitute one indicator for another, and would not be considered deprived.

The cut-off defined by this paper also follows existing literature on multidimensional poverty that uses the AF method, including the Global MPI (Alkire & Santos, 2014; Alkire & Seth, 2015; Alkire, Roche, & Vaz, 2017). In this context, it is important to remember the purpose a cut-off line serves: A higher cut-off might inform targeting policies by focusing only on those who are in an extreme condition. On the other hand, a low cut-off will identify almost all individuals as deprived. For instance, with a cut-off = 10%, 90.4% of the Peruvian labour force would be considered to have poor quality employment. On the other hand, with a cut-off = 90%, only 2.6% of the Mexican population would be in the same condition.

In any case, the proposed cut-off is always a normative decision that helps to communicate results to experts, policy makers and the wider public. To test the validity of the cut-off chosen for this paper, dominance analyses was undertaken (Appendix A, Fig. A1), which shows that the QoE Index ranking is robust to different cut-offs (ranging from k = 20–100%), and that it is consistent with normative expectations of labour market development in the countries studied.

A multi-dimensional index such as the one presented in this paper and each of its component indicators could take on one of two orientations: a positive or negative one (IDB, 2017). This index is oriented negatively, meaning a higher H, A or M_0 implies poorer employment quality. Conversely, this means that 1-H, 1-A or 1-M_0 must be understood as a positive measure of QoE.

---

[40] See Decancq and Lugo (2012a,b) for an extensive revision of this literature.

[41] Human Development Index, Human Poverty Indices, Commitment to Development Index (United Nations Development Programme, 2016). For an extensive debate on aggregation for multidimensional indices see critiques in Ravallion (2011) and responses from Alkire and Foster (2011).

Table 3
A Dashboard of Headcount Ratios by Dimension/Indicator.

Dimensions		Labour Income	Employment Stability		Employment Conditions	
Indicator		Income	Occupational Status	Tenure	Social Security	Excessive Working Hours
Bolivia	**Raw**	**49.3**	**71.6**	**34.6**	**76.8**	**37.6**
	Std. Err	0.004	0.004	0.004	0.004	0.004
Brazil	**Raw**	**34.7**	**47.3**	**39.1**	**36.1**	**10.9**
	Std. Err	0.001	0.001	0.001	0.001	0.001
Chile	**Raw**	**24.9**	**31.8**	**43.0**	**12.1**	**15.6**
	Std. Err	0.001	0.001	0.002	0.001	0.001
Colombia	**Raw**	**30.7**	**62.4**	**45.8**	**59.8**	**32.8**
	Std. Err	0.003	0.003	0.003	0.003	0.003
Ecuador	**Raw**	**45.7**	**48.1**	**26.7**	**51.2**	**16.8**
	Std. Err	0.003	0.003	0.003	0.003	0.003
Mexico	**Raw**	**72.5**	**53.1**	**32.3**	**56.2**	**28.9**
	Std. Err	0.001	0.001	0.001	0.001	0.001
Paraguay	**Raw**	**64.2**	**73.5**	**23.1**	**79.1**	**36.5**
	Std. Err	0.004	0.004	0.004	0.004	0.004
Peru	**Raw**	**41.7**	**71.6**	**44.7**	**68.9**	**26.4**
	Std. Err	0.002	0.002	0.002	0.002	0.002
Uruguay	**Raw**	**35.2**	**21.6**	**33.9**	**22.5**	**14.6**
	Std. Err	0.002	0.002	0.002	0.002	0.002

4. Country selection, data sources and data constraints

This paper constitutes the first attempt to compute a QoE index across a number of developing countries where data on employment conditions is often scarce. To compute the index, nine Latin American countries with different levels of human and economic development were selected to test the methodology.[42] Together, these countries represent 91.75% of the population in Latin America.[43]

The countries selected have similar Labour Codes with comparable regulations governing employment relationships and the rights attached to them (such as employment protection legislation). Also, the social security structures of these countries share similar characteristics as contributions are tied to contracts, while self-employed workers are not obliged to contribute.[44]

In each of the selected countries, data from their household surveys for the year 2015 were used,[45] all of which include relevant and internationally comparable questions on employment conditions as well as on other individual and household characteristics such as family composition, income and education levels. Only in Ecuador and Mexico labour force survey data was used as household surveys do not include the variables required for calculating this index. In the other countries, nationally representative household surveys were used rather than labour force surveys as the former contain a broader range of variables and are based on larger samples. This analysis is based on individuals who are employed as independent workers or dependent workers according to international definitions[46], and who are between the ages of 18 and 65.

Following Alkire and Santos (2014), all the variables used to construct the QoE indicators were harmonized to ensure their comparability across countries. Individuals with incomplete information on the component variables of this indicator were dropped from this analysis. Table 2 shows that in most countries the resulting sample reduction is minor as all sample subpopulations represent at least 80% of the original sample population. Only Paraguay has a slightly lower rate of complete answers at 77%. Dropped individuals do not represent a systematic bias towards particular groups from the sample and general loss of individuals from the analysed sample come from specific groups that do not report a monthly income.

Table 2 presents information on the basic characteristics of the countries (e.g. GDP per capita, poverty, income inequality (GINI)) selected for this study. Chile and Uruguay were included for their relatively high level of development within the Latin American region; Brazil, Colombia, Ecuador, Mexico and Peru for their medium level of development; and Bolivia and Paraguay for their lower development status. Table 2 also shows that these countries vary in terms of the characteristics of their labour markets, with Brazil, Chile and Uruguay presenting lower levels of vulnerable employment and higher proportions of wage-earners. Bolivia, on the other hand, has the lowest proportion of wage earners, and the highest rate of vulnerable employment.

Table 2 illustrates that although all countries included in this study can be described as "developing" (see Footnote 32), they are nevertheless relatively heterogeneous in terms of their development and employment indicators, a result that should be reflected by the QoE indices.

Although the gathering of data on employment conditions has improved somewhat in Latin America, data limitations nevertheless constrain the construction of a QoE index based on a broader range of variables. For example, at present, the OECD's Job Quality indicator cannot be replicated as this would require information on unemployment risk, work-related stress factors such as time pressure at work, exposure to health risks, work autonomy and workplace management systems (OECD, 2014: 103). Similarly, it would not be possible to replicate the methodology of Eurofound (2012), which would, for example, require data on the physical and social work environment, as well as on career progression and prospects.

---

[42] Although Chile and Uruguay are no longer considered as "developing" by the World Bank or the OECD's Development Assistance Committee (DAC) as their per capita income levels have increased significantly in recent years, this paper has included them in this study as their labour markets still have much in common with other developing countries, such as high levels of informality and inequality.

[43] Based on ECLAC's (2017) "Estimation and Projections of the Population" database.

[44] As discussed above, the exception to this rule is Uruguay, where an employment relationship is not necessarily based on a de jure employment contract but is considered de facto from the moment it begins.

[45] In the cases of Mexico and Ecuador, labour force surveys were used.

[46] Resolution concerning the International Classification of Status in Employment (ICSE 18A): https://www.ilo.org/wcmsp5/groups/public/—dgreports/—stat/docu-ments/meetingdocument/wcms_648693.pdf

Having said this, it is debatable whether incorporating more variables into a QoE indicator would necessarily improve it. The dimensions of employment conditions included in this indicator capture the essence of the QoE in developing countries. This paper holds the view that despite being restricted by data availability, the dimensions included in this QoE index are the most important, although an obvious change that would be desirable in terms of improving its accuracy would be to replace social security affiliation with the variable contributions.

5. Quality of employment index findings

In analysing the findings of the QoE index, it is important to ask what can be learned from these results beyond what is already known from traditional labour market indicators such as employment rates and wage levels. Before going into this analysis, however, it must be emphasised that the results presented in this section are broadly consistent with what would be expected given the respective development levels of the countries included in this study. They therefore satisfy a basic desideratum of multidimensional indices, which is that they should make intuitive sense.

This section analyses the basic deprivations (uncensored headcount results) of each country in each dimension; it then presents the headcount ratios, average intensity shares and adjusted headcount ratios derived from these results; the relationship between the headcount ratios and employment rates; dimensional subcompositions by country; and censored versus raw headcount ratios for two sample countries.

