



The hidden penalties of informal work: Life-job satisfaction and negative affect

Lina Martínez^{a,*}, Maria Isabel Zafra^b

^a Associate professor of public policy – Director of POLIS (observatory of public policies) Universidad Icesi, Colombia, Universidad ICESI – POLIS, Cali, Colombia

^b Researcher POLIS (observatory of public policies), Universidad Icesi, Colombia, Universidad ICESI – POLIS, Cali, Colombia

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ABSTRACT

The study of the subjective well-being of informal workers in the global South is new and scattered. Little is known about informal workers' job and life satisfaction or this group's positive and negative emotional experiences. Using an extensive population survey in Cali, Colombia, we analyze the subjective well-being of over 1,100 formal and informal workers. Two questions guided the analysis: i) how is life satisfaction for formal and informal workers, and ii) how satisfied are formal and informal workers with their jobs? Informal workers score lower in all factors analyzed. The same pattern is found in job-related factors like wages, daily activities, challenges, and interpersonal relationships in the work environment. Informal workers also experience more often negative emotions like worry, depression, and anger. The subjective well-being dimension of informal employment explored in this analysis aims to inform better policy-making in the global South.

1. Introduction

There is a growing consensus on the inadequacy of exclusively using economic measures to capture social progress. Economic growth poorly informs what makes a good life, such as peoples' well-being, happiness, or opportunities to achieve a better and more fulfilling life (Lambert et al., 2020; Stiglitz et al., 2009). There are significant reasons in the policy realm to promote higher well-being as a societal goal. High subjective well-being correlates strongly and positively with better physical and mental health, productivity, income, pro-social behavior, and interpersonal and institutional trust (Diener et al., 2018a, 2018b; Helliwell et al., 2022). Since the past decade, multilateral organizations, governments, and multi-sectoral advocates have been promoting subjective well-being to measure societal progress and promote government agendas centered on increasing peoples' individual and collective well-being (Helliwell et al., 2022). The global crisis caused by COVID-19 was an important catalyst in this effort. The increase in mental health problems, the widening inequality, and the erosion of institutional trust called for government agendas focused on building social fabric and strengthening the conditions for improving the livelihood of the population (Helliwell et al., 2022; 2023), raising the volume of the narrative and relevance of well-being centered societies.

One of the most pressing concerns in the policy realm in Latin

America is the high rate of job informality. Before COVID-19, the informal sector employed about 56 % of the working-age population (Bentala et al., 2020). In the aftermath of the pandemic, the informal sector is growing. Around 70 % of the net job creation in the region comes from the informal sector (ILO, 2021). The policy implications of informality include tax evasion, low productivity, lower wages, and poverty (Ohnsorge and Yu, 2022). Informality has significant social implications but also negatively affects informal workers. More often, people in the informal sector experience inequalities, have a lower accumulation of human capital and are excluded from regulatory frameworks like health and pension that contribute to peoples' well-being (Chen M., 2016). Most evidence of informal workers in the region is primarily centered on economic outcomes such as wage gaps or poverty (Messina and Silva, 2021). Less is known about the subjective dimension of informal employment and its relationship with life satisfaction, job satisfaction, and the experience of positive and negative emotions. This is an important gap in the literature. Given the expansion in the informal sector due to the pandemic, it is necessary to understand how informal employment affects peoples' well-being beyond monetary outcomes.

Job satisfaction has been widely studied from industrial/organizational psychology to inform companies about productivity (Aamodt, 2022). Nevertheless, since informality results from government failures

* Corresponding author.

E-mail addresses: lmartinez@icesi.edu.co (L. Martínez), maria.zafra1@u.icesi.edu.co (M.I. Zafra).

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to create formal employment, protect workers' rights, or enforce regulations (De Soto, 1989), informal employment and its subjective dimension have components beyond the interests of businesses and companies. Informal workers are penalized in many forms, and studying the subjective components associated with employment provides granular and broader elements with significant policy implications. This analysis aims to contribute to the literature on subjective well-being and informal employment, analyzing various of factors related to job conditions, emotions, life satisfaction, and quality of life. To the best of our knowledge, there is no evidence available studying informal employment from a broad range perspective as this study undertakes in Latin America. This study analyses how formal and informal workers' job and life satisfaction vary. Two questions guide this study: i) *how life satisfaction varies for formal and informal workers and what areas relate to their life satisfaction*, and ii) *how job satisfaction varies for formal and informal workers and what work-related factors are associated with the variation*. This analysis uses information from a population survey collected in 2022 in Cali, the third-largest city in Colombia. The survey was designed to measure subjective well-being and job satisfaction in a city with high informality rates and significantly affected by the pandemic in terms of an increase in urban poverty and contraction of the formal sector (Martínez and Young, 2022). Over 1200 informants participated in the study.

This analysis has six sections. After the introduction, the second section summarizes the relevant literature on subjective well-being related to life and job satisfaction and the background literature on informality in Latin America. The third section presents data and methods. Forth section is focused on the results of each research question. The fifth section discusses the results and their policy implications. Lastly, we conclude.

2. Background

2.1. Subjective well-being: life and job satisfaction

Subjective well-being refers to an individual's personal evaluation of life, including cognitive evaluations of life satisfaction and affective experiences of emotions and moods. It is a broad concept that includes multiple dimensions of well-being, such as people's satisfaction with their material conditions, social relationships, and a sense of purpose and meaning in life (OECD, 2013). The assessment of subjective well-being often uses two measures: evaluative and affect.