Table 3 shows how deprived the labour force of each country is in each dimension and indicator. It illustrates that headcount levels of deprivation in some indicators, especially occupational status and social security affiliation are significantly higher than deprivations in other indicators, including the dimension of income. Mexico, Paraguay, Bolivia, Peru and Colombia systematically perform worse across all dimensions than Brazil, Uruguay and Chile. As one would intuitively expect, the two most developed countries in Latin America (included in this study) perform best across all dimensions. However, between them are significant differences: for example, Uruguay performs worse in the dimension of income, but better when it comes to occupational status, which is probably related to the fact that it is the only country in Latin America that considers any employment relationship as formal, even if a contract has not been signed.

Another interesting result presented in Table 3 is that the variation of deprivations in the indicator tenure is much lower than in other indicators, with less developed countries such as Paraguay and Bolivia showing less deprivation than could be expected. This result is related to the high incidence of informal employment in these countries as these jobs, despite being precarious in many respects (in particular regarding their lack of affiliation to a pension system) are often more stable and long-term than the jobs of salaried workers, particularly of those with fixed-term contracts. However, Colombia and Peru also have high levels of deprivation in the indicator occupational status, and also are highly deprived in terms of tenure. It is this kind of result which can be derived from country comparisons that are particularly useful to policymakers in each country when it comes to identifying how their QoE compares to other countries in the region, and when considering labour policy options.

5.1. Index results

Table 4 presents estimation results for the QoE index in terms of the headcount ratios (H), average intensity shares (A), and adjusted headcount ratios (M_0), of each country, as well as their standard errors. The robustness tests of these results are presented in Appendix Tables A2 and A6 and Fig. A1 of this paper.

The headcount ratio (H) shows the proportion of deprived individuals in each country, which confirm that Chile, Uruguay and Brazil perform better in terms of their QoE than Mexico, Colombia, Ecuador, Peru, Bolivia and Paraguay. The average intensity share (A), which averages simultaneous deprivations experienced by workers in each country, i.e. the intensity of their QoE, reflects the same grouping of countries although the range of intensity scores is much narrower, showing that on average workers in Latin America are deprived in terms of at least half of their QoE indicators. M_0 represents the adjustment of the Headcount Ratio by the Average Intensity Score following Alkire et al. (2015). The adjusted headcount ratio M_0 again shows the same grouping of countries when it comes to deprivations, with Chile, Uruguay and Brazil showing lower levels of deprivation.

Such a measure of the intensity of deprivation allows policymakers to focus on those groups of workers within the labour market who are most deprived. For example, Table 5 shows that despite having similar A scores, Bolivia and Paraguay show different percentages for those workers with the most simultaneous deprivations: In Paraguay 6.6% of its sample population is deprived in all dimensions while Bolivia only 4.5% is deprived in all dimensions. These two groups of workers are the most deprived in terms of their employment capabilities, which means that policymakers should concentrate their policy efforts on them as a first priority.

5.2. Horizontal decomposition of the indicator: The gender dimension

One of the important advantages of a synthetic indicator of the QoE is that it can be disaggregated into different sub-groups of the workforce to examine which are better or worse off. In this way, the indicator can be calculated for particular age groups (especially younger or older workers), workers employed in a specific economic sector, workers with lower or higher levels of education, or particular geographical regions.[47] This section examines as an example the differences in the QoE between men and women.[48]

Table 6 below shows that in all of the Latin American countries studied, except Mexico, there is a gender gap in terms of their QoE index (M_0). However, this picture becomes more complex when we study the Headcount ratio (H) and the intensity of deprivation (A). In Bolivia, Colombia, Ecuador, Mexico and Paraguay there is no gender gap in terms of the H ratio, while in Brazil, Chile, Peru and Uruguay it is significant. Yet the intensity of deprivation also varies: in all countries except Mexico and Uruguay, women are more intensely deprived in terms of their QoE (See Table 7).

Further disaggregation of these results shows that the different components of the indicator behave very differently in terms of their gender gap. Generally speaking, women are significantly more deprived in the indicators income and tenure than men, while they are less deprived in terms of the indicator excessive working hours (which unfortunately does not include hours dedicated to unpaid domestic and care work).[49] Although the wage gap has been widely documented in the literature (Camou & Maubrigades, 2017; Carrillo, Gandelman, & Robano, 2014; Hoyos & Nopo, 2010; Nopo, 2009; Panizza & Qiang, 2005), the "tenure gap" has not been extensively documented, although some studies do

---

[47] Note that this kind of disaggregation cannot easily be undertaken with dashboard indicators as a separate board would have to be generated for each sub-group studied.

[48] See Table A4 in the Appendix for further subgroup results.

[49] The number of hours worked recorded by household surveys does not include unpaid domestic or care work. If this indicator could be included in the index, the opposite result is expected to emerge (Amarante and Rossel, 2018; Campana, Giménez-Nadal, & Molina, 2018; Amarante, Colacce, & Manzi, 2017; Arza, 2017; Campana, Giménez, & Molina Chueca, 2015).

Table 4
Qoe Index Estimates (Cutoff K:33%).

	Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
Headcount Ratio (H)	82.9 (0.005)	52.4 (0.001)	37.9 (0.003)	68.6 (0.005)	61.9 (0.003)	84.2 (0.002)	85.6 (0.008)	76.5 (0.003)	43.6 (0.002)
Average Intensity Share (A)	63.6 (0.002)	54.6 (0.001)	49.9 (0.001)	60.7 (0.003)	58.6 (0.003)	62.9 (0.001)	63.8 (0.004)	57.9 (0.001)	53.9 (0.001)
Adjusted headcount Ratio (M0)	0.527 (0.004)	0.286 (0.001)	0.189 (0.002)	0.416 (0.003)	0.363 (0.003)	0.529 (0.002)	0.546 (0.007)	0.443 (0.002)	0.235 (0.001)

Table 5
Intersection Criteria.

	Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
Individuals with no deprivation	8.2%	22.5%	29.9%	12.0%	20.7%	9.7%	7.7%	9.6%	33.9%
Intersection criterion	4.5%	0.6%	0.2%	3.7%	0.6%	4.3%	6.6%	2.6%	0.5%

Table 6
The Qoe By Gender.

		Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
H	Male	83%	50%	34%	69%	61%	84%	85%	74%	40%
	Female	83%	56%	43%	68%	63%	84%	86%	80%	49%
A	Male	61%	53%	47%	58%	57%	63%	63%	55%	54%
	Female	68%	57%	53%	65%	61%	63%	66%	61%	54%
M_0	Male	0.51	0.26	0.16	0.40	0.35	0.53	0.54	0.41	0.21
	Female	0.56	0.32	0.23	0.44	0.39	0.53	0.56	0.49	0.26

show that women enter and exit the labour market more frequently than men as they take on tasks of domestic care (Arza, 2017; Blofield & Martínez, 2014; Hite & Viterna, 2005) and this translates into lower human capital investment. In terms of the other indicators, a more nuanced picture emerges: differences in occupational status are relatively small, with Ecuador, Mexico and Uruguay showing slightly lower deprivation levels for women than for men. In terms of their affiliation to social security systems, men and women are again relatively equally deprived in the region, with the exception of Peru, where the gender gap is larger than 10%. This kind of analysis is extremely important for policy makers as it gives them a more precise picture of where to focus public policy resources.

5.3. Dimensional and sub-group decompositions

Another feature of the QoE index (following the AF method) is that once it has been computed, it can be decomposed according to the contribution of each dimension or indicator. Whenever this contribution exceeds its weight in the index, this suggests that there is a relatively higher deprivation in this dimension than in the others. The sum of the contributions of all indicators, or weights, has to be equal to 100 per cent.

Fig. 1 shows that Uruguay, Mexico, Ecuador, and Paraguay present higher contribution rates in the income dimension, while Chile, Brazil, Colombia and Peru are more deprived in the dimension of employment stability. All countries except Bolivia, Peru and Colombia, however, are relatively less deprived in the dimension of employment conditions. These decompositions indicate which dimensions policymakers should focus on.

The AF method also allows for the decomposition of the index into population subgroups, such as men/women, age groups, migrants, ethnic minorities, and others, which can help policy makers identify horizontal inequalities and particularly deprived groups in the labour market.[50]

The results show that in general women have lower levels of job quality across results for H, A and M_0, but not always substantially so.[51] When decomposing the index by age groups, individuals between the ages of 18–24 have consistently higher rates of deprivation. In terms of educational levels, employed individuals with no formal education followed by those with incomplete basic secondary education show higher rates of deprivation, while workers with a "complete bachelor degree or higher" are significantly less deprived. Both subgroup decompositions and population percentages are presented in Appendix A, Tables A4 and A5.