Evaluative measures are commonly used in population surveys and are captured under two approaches. One approach is the *best possible life* (Cantril's ladder measure). Under this measure, respondents are asked to rate on a 0 to 10-point scale regarding the best possible life, with 0 being the worst possible life for them and 10 being the best possible life. A life satisfaction assessment is a second approach to capture the evaluative dimension of subjective well-being. People are asked to rate their overall life satisfaction using a 0 to 10-point scale where 0 is not satisfied at all, and 10 is completely satisfied with their life (OECD, 2013). Evaluative measures reflect a cognitive assessment of one's life based on personal goals, expectations, and experiences (Diener et al., 2002). They correlate highly with income and living standards (Lambert et al., 2020). Life satisfaction also includes an evaluation of life domains, which refers to assessing one's satisfaction with specific areas of life. In this approach, life consists of multiple domains or areas, such as work, income, relationships, or health, since each domain contributes to overall life satisfaction (Diener et al., 2015). Evaluative measures are preferred for international comparisons since they more stably capture the quality of life and well-being (Helliwell et al., 2023).

Affect measures capture the experience of positive and negative emotions and are framed in short intervals of time. Usually, respondents are asked how often they felt happy, joyful, or stressed the day before. Affect measures are related to psychological needs, social and personal relationships, and enjoyment of daily activities (Lambert et al., 2020).

Affect measures usually are divided into positive and negative affect. For instance, the World Happiness Report encompasses *positive affect* into the average of emotions experienced the day before- laughter, enjoyment, and learning or doing something interesting- and *negative affect*, the average of negative emotions experienced the day before- worry, sadness, and anger (Helliwell et al., 2022;2023).

Most of the research on subjective well-being shows that people who evaluate their subjective well-being at a higher level have better social relationships, lower divorce rates, earn higher salaries, and have a better state of health (Diener et al., 2018a; 2018b). Self-reported measures of well-being show a high correlation with components associated with a good life, like exercising or eating healthier (Seder and Oishi, 2012). Use more positive words in social network interactions (Schwartz et al., 2016) and have better psychological indicators (Kushlev et al., 2020). In general, the vast research in this field shows that people with higher perceived well-being smile more, are in better health, and use more positive words.

People in developed countries consistently report higher subjective well-being (Helliwell et al., 2022). In Scandinavian countries, individuals rate higher on achieving the best possible life and other measures of subjective well-being. Besides better incomes and high quality of life, those countries are characterized by a strong welfare state, high trust in institutions, strong democracies, and lower inequality. These factors are positively and strongly related to subjective well-being (Martela et al., 2020).

In Latin America, despite high inequality, lower incomes, and mistrust in institutions, subjective well-being is high (Rojas, 2016). The high subjective well-being in the region is known in the literature as the *Latin American phenomenon*, propelled by the strong interpersonal relationships and family ties that characterize the region (Rojas, 2016; 2018). Even though life satisfaction is high, people acknowledge the lack of effective government performance and the high corruption, inequality, and poverty rates. This is a private-public dichotomy of subjective well-being, in which people are greatly satisfied with inner factors like family, relationships, or personal achievements but highly unsatisfied with the public sphere (Martínez and Short, 2021). Colombia follows the same pattern as Latin American countries with high life satisfaction but reducing steadily from 8.3 in 2017 to an overall appraisal of life satisfaction of 8.0 in 2021. Likewise, Colombia has descended in the international ranking of subjective well-being, falling from being ranked 21 worldwide in 2006 to 78 in 2021 (PNUD, 2023).

Job satisfaction is one life domain strongly correlated with subjective well-being (Bowling et al., 2010). Broadly defined, job satisfaction refers to a positive emotional state resulting from individual appraisals of job experiences (Locke, 1976), which includes cognitive, affective, and behavioral components (Hulin and Judge, 2003). Job satisfaction evaluation includes satisfaction with pay, relation with co-workers, supervision, recognition, working environments, and a general evaluative assessment of work as a whole (Judge et al., 2020).

Job satisfaction is one of the primary research topics in industrial/organizational psychology (Aamodt, 2022). It has taken a broader perspective on the policy dimension of subjective well-being studies, given its strong correlation with life satisfaction and government policies that affect people's work environments and employment regulations. Research shows strong evidence of positive correlation between life and job satisfaction (Bowling et al., 2010; Weziak-Bialowolska et al., 2020). Moreover, longitudinal evidence from over 30 years of annual measurements shows that job satisfaction and life satisfaction are positively and reciprocally related, although life satisfaction influences job satisfaction more strongly. The magnitude of the effect of life satisfaction over job satisfaction varies based on specific traits of the population, like gender, age, or education (Bialowolski and Weziak-Bialowolska, 2021).

One of the significant rewards of employment is the salary. Money and its corollary, income, have been studied extensively in the literature on subjective well-being (Biswas-Diener and Diener, 2001). Generally,

higher income is correlated with higher subjective well-being (Tay et al., 2018). However, the correlation is small in developed nations and more robust and extensive in lower-income countries (Biswas-Diener and Diener, 2001; Boyce et al., 2010). One of the most cited results from this literature is the satiation point in which more money does not lead to higher subjective well-being. The plateau concerning money and well-being has been reported at US\$75,000 annual income in the US (Kahneman and Deaton, 2010) and confirmed at \$95,000 annual income in a global sample (Jebb et al., 2018). The ceiling income-subjective well-being is reported when available income allows people to satisfy basic needs (Kahneman and Deaton, 2010; Jebb et al., 2018). This finding was recently challenged in a large sample in the USA, where no satiation point is reached, implying that more money leads to higher subjective well-being (Killingsworth, 2021).