The proposal of a general national score can conceal sociodemographic realities that would expose that particular groups are much more deprived than others. For example, through national comparisons, it appears that Colombia and Peru are less deprived than Bolivia and Paraguay. When examining subgroup decompositions by educational attainment, Colombia, Ecuador and Peru show higher differences in M_0 between individuals with higher levels of education and lower educational attainment. Additionally, for all estimated countries, individuals within the age group of 18–24 hold a higher Adjusted Headcount Ratio than the corresponding national measure. This contends that specific groups have higher levels of deprivation, which can be identified and emphasised through this methodology.

5.4. Unemployment, vulnerable employment and the QoE

Fig. 2 presents the relationship between unemployment and the QoE, using the Headcount Ratio H and official unemployment rates obtained from ECLAC. Each country is represented by a bubble that reflects the size of its population between the ages of 18–65. As Fig. 2 shows, countries with low unemployment rates of just over 4%, such as Peru, Mexico, Paraguay and Bolivia have the highest levels of deprivation in the QoE index, lending weight to the

---

[50] See for example Alkire et al. (2017) for this type of analysis using the MPI.

[51] These results mirror results obtained by Espinoza-Delgado and Klasen (2018) in their work on multidimensional poverty.

Table 7
Censored Headcounts By Gender (%).

|		Income	Occupational Status	Tenure	Social Security	Excessive Working Hours
Bolivia	Male	44.8	71.4	30.0	75.4	39.4
	Female	63.3	72.4	33.9	76.3	30.4
Brazil	Male	25.4	40.2	21.7	34.5	10.4
	Female	42.0	41.5	29.2	33.6	6.1
Chile	Male	16.1	23.5	20.0	9.8	12.3
	Female	31.0	27.7	25.6	12.9	7.4
Colombia	Male	28.0	59.9	34.7	58.1	32.5
	Female	41.3	61.0	42.1	59.6	21.4
Ecuador	Male	41.7	45.9	17.8	48.4	15.4
	Female	53.0	42.5	25.8	49.0	9.367}
Mexico	Male	71.3	57.1	29.3	59.9	31.6
	Female	75.2	57.0	35.6	59.5	17.5
Paraguay	Male	58.6	69.8	22.2	74.6	39.9
	Female	69.5	71.1	29.7	73.2	28.2
Peru	Male	31.3	62.1	36.5	57.6	28.5
	Female	41.7	70.1	47.0	70.2	22.7
Uruguay	Male	27.6	19.8	21.3	22.1	10.7
	Female	44.0	16.7	26.6	21.1	6.1
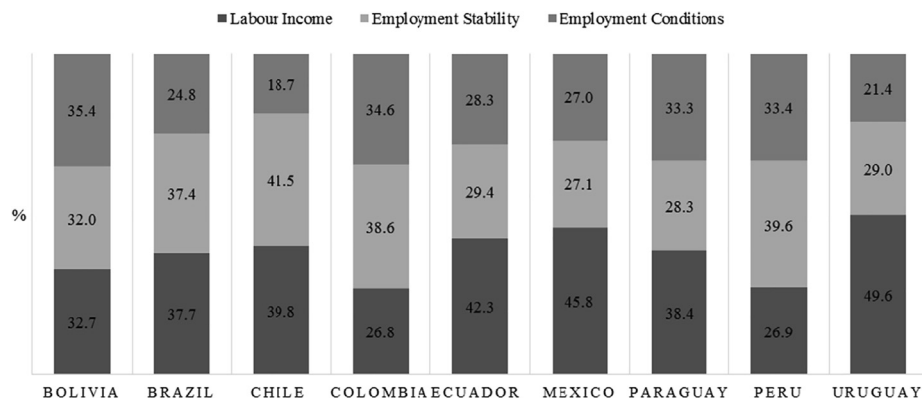
Fig. 1. Dimensional decomposition by country.

hypothesis that the unemployment rate can be quite meaningless in developed countries. Among the countries included in the study, there is a slight negative relationship between unemployment and quality of employment. Chile, for example, has relatively low unemployment at 6% but also low levels of deprivation in the QoE index. Uruguay has a higher unemployment rate at 8%, and also figures with a higher H ratio. Brazil and Colombia find themselves in between these two groups of countries with similar levels of unemployment, but very different H ratios.

A similarly important insight results from comparing the World Bank's rate of vulnerable employment with the QoE. Although the rankings of the countries included in this study are similar when we look at vulnerable employment, Fig. 3 shows that the H ratio is significantly higher (by approximately 20%) than the rate of vulnerable employment. This is because the H ratio not only considers variables that characterise informal employment to be an important dimension of deprivation but also accounts for the precariousness of formal employment. If public policy were therefore to focus only on vulnerable employment, it would be missing a significant proportion of formal workers who are deprived on the QoE index.

5.5. Individuals with bad quality of employment and individuals deprived in specific indicators

An additional advantage of the AF method is the possibility of constructing and comparing the 'raw' or uncensored deprivations
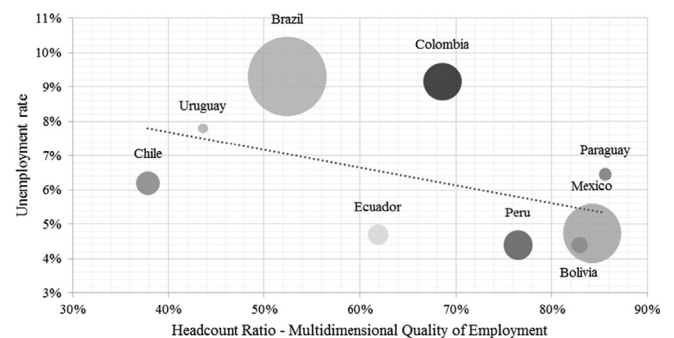

Fig. 2. Unemployment and The Quality of Employment (H Ratio) Note: The bubble size represents the population size for each country. Unemployment rate: (% of total population − 2015) unemployed, data obtained from ECLAC.

with the censored matrices. Censored matrices are used to construct the multidimensional M_0 measure, but the original deprivation matrix still provides useful information. Uncensored (raw) headcount ratios of an indicator are defined as the proportion of the population that is deprived in that indicator. Censored headcount ratios represent the percentage of individuals who have both low QoE and are deprived in that specific indicator.

To illustrate this, patterns of deprivations between both groups for two different Latin American countries were examined. Fig. 4 presents the difference in raw headcounts and censored headcounts for two countries: Uruguay and Chile. Both have similar Adjusted Headcount Ratios: 0.44 and 0.38, respectively. In both countries, the difference between raw and censored headcounts is highest for the Occupational Status Indicator. For Tenure and Social Security, Chile seems to be worse off than Uruguay for the raw headcounts but better in the censored headcounts. Discrepancies between raw and censored headcounts can be usefully analysed to distinguish between common dimensional needs.

Focusing particularly on tenure, Fig. 4 shows that there is a big discrepancy between raw headcount ratios and censored headcount ratios for Chile and not for Uruguay. This may suggest that individuals are just deprived in this indicator and do not, in general, hold lower levels of QoE. To look into these indicators' association tests were undertaken for each country. Regarding redundancy, there is no systematic association between the indicators among countries. Moreover, when estimating Cramer's V, weaker and unsystematic relationships were found (Appendix A, Table A6).

5.6. Robustness of country rankings to changes in poverty cut-offs and weights

The choice of the cross-dimensional cut-off k, meaning the sum of weighted indicators in which an individual must be deprived to be identified as such, is normative. In the QoE Index, k can vary from 0.16, which is the smallest indicator weight (corresponding to the four indicator variables) to 1, the total number of indicators considered.

An important empirical question is how sensitive the country rankings are to changes in the cut-off line k for a range of possible values. To confirm that the QoE Index is robust to changes in k, dominance analysis was undertaken. Fig. A1 in Appendix A shows that Chile, Uruguay and Brazil are unambiguously less deprived than Colombia, Peru, Bolivia and Paraguay regardless of how the cut-off k is defined. Similarly, Paraguay is unambiguously the most deprived country in this study while Chile is unambiguously the least deprived.

As explained in Section 3.4, the QoE Index has a structure of nested weights in which each of the three dimensions receives equal relative weight of 1/3 (0.33). Since this is a normative choice it requires a robustness check to see whether this index is robust to a plausible range of weights. The QoE Index was therefore estimated with four alternative weighting structures, one consists of giving 20% of the relative weight to each indicator and the other three consist on giving 50% of the relative weight to one of each of the original dimensions. The rankings and computed rank correlation coefficients for Kendall's Tau b and Spearman were then computed. All of these correlations were higher than 0.9 with a 99% level of significance. As a second related exercise, all possible pairs of countries were analysed using a Pearson correlation with each country's M_0 across the five different weighting structures and found that all correlations are high, with the lowest being 0.85. Lastly, while the weighting structure affects the magnitude of each country deprivation estimate, the relative position of each country with respect to others is highly robust to changes in the dimension and indicator weights.

6. Concluding remarks

The QoE index presented in this paper constitutes the first academic attempt to bring together internationally comparable data on *employment conditions in a single synthetic measure*. The results
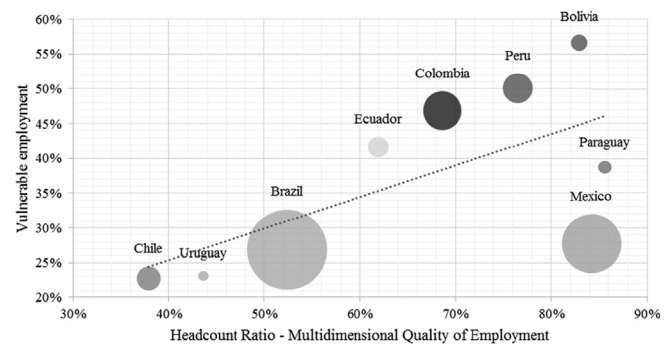

Fig. 3. Vulnerable Employment and The Quality of Employment (H Ratio). Note: The bubble size represents the population size for each country. Vulnerable employment (% of total employment − 2015): Vulnerable employment is contributing family workers and own-account workers as a percentage of total employment, obtained from World Bank Data Bank.

presented here lead to several important conclusions. Foremost among them is the simple fact that *it is possible to construct a multidimensional index of the QoE in developing countries* with a diverse level of socio-economic and institutional development. The index synthesises information on employment conditions that must be considered to be both instrumentally and/or intrinsically important so that workers (and their dependents) can develop their most essential functionings and capabilities. In this context, it is important to highlight that this paper has followed the criteria outlined by Alkire et al. (2015: 193) regarding the judgements that underlie the selection of dimensions and indicators: the selection of indicators follows a combination of expert assessments, empirical assessments, theoretical assessments, practical data constraints, and policy relevance.[52]

Second, the results presented show how useful this information can be to policymakers as they *complement traditional labour market indicators such as (un)employment rates.* The QoE Index also complements existing institutional efforts such as the IDB (2017) Better Jobs Index. By incorporating indicators such as social security, occupational status, tenure, and working hours in this measure, the index includes variables that are not normally considered by traditional measures of labour market functioning. The data presented above show how looking only at unemployment and vulnerable employment rates could be misleading, especially as countries (such as Mexico) with low levels of unemployment may have extremely high levels of QoE deprivation. Alternatively, countries may have similar unemployment rates, such as Chile and Paraguay, while having very different levels of QoE deprivation. In addition, it is important to highlight the fact that the rate of vulnerable employment (see Table 2) does not capture the full extent of QoE deprivation either: the headcount ratios (M_0) produced by the QoE Index systematically show higher levels of deprivation across the countries studied. However, here also there are differences: for example, Brazil, Mexico and Chile have similar levels of vulnerable employment, but very different levels of QoE deprivation.

A third purpose of the QoE Index is that these macro-level results can be examined more closely to *identify horizontal inequalities in the labour force.* Specific groups of workers, such as younger or older workers, women, or less educated workers clearly require more public policy attention and different Active Labour Market

---

[52] Although this paper does not explicitly acknowledge "deliberative insights" specified by Alkire et al., 2015: 193) on people's values from participatory discussions, social movements, or consultations, these are implicitly acknowledged in the expert and institutional literature examined by this paper, which does take into account such deliberative insights.
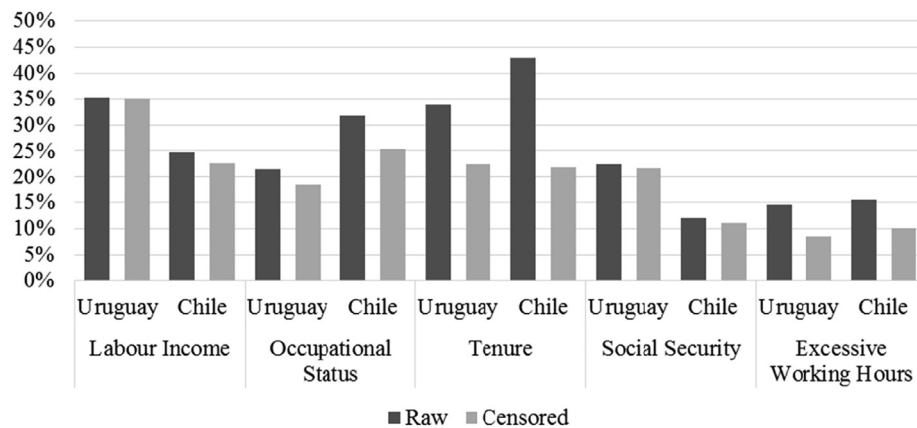
Fig. 4. Censored versus raw headcount ratios for two sample countries.

Policies to help them develop their employment related capabilities. Policymakers in individual countries will be able to study the development of the QoE over time as well as looking at the longitudinal behaviour of vulnerable groups of workers. Does the QoE Index of young workers, for example, improve over time as their experience in the labour market increases, or do young workers become "stuck" in short term jobs with little opportunity for developing their professional capabilities? Alternatively, what kind of support do women and older workers need to stay in the workforce if they desire to do so? How can vocational training policies support these processes? These questions will be analysed differently if policy makers can analyse these developments over time and across the multiple dimensions included in the QoE Index.

Fourth, this paper also highlights important differences between countries in terms of the *contributions that different dimensions make to their QoE Index result.* For example, Chile and Uruguay or Bolivia and Mexico have similar results in terms of their respective M_0 indicators, but job stability is a much bigger problem in Chile than in Uruguay, while in Uruguay income deprivation makes a greater contribution. Similarly, income makes a greater contribution to deprivation in Mexico than it does in Bolivia, while working conditions and job stability are more important factors in Bolivia. This kind of analysis is vital to informing policy makers about the relative context of their QoE Index result, and should also focus attention on variables, particularly those related to job stability, that until now have been very much neglected (or not perceived as a problem) in policy debates. From the index results, for example, it is clear that Brazil, Chile, Colombia and Peru have a significant problem in the dimension job stability, which in the long-term prevents appropriate investment in vocational training and therefore could become a particularly pressing problem once technological changes require new skill profiles in the labour force.

Finally, the fact that this index is based on individual (micro) and not aggregated (macro) data cannot be overemphasised as this ensures its usefulness as a policy-making tool. For instance, the QoE Index can be used to *identify the most vulnerable workers* who according to the intersection criterion are simultaneously deprived across all dimensions. This means that employment subsidies, such as Conditional Cash Transfer programmes or in future Earned Income Tax Credits (in countries with the institutional capability) can be targeted at low-income workers.[53]

Overall, the results of this paper show how necessary it is to include results from a QoE Index in public policy debates about labour markets in developing countries. However, as in the papers on multidimensional poverty on which this work builds (see for example Alkire & Santos, 2014), the question arises whether these results are credible. This paper suggests that they are both robust and statistically sound, and they are stable to changes in both indicator cut-offs and weights. However, further research must be undertaken to examine these results in more detail. So far, this paper presents a statistical exercise which shows that it is possible to produce a relevant and methodologically sound synthetic indicator that can reliably inform policymakers in developing countries. Based on this paper, *individual countries can now examine and adapt this methodology to their own policy needs and objectives,* and examine developments over time, across regions, and across population subgroups. At the international level, more countries must be added to this research as far as this is possible given current data constraints.