Income has also been widely studied in the field of job satisfaction. Most of the evidence suggests that income matters for job satisfaction, but other factors are more relevant. Evidence from the USA shows that people value job security, having an interesting job, or autonomy more than higher income (Clark, 2015). Job satisfaction is more relevant to income adequacy (satisfaction with income) than the actual salary (Judge et al., 2010).

The study of job and life satisfaction for informal workers in LA is scarce. The evidence shows that job satisfaction and informality may change based on context, with a negative relationship between informal employment and well-being in Chile, Brazil, Mexico, and Colombia (Cassar, 2010; Giatti et al., 2008; Temkin, 2016; Hurtado et al., 2017; PNUD, 2023) and little differences in well-being in a sample of male workers in Mexico (Rojas, 2013). Another dimension of subjective well-being evaluated for informal workers is self-perceived health. For informal workers in 13 iberoamerican countries, Peru and Chile, there are lower ratings of self-perceived health, in particular, poor mental health, with higher prevalence among women (Silva-Peñaherrera et al., 2022a; 2022b; Ruiz et al., 2017).

The study of the subjective well-being of informal workers in the global South is new and scattered despite the sizable share of informality in the labor market. To the best of our knowledge, there are no insights about the affective component of subjective well-being and job satisfaction (Judge et al., 2020), which refers to the positive and negative emotions workers experience. There is also little knowledge about how formal and informal workers rate life domains that affect their subjective well-being.

2.2. Informality

Labor informality is widely used in Latin America to characterize the conditions of almost half of the working force. Labor informality underlies two concepts: *informal sector* and *informal employment*. The *informal sector* emerged in the '70s and was used by the International Labor Organization to refer to the population unable to participate in the formal sector. Under this productive approach, the informal sector reflects the inability of an economy to produce formal employment for the Labor force. *Informal employment* is narrow to job conditions, associating informality with evading Labor regulations (Maurizio, 2012). Informal employment is a central characteristic of the Labor market in Latin America, insofar as at least 50% of the workforce earns their living in the informal sector (ILO, 2021).

Informal employment is usually linked to jobs of poor quality including low wages, no social benefits, lack of paid vacations, poor working environments, uncertainty, and lower productivity (Chen, 2016; Maurizio, 2012). With those conditions, informal employment is often the resort of poor and uneducated populations who lack the qualifications or opportunities to participate in the formal sector that offers better jobs (ILO, 2021). This view has led to a narrative of informal employment as low-quality employment vs formal employment that offers high-quality jobs (Rojas, 2013). Unquestionably, informal employment is an undesired outcome from a social perspective.

However, despite the adverse conditions associated with informality, in Latin America, informal employment is partially driven by personal choice rather than exclusion from the formal market (Hurtado et al., 2017; Maloney, 2004). Employment informality arises when the costs of complying with regulatory frameworks exceed the perceived benefits. Informal workers (including self-employed) tend to avoid social security contributions and prefer more leverage on reporting earnings to reduce taxation. Similarly, low-income workers who benefit from sponsored state programs like health, cash transfers, or direct subsidies may prefer informal employment to avoid losing eligibility (Camacho et al., 2014).