In sum, this paper offers new insights to the subject of the Quality of Employment. By demonstrating what this multidimensional index can accomplish, it should foster the development of both further national and international indicators of this type, it should help to refocus debates about employment on important dimensions such as job stability that so far have not even been considered as a priority by policymakers in developing countries, and it should provide policymakers and international institutions with a motivation for *gathering more and better data on employment conditions in developing countries.* Progress towards this goal has, for example, already been achieved in Central American countries, which applied a homogeneous survey of employment conditions in 2011, which is based on the European Working Conditions Survey (EWCS) that is applied every five years in 32 countries around the world.[54] As the governments of developing countries consider the impact of future technological changes on their labour markets, this kind of data becomes a crucial input into policy-making as Active Labour Market Policies will have to be targeted not only at vulnerable workers, but also at those in the middle of the QoE spectrum who will need to adapt their skill sets to work with new technologies. Thus, going forwards, the index presented in this paper should direct much-needed policy attention towards labour market indicators beyond (un)employment rates and wage levels, while at the same time allowing them to consider the distribution of the QoE among their labour force.

---

[53] Examples of a Conditional Cash Transfer Programme that link social benefits with employment opportunities are the *Chile Solidario* programme, which operated in Chile from 2002 to 2017 (Barrientos, 2010) and its successor the *Ingreso Etico Familiar* (Cecchini et al., 2012). However, going forwards and considering improved administrative capacities, the more developed countries in the region could move towards systems of Earned Income Tax Credits (Agostini et al., 2014).

[54] For more information Benavides et al. (2014).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A

Applying the Alkire/Foster method to the quality of employment

To create a synthetic indicator of the quality of employment, we focus on employment conditions from an individual perspective of capabilities that can inform public policy. The QoE indicator's mathematical structure adapts the family of AF indicators (Alkire & Foster, 2011; Alkire, 2007), and copies the steps undertaken by Alkire and Foster, which are neatly summarised in Alkire and Santos (2014):

1. We define a set of indicators which will be considered in our multidimensional measure of the QoE. These indicators are based on the data of individuals who state that they are employed in each country's respective household survey. Thus, all employed individuals from a particular household are included in our measure.
2. We set the deprivation cut-offs for each indicator that we consider to be sufficient for a normative level of achievement for an individual to be non-deprived in the particular dimension of our indicator.
3. We apply these cut-offs to ascertain whether an individual worker is deprived or not in each particular indicator.
4. We select the relative weights of our dimensions, ensuring that these add up to one.
5. We create the weighted proportion of deprivations for each worker, which can be described as his or her deprivation score.
6. We determined the QoE cut-offs namely the number of weighted deprivations a worker needs to experience to be considered multidimensionally deprived.

Table A1
Uncensored Headcounts for Income with Different Cut-Offs (%).

	Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
Deprived: 6 basic food baskets	51.6	32.4	22.6	33.5	46.0	65.4	62.4	35.8	35.0
Deprived: 8 basic food baskets	68.6	48.6	51.7	59.1	63.7	83.0	74.7	50.6	51.9
Deprived: Relative Labour Income	26.8	14.2	13.1	22.5	25.5	24.2	21.7	22.2	25.0
Deprived: Minimum Wage	33.4	16.3	26.7	40.7	40.5	14.2	44.9	5.0	19.9

Note: For Mexico we only use those individuals who reported their salary in exact amounts.

Table A2
M0 Stable Rankings to different Weighting Schemes.

	Normative	Equal weighting	Income preponderance	Employment stability preponderance	Employment conditions preponderance
Bolivia	6	9	7	9	9
Brazil	3	3	2	3	3
Chile	1	1	1	1	1
Colombia	5	5	4	5	5
Ecuador	4	4	6	4	4
Mexico	7	7	9	7	6
Paraguay	8	8	8	8	8
Peru	9	6	5	6	7
Uruguay	2	2	3	2	2

Table A3
Raw Vs. Censored Headcounts (%).

Indicator	Type	Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
Labour Income	Raw Headcount	49.3	34.7	24.9	30.7	45.7	72.5	64.2	41.7	35.2
	Censored Headcount	51.6	32.4	22.6	33.5	46.1	72.8	63.0	35.8	35.0
Occupational Status	Raw Headcount	71.6	47.3	31.8	62.4	48.1	53.1	73.5	71.6	21.6
	Censored Headcount	71.7	40.7	25.3	60.3	44.6	57.1	70.2	65.5	18.4
Tenure	Raw Headcount	34.6	39.1	43.0	45.8	26.7	32.3	23.1	44.7	33.9
	Censored Headcount	29.3	23.6	21.9	35.9	19.4	29.1	22.4	39.8	22.5
Social Security	Raw Headcount	76.8	36.1	12.1	59.8	51.2	56.2	79.1	68.9	22.5
	Censored Headcount	75.7	34.1	11.1	58.7	48.5	59.7	74.0	63.0	21.6
Excessive Working Hours	Raw Headcount	37.6	10.9	15.6	32.8	16.8	28.9	36.5	26.4	14.6
	Censored Headcount	36.1	8.5	10.1	27.8	13.0	26.2	35.1	25.9	8.5

Table A4
Subgroup results.

		Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
H	Male	83%	50%	34%	69%	61%	84%	85%	74%	40%
	Female	83%	56%	43%	68%	63%	84%	86%	80%	49%
A	Male	61%	53%	47%	58%	57%	63%	63%	55%	54%
	Female	68%	57%	53%	65%	61%	63%	66%	61%	54%
M0	Male	0.51	0.26	0.16	0.40	0.35	0.53	0.54	0.41	0.21
	Female	0.56	0.32	0.23	0.44	0.39	0.53	0.56	0.49	0.26
H	18–24	94%	58%	50%	75%	71%	93%	95%	87%	62%
	25–34	82%	49%	35%	64%	57%	83%	83%	75%	40%
	35–65	81%	53%	37%	69%	62%	82%	82%	75%	41%
A	18–24	68%	60%	54%	65%	61%	65%	72%	60%	55%
	25–34	63%	55%	49%	60%	59%	63%	64%	57%	53%
	35–65	63%	53%	50%	60%	58%	62%	60%	58%	54%
M0	18–24	0.64	0.34	0.27	0.49	0.44	0.61	0.68	0.52	0.34
	25–34	0.52	0.27	0.17	0.38	0.34	0.53	0.53	0.43	0.21
	35–65	0.51	0.28	0.19	0.41	0.36	0.51	0.50	0.43	0.22
H	No formal education	98%	79%	55%	93%	94%	99%	100%	99%	60%
	Incomplete basic or secondary	96%	66%	53%	86%	80%	97%	94%	93%	55%
	Complete secondary	89%	45%	36%	61%	54%	88%	69%	74%	36%
	Complete bachelor or higher	56%	26%	18%	28%	22%	48%	50%	32%	16%
A	No formal education	70%	60%	55%	66%	64%	70%	66%	61%	58%
	Incomplete basic or secondary	66%	57%	52%	64%	60%	68%	66%	61%	55%
	Complete secondary	63%	53%	49%	59%	57%	62%	57%	56%	52%
	Complete bachelor or higher	58%	44%	41%	44%	52%	50%	51%	45%	43%
M0	No formal education	0.68	0.47	0.30	0.62	0.60	0.69	0.66	0.60	0.35
	Incomplete basic or secondary	0.63	0.37	0.28	0.55	0.48	0.65	0.62	0.57	0.31
	Complete secondary	0.56	0.24	0.18	0.36	0.31	0.55	0.39	0.42	0.19
	Complete bachelor or higher	0.32	0.12	0.07	0.12	0.11	0.24	0.25	0.14	0.07

Table A5
Population proportions from sample.

		Bolivia	Brazil	Chile	Colombia	Ecuador	Mexico	Paraguay	Peru	Uruguay
Gender	Male	63%	58%	56%	59%	62%	62%	60%	60%	55%
	Female	37%	42%	44%	41%	38%	38%	40%	40%	45%
Age groups	18–24	13%	15%	11%	16%	14%	15%	18%	18%	13%
	25–34	26%	27%	25%	28%	28%	26%	27%	27%	24%
	35–65	61%	58%	64%	57%	58%	58%	55%	55%	63%
Educational levels	No formal education	4%	5%	1%	3%	3%	4%	0%	16%	0%
	Incomplete basic or secondary	38%	41%	29%	40%	32%	33%	74%	74%	51%
	Complete secondary	31%	41%	54%	45%	43%	46%	16%	16%	37%
	Complete bachelor or higher	27%	14%	16%	11%	22%	17%	10%	10%	12%

Table A6
Coefficient P For Redundancy And Cramer's V.

Bolivia	Labour income	Occupational Status	Tenure	Social security	Excessive working hours
Labour income	1	0.3188	0.0204	0.3309	−0.0484
Occupational Status	0.8649	1	−0.0278	0.6593	0.1478
Tenure	0.5307	0.7098	1	−0.0399	−0.0607
Social security	0.9112	0.9458	0.7545	1	0.1721
Excessive Working Hours	0.4853	0.8114	0.3388	0.8693	1

Brazil	Labour income	Occupational status	Tenure	Social security	Excessive working hours
Labour INCOME	1	0.3217	0.1085	0.3588	−0.0804
Occupational Status	0.6944	1	−0.0557	0.7357	0.0615
Tenure	0.4868	0.4293	1	0.0123	−0.0681
Social security	0.5934	0.9662	0.4180	1	0.0189
Excessive Working Hours	0.2187	0.5484	0.3160	0.3719	1

Chile	Labour income	Occupational status	Tenure	Social security	Excessive working hours
Labour income	1	0.3663	0.0814	0.2430	−0.0522
Occupational Status	0.6089	1	0.0281	0.4303	0.1010
Tenure	0.5079	0.4546	1	0.0118	−0.0718
Social security	0.5067	0.8423	0.4493	1	0.0455
Excessive Working Hours	0.1742	0.4084	0.3488	0.1957	1

Colombia	Labour income	Occupational Status	Tenure	Social security	Excessive working hours
Labour income	1	0.4959	0.0183	0.5258	−0.1202
Occupational Status	0.9592	1	0.0078	0.7363	0.0795
Tenure	0.4889	0.6239	1	−0.0157	−0.0245
Social security	0.9613	0.9130	0.5898	1	0.0907
Excessive working hours	0.2518	0.6764	0.4581	0.6630	1

Ecuador	Labour income	Occupational status	Tenure	Social security	Excessive working hours
Labour income	1	0.4629	0.0650	0.4671	−0.0992
Occupational Status	0.7156	1	−0.1244	0.5462	0.0031
Tenure	0.5132	0.3648	1	0.0278	−0.0376
Social security	0.7636	0.8034	0.5335	1	0.0339
Excessive Working Hours	0.3517	0.4690	0.2373	0.5482	1

Mexico	Labour income	Occupational Status	Tenure	Social security	Excessive working hours
Labour income	1	0.2905	0.1174	0.2387	−0.0182
Occupational Status	0.8389	1	0.0487	0.7781	0.0174
Tenure	0.8053	0.6107	1	0.0364	0.0032
Social security	0.8127	0.9365	0.6366	1	0.0323
Excessive Working Hours	0.7151	0.5885	0.3146	0.6348	1

Paraguay	Labour income	Occupational Status	Tenure	Social security	Excessive working hours
Labour income	1	0.2790	0.2560	0.2222	0.0641
Occupational Status	0.8084	1	0.1346	0.6291	0.0417
Tenure	0.8388	0.8147	1	0.1005	0.0133
Social security	0.8357	0.9336	0.8355	1	0.0743
Excessive Working Hours	0.6692	0.7356	0.3896	0.8037	1

Peru	Labour income	Occupational Status	Tenure	Social security	Excessive working hours
Labour income	1	0.3609	−0.0379	0.3096	−0.1534
Occupational status	0.8978	1	0.0066	0.6215	0.0167
Tenure	0.4453	0.6740	1	0.0004	−0.0412
Social security	0.8427	0.8878	0.6445	1	0.0091
Excessive working hours	0.2440	0.6829	0.4387	0.6510	1

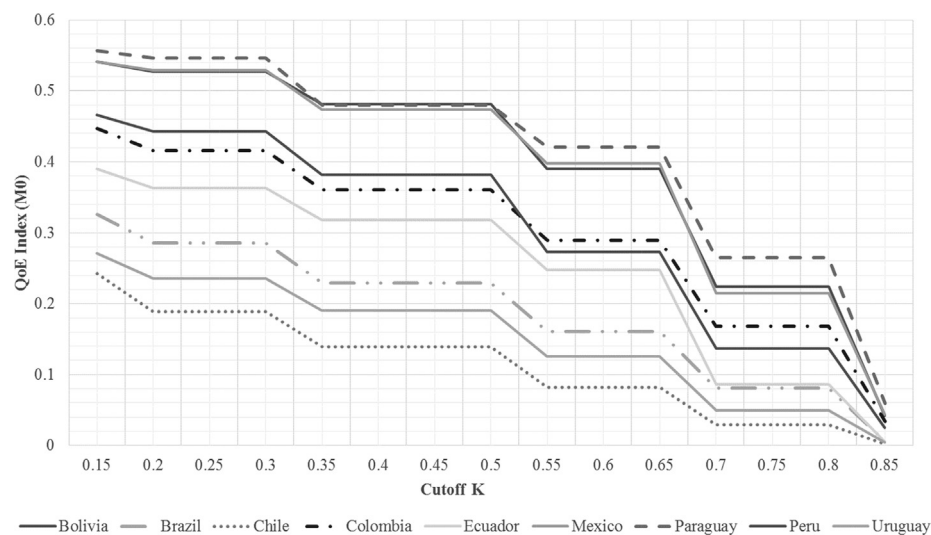| Uruguay	Labour income	Occupational Status	Tenure	Social security	Excessive working hours
Labour income	1	0.2797	0.2589	0.4997	−0.1146
Occupational status	0.6073	1	−0.0340	0.5385	0.1062
Tenure	0.5202	0.3143	1	0.1656	−0.0603
Social security	0.7964	0.6533	0.4928	1	−0.0131
Excessive Working hours	0.2182	0.3169	0.2762	0.2089	1

Fig. A1. example of robustness to the k cut off for countries.

7. We compute the proportion of workers who have been identified as QoE deprived in the labour force, and call this the headcount ratio H or the incidence of QoE deprivation.

8. We compute the average share of weighted indicators in which workers are deprived. This entails adding up their deprivation scores and dividing them by the total number of deprived workers. This is the intensity of QoE deprivation, A.

9. We compute the Mo measure as the product of the two previous partial indicators: Mo = H × A. Analogously, Mo can be obtained as the sum of the weighted deprivations that only deprive workers experience, divided by the total number of workers.

Mathematically, the methodology is straightforward. First, the counting vector (c_i) of individual i can be defined as following

$$c_i = \sum_{d=1}^{D} w^d I(g_i^d < z^d)$$

Where, g_i^d is the achievement of individual i in dimension d, z^d is the deprivation cut-off of dimension d and D the number of dimensions. The identification function $I(\cdot)$ is equivalent to 1 if the content is true and 0 otherwise. w_i^d is the weight of dimension d and $\sum_{d=1}^{D} w^d = 1$. Consequently, c_i is the weighted sum of deprivations for the individual i.

Then, aggregated indicator of (bad) quality of employment $M_0(k)$ can be described as

$$M_0(k) = \frac{1}{n} \sum_{i=1}^{n} [c_i \times I(c_i \geq k)] = H(k) \times A(k)$$

Where k is the quality of employment cutoff (k = 33.3%) and n the population. $M_0(k)$ could be understood as the average number of deprivations of the individuals in bad quality jobs divided by the total number of individuals in the society. It also can be decomposed by the headcount ratio times the intensity of the deprivation. The former provides the percentage of individuals in bad employment conditions; and the latter, the average number of weighted dimensions deprived only by those in bad quality jobs.

Appendix B. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.worlddev.2019.104738.

References

Agostini, C., Perticara, M., & Selman, J. (2014). *An Earned Income Tax Credit Proposal for Chile*. In SSRN.

Alkire, S. (2007). The missing dimensions of poverty data: Introduction to the special issue. *Oxford Development Studies, 35*(4), 347–359.

Alkire, S., & Foster, J. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics, 95*(7–8), 476–487.

Alkire, S., & Santos, M. E. (2014). *Measuring acute poverty in the developing world: Robustness and scope of the multidimensional poverty index*. World Development.