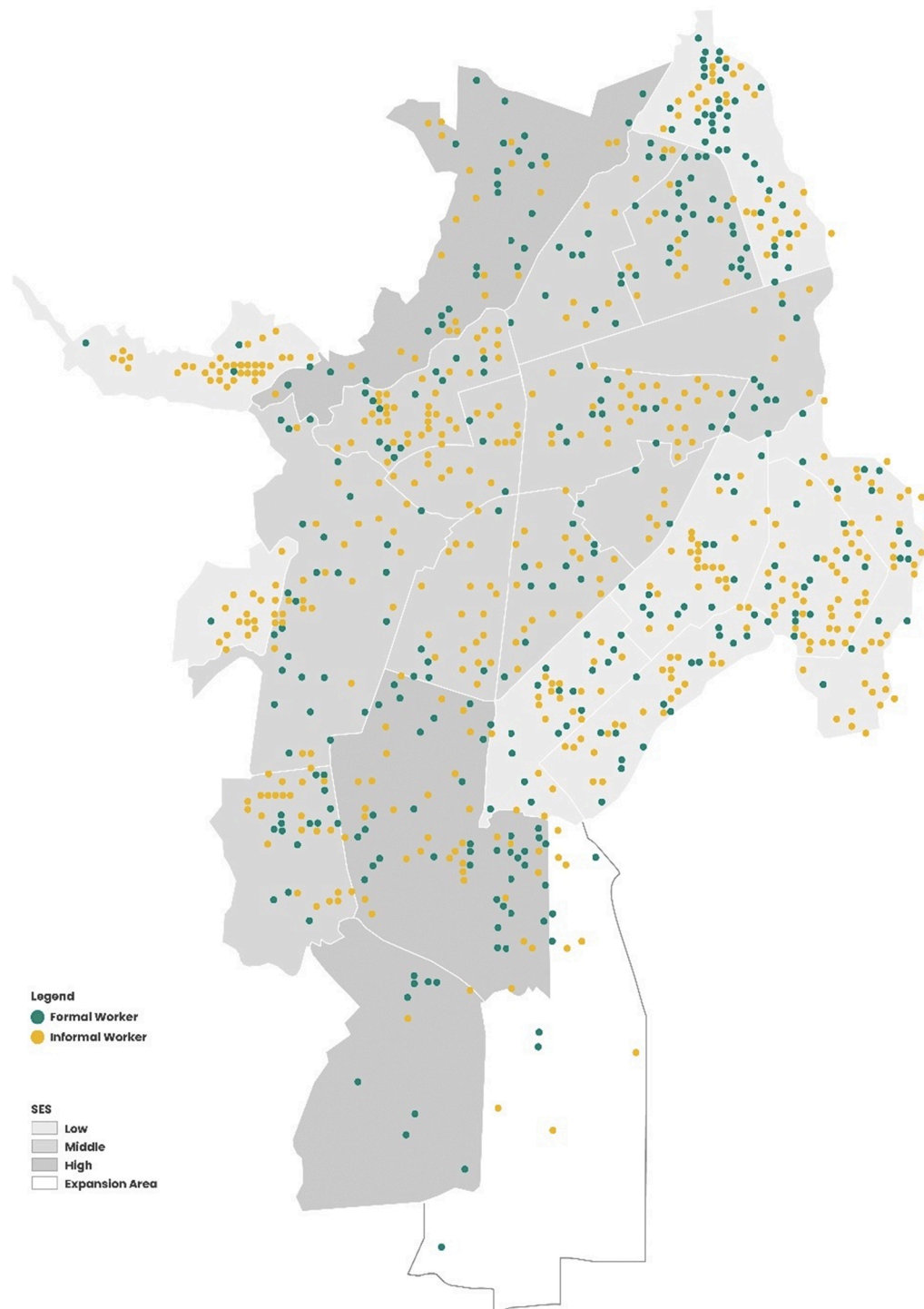
The informal sector compresses various occupations and incomes, from trash pickers to freelancer professionals. The broad range of the informal sector in most Latin American countries can be divided into three segments (Cámara de Comercio, 2022). At the bottom of informality are **subsistence workers**, the hand-to-mouth population: Trash pickers, informal vendors, street vendors, and all individuals who use the public space or any possible resource to make a living. Subsistence workers are the primary recipients of state intervention, either because they benefit from poverty reduction programs or because they are harassed for public space occupation. The second group of informal workers belongs to **independent provider networks**. These are the Uber drivers, the delivery people, the bakers at home, and those that operate powered by social networks but never formalized. Despite no reliable information about the size of this share, most of the workers belong to a vulnerable middle class with high school or technological education. They are not poor enough to receive government subsidies but poor enough to be penalized by the entrance rules and requirements of the formal market. The last share of the informal sector is **traditional business**. In Latin America, small business operates in a grey area of formality and informality. The shop may be formally registered, but the payroll, contracts, or salaries are informal or below the minimum wage (Cámara de Comercio de Cali, 2022). This broad range of occupations and individual characteristics shows that the informal sector is fragmented and highly diverse (Martínez and Short, 2022).

The larger bulk of empirical research on informal workers in the global South refers to the composition of the informal sector and its contribution to the overall economy (Chen et al., 2019; Joshi et al., 2014; Thulare et al., 2021; Vanek et al., 2014). Another strand of the research informs gender and poverty. In regions like South Asia, Africa, and, to a lesser extent, Latin America, women are overrepresented in the informal sector, making wages below men (Bonnet et al., 2019; Vanek et al., 2014). Another angle of the literature on the informal economy focuses on studying how urban newcomers, immigrants, and displaced use the informal sector as the main resort for income generation (Arango and Baldwin-Edwards, 2014; Betts et al., 2017). The subjective dimension of informal employment is an emerging topic.

3. Data and methods

This study uses data collected in Cali, the third-largest city in Colombia, with 2.3 million inhabitants (DANE, 2022). Since 2014, the Observatory of Public Policies of Universidad Icesi has implemented a population survey in the city focused on measuring subjective well-being (Martínez, 2017). In 2022, the CaliBRANDO survey included a section to measure job satisfaction and affect, referring to positive and negative emotions people experienced the day before.

CaliBRANDO is a face-to-face survey collected annually by trained pollsters in over 30 points of high pedestrian traffic across the city, like bus stations, malls, community centers, and parks. Respondents inquired about the closest intersection to their household; this variable allows us to verify that the survey collects information in all districts and neighborhoods in the city. Map 1 presents the survey geography, using the closest street intersection near the respondent's household. CaliBRANDO is representative of the city population by gender, socioeconomic strata, and race/ethnicity, with a margin of error of 2.8% and a confidence level of 95%. Respondents are adults (18+ years) and city residents selected at



Map 1. Survey geography, CaliBRANDO 2022.

the survey collection points. Pollsters approached respondents, explaining the academic purposes of the survey and ensuring confidentiality. Survey participation is voluntary, and no personal information is collected. Data was collected in June 2022 during three weeks of fieldwork by 8 pollsters and 5 fieldwork supervisors.

In the city of Cali, like the general pattern in the country and Latin America, about half of the working-age population earns their income in the informal sector (DANE, 2022). In Map 1 it is evidenced that formal and informal workers are distributed across the city, although informal workers live in higher proportions in the lowest socioeconomic strata districts (SES). Job informality is a distinctive characteristic of the city,

with high fragmentation in income and occupations, and the resort for the most vulnerable (Martínez and Short, 2021; Martínez et al., 2017). The pandemic significantly affected poverty and the informal sector's increased. In 2020, urban poverty in the city reached 36 %, a 14 percentage point increase from 2019 (DANE, 2021), and the informal sector grew, reaching 60 % of the workforce as a consequence of the significant contraction of the formal sector during the pandemic (Martínez and Young, 2022).

This analysis is focused on exploring the subjective dimension of informal employment in a mid-size city in Colombia. For this purpose, we are guided by two questions: i) *how life satisfaction varies for formal*

and informal workers and what areas relate with to life satisfaction and ii) how job satisfaction varies for formal and informal workers and what work-related factors are associated with the variation. To measure subjective well-being for formal and informal workers, we use the following information:

Subjective well-being: CaliBRANDO uses the core measures recommended by the OECD for measuring subjective well-being (OECD, 2013). For an *evaluative measure*, the survey asks: *On a scale 0 to 10, overall, how satisfied are you with life as a whole these days? Zero means you feel “not at all satisfied” and ten means you feel “completely satisfied.”*

For life domains evaluation, the survey inquiries about satisfaction with a broad range of factors, using a 0–10 scale: Overall, how satisfied you feel with family, current job, sentimental relationships (significant other), health, income, and education.

For an *affect measure*, the survey inquiries about the frequency of positive and negative emotions experienced the day before on a 0–10 scale. These measures were adopted from the core affect measures of the OECD (OECD, 2013) and the Gallup World Poll (Helliwell, et al., 2021;2022). Respondents were asked: *How you felt yesterday on a 0–10 scale. Zero= not experiencing the feeling at all, and 10= experiencing the feeling all the time: Happiness, learning/doing something interesting, enjoying daily activities, worry, depression, anger.* Using the response to these questions, two variables were created: positive affect and negative affect. Positive affect is the average happiness, learning/doing something interesting, and enjoying daily activities (alpha: 0.77). Negative affect is average to the questions of worry, depression, and anger (alpha: 0.79).

Job satisfaction: The survey included a section inquiring about satisfaction (scale of 0–10) with job-related factors to assess overall job satisfaction. Respondents were asked: *Overall, how satisfied you feel with salary, job activities, work environment, job challenges, the contribution to society you make through your work, relationship with supervisor, and relationship with co-workers.*

Formal – informal: Participants who reported being employed were classified based on pension and health contributions. Informal workers were classified as respondents working but not contributing to health and pension programs, adhering to the concept of employment being unreported and not covered by regulatory frameworks (Bernal, 2009).

The analysis includes variables at the individual level of gender, age, and race/ethnicity. To capture socioeconomic status, we use household strata (SES). In the Colombian context, households are classified based on their physical conditions on a 1–6 scale. Households in the 1–2 bracket are classified as the most vulnerable; the population living in households 3–4 are middle-SES, and 5–6 households are the most affluent. This scale was created to focalize subsidies and state-supported programs (Quinones et al., 2021). We also use educational attainment, self-reported monthly income, and two variables for household composition: having children and being the household’s primary bread earner.

Table 1 presents the descriptive variables of the study sample by formal and informal employment. 1306 respondents participated in the 2022 survey, and 87 % reported being employed at the moment of the data collection (1136 observations). 60 % of employed respondents in the study are informal workers (not contributing to health and pension). In our sample, respondents from lower SES, minorities, and women are over-represented in the informal sector (71 %, 66 %, and 65 %, respectively). People from all age brackets participate in the informal sector, with a higher frequency for people 50+. As expected, respondents with higher educational attainment (college+) participate in a larger proportion in the formal sector, but even for college-educated respondents, 41 % earn their living in the informal sector. Informal workers report having children and being the primary bread earner more frequently than formal workers. There is an important difference in self-reported monthly income. Informal workers report an average monthly income of U\$338 (24 % over the monthly minimum salary in

Table 1
Descriptive variables - CaliBRANDO 2022.

		Formal	Informal
Gender	Male	44 % [251]	56 % [314]
	Female	35 % [201]	65 % [367]
Race / Ethnicity	Minority	34 % [136]	66 % [264]
	Non-minority	43 % [313]	57 % [419]
Age	18 - 35	43 % [204]	57 % [272]
	36 - 50	48 % [143]	52 % [158]
	50+	29 % [105]	71 % [255]
SES	Low SES	29 % [170]	71 % [412]
	Middle SES	49 % [218]	51 % [229]
	High SES	62 % [64]	38 % [40]
Educational attainment	High school	29 % [145]	71 % [352]
	Technical education	57 % [125]	43 % [95]
	College+	59 % [170]	41 % [119]
Household composition	Have children	38 % [288]	62 % [473]
	Bread earner	42 % [254]	59 % [358]
Income (US dollars)	Average - Self-reported monthly income	\$ 640 (\$24)	\$ 338 (\$12)
Total observations		452	685

Notes: Exchange rate 1 USD – 4500 COP. Standard error in parentheses. Fraction of the sample in square brackets. The sum of the fractions of the sample equals the total number of observations for both the formal and informal sectors for each descriptive variable.

Source: CaliBRANDO dataset 2022.

Colombia in 2022¹), but the salary for those employed in the formal sector is almost double the average income of informal workers.