Alkire, S., & Seth, S. (2015). Multidimensional Poverty Reduction in India between 1999 and 2006: Where and How? *World Development*.

Alkire, S., Foster, J., Seth, S., Santos, M., Roche, J., & Ballon, P. (2015). *Multidimensional Poverty Measurement and Analysis*. Oxford: Oxford University Press.

Alkire, S., Roche, J. M., & Vaz, A. (2017). Changes Over Time in Multidimensional Poverty: Methodology and Results for 34 Countries. *World Development*.

Amarante, V., & Rossel, C. (2018). Unfolding patterns of unpaid household work in Latin America. *Feminist Economics, 24*(1), 1–34.

Amarante, V., Colacce, M., & Manzi, P. (2017). The gender gap in pensions in Latin America. *International Social Security Review, 70*(2), 57–85.

Anand, S. (2018). Recasting Human Development Measures. UNDP Human Development Report Office.

Anand, S., & Sen, A. (1997). Concepts or Human Development and Poverty! A Multidimensional Perspective. United Nations Development Programme, Poverty and Human Development: Human Development Papers, pp. 1–20.

Anker, R., Chernyshev, I., Egger, P., Mehran, F. & Ritter, J. (2003). Measuring Decent Work with Statistical Indicators. In SSRN.

Arriagada, V., Apablaza, M., González, P., Sehnbruch, K., and Mendez, R. (2018) The Quality of Employment in Central America. COES Working paper, No. 40. Santiago: COES.

Arza, C. (2017). Non-contributory benefits, pension re-reforms and the social protection of older women in Latin America. *Social Policy and Society, 16*(3), 361–375.

Atkinson, A. B. (2003). Multidimensional deprivation: Contrasting social welfare and counting approaches. *Journal of Economic Inequality*.

Atkinson, A.B. (1987). On the Measurement of Poverty. Econometrica.

Banerjee, A. V., & Duflo, E. (2008). What is middle class about the middle classes around the world?. Journal of economic perspectives, 22(2), 3-28.

Barrientos, A. (2010). Protecting capability, eradicating extreme poverty: Chile solidario and the future of social protection. *Journal of Human Development and Capabilities*.

Benavides, F. G., Wesseling, C., Delclos, G. L., Felknor, S., Pinilla, J., & Rodrigo, F. (2014). Working conditions and health in Central America: A survey of 12 024 workers in six countries. *Occupational and Environmental Medicine*.

Bescond, D. C., & Mehran, F. (2003). Seven indicators to measure decent work. *International Comparison International Labour Review*.

Blofield, M., & Martínez, J. (2014). Work, family and public policy changes in Latin America: Equity, maternalism and co-responsibility. *CEPAL Review*.

Bocquier, P., Nordman, C. J., & Vescovo, A. (2010). Employment vulnerability and earnings in Urban West Africa. *World Development*.

Brandolini, A., & D'Alessio, G. (1998). Measuring well-being in the functioning space. In General Conference of The International Association for Research in Income and Wealth, Cracow, Poland.

Brown, C. (1980). Equalizing Differences in the Labor Market. *The Quarterly Journal of Economics*.

Burchell, B., Sehnbruch, K., Piasna, A., & Agloni, N. (2014). The quality of employment and decent work: Definitions, methodologies and ongoing debates. *Cambridge Journal of Economics*.

Busso, M., Cristia, J., Hincapie, D., Messina, J., & Ripani, L. (Eds.). (2017). *Learning Better: Public Policy for Skills Development*. Washington D.C: Inter-American Development Bank.

Camou, M. M., & Maubrigades, S. (2017). The lingering face of gender inequality in Latin America. In *Has Latin American Inequality Changed Direction?* (pp 219–241). Cham: Springer.

Campana, J., Giménez, J. & Molina Chueca, J. (2015) Gender Differences in the Distribution of Total Work-Time of Latin-American Families: The Importance of Social Norms. IZA Discussion Paper. No. 8933. Available at SSRN: https://ssrn.com/abstract=2589775.

Campana, J., Giménez-Nadal, J., & Molina, J. (2018). Gender norms and the gendered distribution of total work in Latin American households. *Feminist Economics, 24*(1), 35–62.

Carrillo, P., Gandelman, N., & Robano, V. (2014). Sticky floors and glass ceilings in Latin America. *The Journal of Economic Inequality, 12*(3), 339–361.

Cazes, S., & Tonin, M. (2010). Employment protection legislation and job stability: A European cross-country analysis. *International Labour Review*.

Cecchini, S., Robles, C., & Vargas, L. (2012). La ampliación de las transferencias monetarias y sus desafíos en Chile: el Ingreso Ético Familiar (No. 26). International Policy Centre for Inclusive Growth.

Comim, F., & Nussbaum, M. C. (2014.). *Capabilities, gender, equality: Towards fundamental entitlements*. Cambridge University Press.

Comim, F., Fennell, S., & Anand, P. B. (2018). *Frontiers of the Capability Approach*. New: Cambridge University Press.

Comim, F., Qizilbash, M., & Alkire, S. (2008). *The capability approach: Concepts, measures and applications*. Cambridge University Press.

Decancq, K., & Lugo, M. A. (2012a). Inequality of wellbeing: A multidimensional approach. *Economica*.

Decancq, K., & Lugo, M. A. (2012b). Weights in multidimensional indices of wellbeing: An overview. *Econometric Reviews*.

Duclos, J. Y. (2011). UNDP's Multidimensional poverty index. *Development*, 11.

Duclos, J. Y., Sahn, D. E., & Younger, S. D. (2006). Robust multidimensional poverty comparisons. *Economic Journal*.

Duncan, G., & Bertil, H. (1983). Was Adam smith right after all? Another test of the theory of compensating wage differentials. *Journal of Economic Literature*.

ECLAC. (2017). CEPALSTAT. Estimation and Projections of the Population database. Retrieved from Bases de Datos y Publicaciones Estadísticas: http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/estadisticasIndicadores.asp.

Espinoza-Delgado, J., & Klasen, S. (2018). *Gender and multidimensional poverty in Nicaragua: An individual based approach*. World Development.

Esposito, L., & Chiappero-Martinetti, E. (2010). Multidimensional poverty: Restricted and unrestricted hierarchy among poverty dimensions. *Journal of Applied Economics*.

Eurofound (2012). *Trends in Job Quality in Europe. A report based on the fifth European Working Condition Survey*. Luxembourg: Publication Office of the European Union.

European Union (1993). Council Directive 93/104/EC of 23 November 1993 concerning certain aspects of the organization of working time. *Official Journal of the European Community*.

Foster, J., & Sen, A. (1997). Annexe: On economic inequality after a quarter century. In *On Economic Inequality* (pp. 107–219). Oxford: Oxford University Press. Expanded Edition.

Freeman, R. B., & Medoff, J. L. (1984). What do unions do? *Industrial and Labour Relations Review*.

Ghai, D. (2003). Decent work: Concept and indicators. *International Labour Review*.

Gindling, T. H., & Newhouse, D. (2014). Self-employment in the developing world. *World Development, 56*, 313–331.

Gómez-Salcedo, M., Galvis-Aponte, L., & Royuela, V. (2017). Quality of work life in colombia: A multidimensional fuzzy indicator. *Social Indicators Research*.

Hellgren, J., Sverke, M., & Isaksson, K. (1999). A two-dimensional approach to job insecurity: Consequences for employee attitudes and well-being. *European Journal of Work and Organizational Psychology*.

Hite, A., & Viterna, J. (2005). Gendering class in Latin America: How women effect and experience change in the class structure. *Latin American Research Review, 40*(2), 50–82.

Holzmann, R., & Vodopivec, M. (2012). *Reforming severance pay: An international perspective*. Washington D.C: World Bank.

Hoyos, A., & Nopo, H. (2010) Evolution of Gender Gaps in Latin America at the Turn of the Twentieth Century: An Addendum to 'New Century, Old Disparities'. IDB Working Paper No. 56. Available at SSRN: https://ssrn.com/abstract=1817290 or http://dx.doi.org/10.2139/ssrn.1817290

Huneeus, C., Leiva, S., & Micco, A. (2012). *Unemployment insurance and search effort in chile*. IDB Working Paper.

Huneeus, F., Landerretche, O., Puentes, E., & Selman, J. (2015). A multidimensional employment quality index for Brazil, 2002–11. *International Labour Review*.