Following Ferrer-i-Carbonell & Frijters (2004) and Blanchflower & Oswald (2011), we use ordinary least squares (OLS) to explore the factors associated with life satisfaction and job satisfaction for formal and informal workers. Two models are used in this analysis. To answer the first question, life satisfaction is the dependent variable. For the second question, we use job satisfaction as a variable of interest. Both models control for gender, race/ethnicity, age, SES, educational attainment, and household composition.

4. Results

4.1. How does life satisfaction vary for formal and informal workers, and what areas relate with to life satisfaction

To answer this question, we use three measures of subjective well-being. To capture life satisfaction, we use the evaluative measure of life satisfaction; from the question *overall, how satisfied are you with life as a whole these days?* To capture with more nuances people’s evaluations of their life, we employ two additional sets of measures: i) satisfaction with life domains (family, current job, sentimental relationships -significant other-, health, income, and education) and ii) positive-negative effect. Lastly, given the high correlation between life satisfaction and income and the discussion about the satiation point of subjective well-

¹ Minimum monthly salary in Colombia for 2022: 1.160.000 COP - Exchange rate 1 USD – 4500 COP.

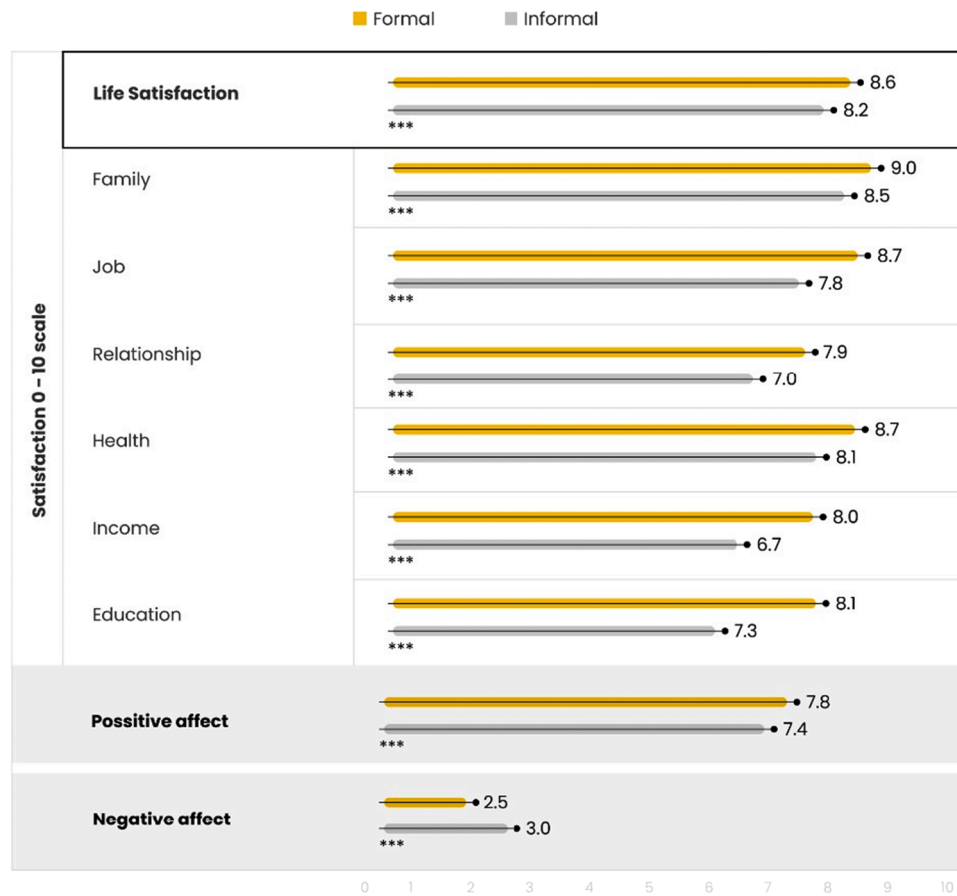


Fig. 1. Life satisfaction and satisfaction with life domains for formal and informal workers.

Source: CaliBRANDO dataset 2022 - * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 2

Linear regression – life satisfaction, life domains and affect.

		Dependent Variable: Life satisfaction		
		Formal/Informal	Formal	Informal
Life domains	Satisfaction - Family	0,1082*** (0,0243)	0,0681 (0,0356)	0,1404*** (0,0338)
	Satisfaction - Job	0,0895*** (0,0253)	0,1757*** (0,0405)	0,0548 (0,0338)
	Satisfaction - Relationship	0,0586*** (0,0174)	0,0783** (0,0248)	0,0498* (0,0243)
	Satisfaction - Health	0,1127*** (0,0280)	0,0952* (0,0410)	0,1181** (0,0387)
	Satisfaction - Income	0,0462 (0,0270)	0,0963* (0,0393)	0,0221 (0,0373)
	Satisfaction - Education	0,1195*** (0,0256)	0,0865* (0,0337)	0,1428*** (0,0379)
Affect measure	Positive Affect	0,2115*** (0,0255)	0,2052*** (0,0340)	0,2152*** (0,0372)
	Negative Affect	- 0,0093 (0,0192)	- 0,0104 (0,0251)	- 0,0083 (0,0283)
Informal dummy variable ¹		Yes	No	No
Control variables ²		Yes	Yes	Yes
Number of observations		1052	426	507
Adjusted R-squared		0,3796	0,4188	0,344

Notes: OLS regression. Dependent variable: Life satisfaction (0–10 scale). For better fit in the model and avoiding multicollinearity, the model controls for socio-economic strata SES instead of income. Standard error in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

¹ Quantitative indication of well-being penalty suffered by informal workers, holding other factors constant.