IDB (2017). *Learning Better. Public Policy for Skills Development*. Washington D.C: Inter-American Development Bank.

ILO (1919a). *C001 – Hours of work (Industry) convention, 1919 (No. 1) Convention limiting the hours of work in industrial undertakings to eight in the day and forty-eight in the week (Entry into force: 13 Jun 1921)*. Geneva: International Labour Organization.

ILO. (1919) C030 – Hours of Work (Commerce and Offices) Convention, 1930 (No. 30) Convention concerning the Regulation of Hours of Work in Commerce and Offices (Entry into force: 29 Aug 1933)Washington D.C.: International Labour Organization.

ILO (2008). *Measurement of Decent Work*. Geneva: International Labour Organization.

ILO (2009). *Guide to the new millennium development goals employment indicators*. Geneva: International Labour Organization.

ILO (2011). *Social protection floors for social justice and a fair globalization*. Geneva: International Labour Office.

ILO (2012). *The ILO and the EU, partners for decent work and social justice; Impact of ten years of cooperation*. Brussels: International Labour Organization.

ILO (2015a). *Recommendation concerning the Transition from the Informal to the Formal Economy*. Geneva: International Labour Conference.

ILO (2015b). *World Employment and social outlook 2015: The changing nature of jobs*. Geneva: International Labour Office.

Jencks, C., Perman, L., & Rainwater, L. (1988). What is a Good Job? A new measure of labor-market success. *American Journal of Sociology*.

Jones, S., & Tvedten, I. (2019). *What does it mean to be poor? Investigating the qualitative-quantitative divide in Mozambique*. World Development.

Kalleberg, A. L. (2011). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s–2000s*. Russell Sage Foundation.

Klugman, J. (2010). Human Development Report 2010–20th Anniversary Edition. The Real Wealth of Nations: Pathways to Human Development.

Leschke, J., & Watt, A. (2014). Challenges in Constructing a Multi-dimensional European Job Quality Index. *Social Indicators Research*.

Leβmann, O. (2012). Applying the capability approach empirically: Overview with special attention to labour. *Management Review*.

Loayza, N., & Rigolini, J. (2011). *Informal employment: Safety net or growth engine*. World Development.

Lopez-Calva, L. F., & Ortiz-Juarez, E. (2014). A vulnerability approach to the definition of the middle class. *The Journal of Economic Inequality, 12*(1), 23–47.

Lugo, A. M. (2007). A proposal for internationally comparable indicators of employment. *Oxford Journal of Development Studies, 35*(4), 361–378.

Madero-Cabib, I., Biehl, A., Sehnbruch, K., Calvo, E., & Bertranou, F. (2019). Private pension systems built on precarious foundations: A cohort study of labor-force trajectories in chile. *Research on Aging, 41*(10), 961–987.

Mayer, S. E., & Jencks, C. (1989). Poverty and the distribution of material hardship. *Journal of Human Resources*.

Muñoz de Bustillo, R., Fernández-Macías, E., Antón, J. I., & Esteve, F. (2011). *Measuring more than money: The social economics of job quality*. Cheltenham: Edward Elgar.

Nopo, H. (2009). *New century, old disparities: Gender and ethnic earnings gaps in Latin America and the Caribbean*. New: The World Bank.

Nussbaum, M. (2011). *Creating capabilities: The human development approach*. Cambridge, MA: Harvard University Press.

OECD (2014). *Employment outlook 2014*. Paris: OECD Publishing.

OECD (2015). *Employment outlook 2015*. Paris: OECD Publishing.

Olsthoorn, M. (2014). Measuring precarious employment: A proposal for two indicators of precarious employment based on set-theory and tested with dutch labor market-data. *Social Indicators Research*.

Ortega, A. (2013). Defining a multidimensional index of decent work for Mexico. *Mexican Journal of Economics and Finance, 8*(1), 75–99.

Panizza, U., & Qiang, C. Z. W. (2005). Public–private wage differential and gender gap in Latin America: Spoiled bureaucrats and exploited women? *The Journal of Socio-Economics, 34*(6), 810–833.

Piasna, A., Sehnbruch, K., & Burchel, B. (2019). Job quality in European employment policy: One step forward, two steps back? *Transfer: The European Review of Labour and Research*, 1–16.

Ravallion, M. (2011). *On multidimensional indices of poverty*. Washington D.C: World Bank.

Rofman, R., & Carranza, E. (2005). *Social security coverage in Latin America*. World Bank: Social Protection.

Rosen, S. (1986). The theory of equalizing differences. *Handbook of Labor Economics*.

Santos, M., & Villatoro, P. (2018). A multidimensional poverty index for Latin America. *The Review of Income and Wealth*.

Sehnbruch, K. (2006). *The chilean labor market: A key to understanding latin american labor markets*. New York: Palgrave Macmillan.

Sehnbruch, K. (2008). From the quantity to the quality of employment. In F. Comim, M. Qizilbash, & S. Alkire (Eds.), *The Capability Approach: Concepts, Measures and Applications* (pp. 553–588). Cambridge: Cambridge University Press.

Sehnbruch, K., Burchell, B., Piasna, A., & Agloni, N. (2015). Human development and decent work: Why some concepts succeed and others fail? *Development and Change*.

Sehnbruch, K., Carranza, R., & Prieto, J. (2019). The political economy of unemployment insurance based on individual savings accounts: Lessons from chile. *Development and Change*.

Sen, A. (1973). *On economic inequality*. Oxford: Clarendon Press.

Sen, A. (1992). *Inequality re-examined*. Oxford: Clarendon Press.

Sen, A. (1996). On the status of equality. *Political Theory*.

Sen, A. (1999). *Development as freedom*. New York: Knopf Press.

Sen, A., & Muellbauer, J. (1988). *The standard of living*. Cambridge University Press.

Smith, A. (1776.). *An inquiry into the nature and causes of the wealth of nations (2005 Edition)*. The Pennsylvania State University.

Soffia, M. (2018). Scope and limitations of a capability-based measure of Job Quality in Central America (Doctoral thesis). Retrieved from: https://doi.org/10.17863/CAM.32296.

Spurgeon, A., & Cooper, C. L. (2000). Working time, mental health and performance. In C. L. Cooper & I. T. Robertson (Eds.). *International review of industrial and organizational psychology* (Vol. 15). Chichester, UK: Wiley.

Stampini, M., Robles, M., Sáenz, M., Ibarrarán, P., & Medellín, N. (2016). Poverty, vulnerability, and the middle class in Latin America. *Latin American Economic Review, 25*(1), 4.

Stewart, F. (2008). Horizontal inequalities and conflict: An introduction and some hypotheses. In F. Stewart (Ed.), *Horizontal Inequalities and Conflict. Conflict, Inequality and Ethnicity*. London: Palgrave Macmillan.

Stiglitz, J., Sen, A., & Fitoussi, J.P. (2009). Report by the Commission on the Measurement of Economic Performance and Social Progress. Retrieved from French Commission on the Measurement of economic Performance and social Progress website: https://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report.

Sverke, M., Gallagher, D. G., & Hellgren, J. (2000). Job stress, well-being, and work attitudes among employees with different employment contracts. *Health Effects of the New Labour Market*. New York: Kluwer Academic/Plenum Publishers.

Tzannatos, Z. (2008). The impact of trade unions: What do economists say? In *Defence of Labour Market Institutions* (pp. 150–191). London: Palgrave Macmillan.

UNDP (1990). *Human development report*. New York: United Nations.

UNDP (2016). *Human development report 2016: Human development for everyone*. New York: United Nations Development Programme.

United Nations (2015). *Transforming our world: The 2030 Agenda for Sustainable development. A/RES/70/1*. New York: United Nations.

United Nations (2017). *Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. A/RES/71/313*. New York: United Nations.

United Nations Economic Commission for Europe (2015). *Handbook on Measuring Quality of Employment: A Statistical Framework*. New York and Geneva: United Nations.

Villacís, A., & Reis, M. (2016). *Análisis de la vulnerabilidad laboral y los determinantes del trabajo decente. El caso de Ecuador 2008–2011*. Revista de Economía del Rosario.

Ward, M. (2004). *Quantifying the World: UN Ideas and Statistics. United nations intellectual history project series*. Bloomington, Indiana: Indiana University Press.