² Control variables: Demographic characteristics (gender, race/ethnicity, age), SES, Educational attainment, Household composition.

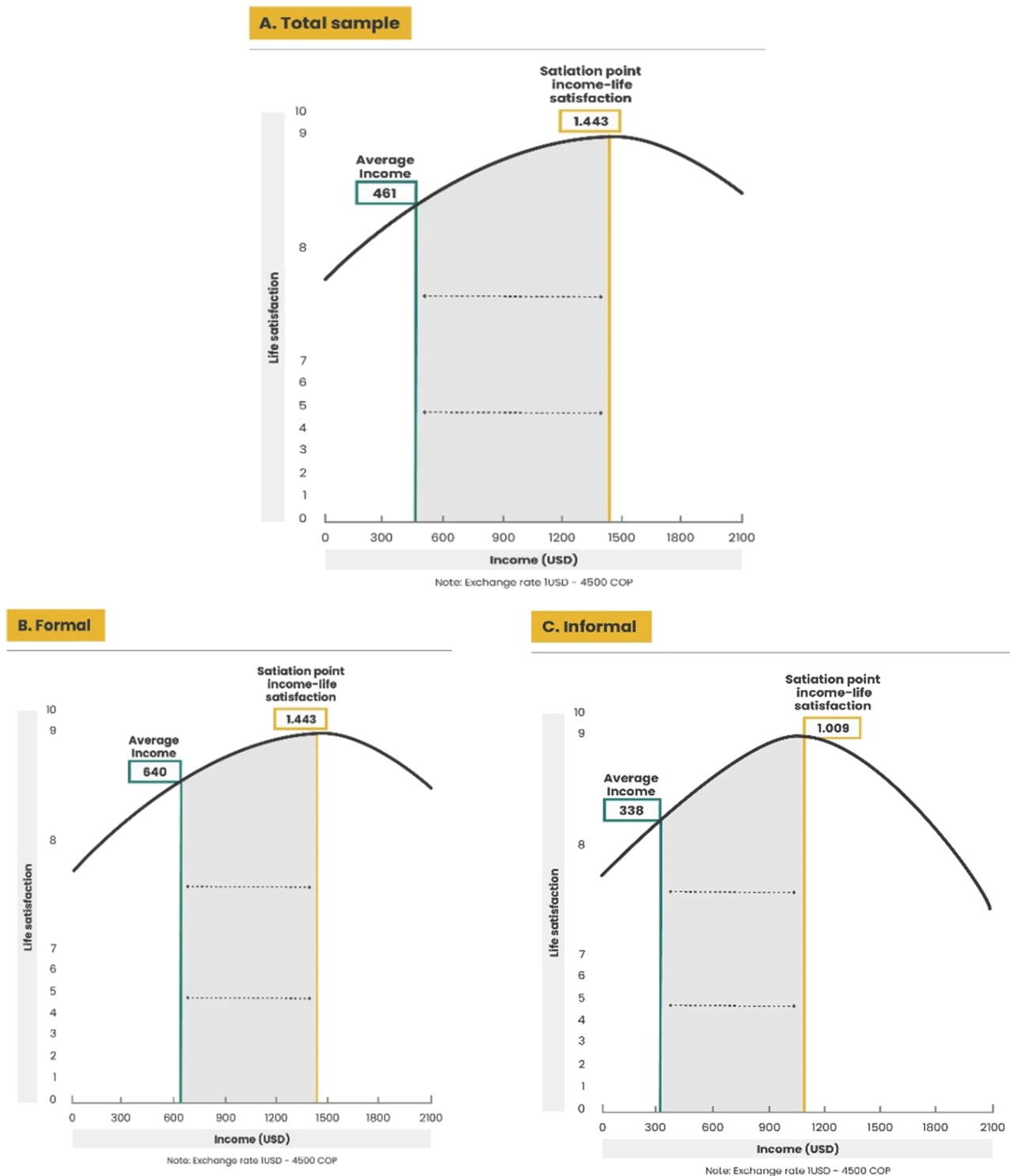


Fig. 2. Satiation point life satisfaction and income.

OLS regression. Dependent variable: Life satisfaction (0–10 scale). Independent variables: Income and Income squared.

being and income (Jebb et al., 2018; Kahneman and Deaton, 2010; Killingsworth, 2021), we analyze this phenomenon in our sample.

Fig. 1 presents the raw results of variables of interest discriminated

by formal and informal workers.² In almost all variables analyzed, formal workers report better scorings with significant differences regarding informal workers. Overall, informal workers report lower life

² Refer to the annexes to see the distribution of the different well-being domains.

satisfaction (8.2) and satisfaction with life domains. Factors related to employment and its benefits, like income, household finances, and job satisfaction, are the life domains with more significant differences between groups. Formal and informal workers also present significant differences in experiencing positive and negative emotions the day before. On average, informal workers experience less frequent positive emotions (7.4) and more often negative emotions (3.0) when compared with formal workers. Similar to global findings (Helliwell et al., 2021; 2022; 2023), positive emotions for formal and informal workers are almost three times more frequent than negative emotions.

Table 2 presents the regression analysis results to explain life satisfaction and its correlation with life domains and affect measures for formal and informal workers. Life domains like satisfaction with family, job, personal relationships, and education are strongly and positively associated with higher subjective well-being for formal and informal workers. However, the significance varies when analyzed for each group. Formal workers' satisfaction with their job and income is more relevant when explaining life satisfaction. For informal workers, satisfaction with family is more relevant in the equation for their subjective well-being. For formal and informal workers, experiencing positive emotions the day before strongly correlates with life satisfaction.

In addition, Table 2 shows a positive relationship between educational satisfaction and life satisfaction, with greater significance in the overall population (formal and informal workers) and among informal workers. In contrast, this significance decreases for formal workers. Although the literature does not highlight marked differences in life satisfaction between formal and informal workers, it does indicate that being an informal worker tends to reduce life satisfaction, which improves with higher educational attainment (Abud and Ugarte, 2022; Chen et al., 2022). This negative impact is more pronounced when low educational levels are combined with informal employment (Zhou, Zhang, and Li, 2024). These results suggest that the role and value of education differ by employment type: informal labor markets, education

is often seen as an essential requirement rather than a differentiator of personal satisfaction, while for informal workers, it represents a key asset linked to social mobility and future opportunities, thus enhancing life satisfaction.

Fig. 2 explores the relationship between income and life satisfaction and the point at which income does not translate into higher subjective well-being (satiation point). Panel A presents the average monthly income and satiation points for the entire sample. Panel B presents information for formal workers, and panel C for informal. Following the same pattern in Colombia (PNUD, 2023) and low-middle-income countries (Biswas-Diener and Diener, 2001; Boyce et al., 2010), we find a strong and positive correlation between income and life satisfaction. In our sample, more money translates into higher subjective well-being. However, the relationship reaches a ceiling of U\$1443 monthly income for the entire sample (panel A). The average income (U\$461) of the average respondent in our study only covers 32 % of the income to reach a point where the money would not significantly contribute to higher subjective well-being. Formal and informal workers reach the threshold at different points. The satiation point for formal workers (panel B) mirrors the average of the entire sample (U\$1443). With an average monthly income of U\$640, formal workers must double their current salary to live satisfied with their money. For informal workers (panel C), the station point is lower at U\$1009 monthly, and their current salary (U\$338) only covers 33 % of the money needed to reach the point where money does not translate into a more satisfied life. The satiation point is a privilege of a few in the context studied. Only 3.8 % of formal workers and 17 % of informal workers reach the satiation point, and those who reach the threshold are mostly (over 75 %) college-educated.

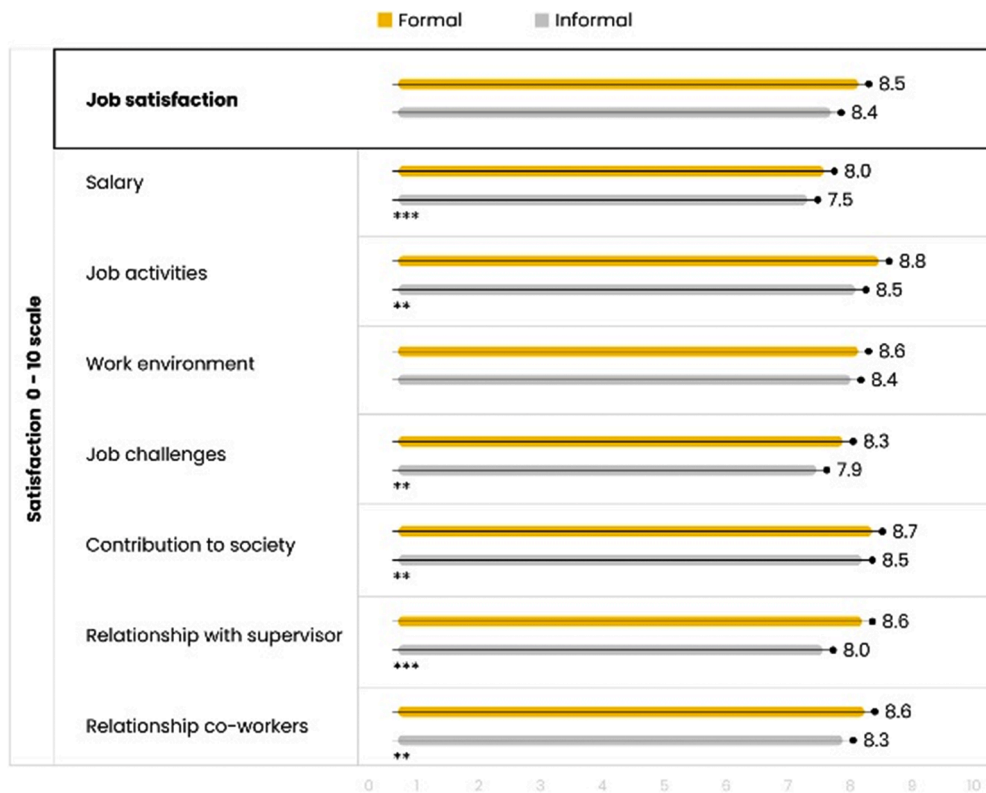


Fig. 3. Job satisfaction for formal and informal workers.

Source: CaliBRANDO dataset 2022 - * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

4.2. How job satisfaction varies for formal and informal workers and what work-related factors are associated with the variation

This question explores the differences in job satisfaction and work-related factors for formal and informal workers. To explore these differences, we use job satisfaction as a variable of interest and satisfaction with salary, job activities, work environment, job challenges, contribution to society, relationship with supervisor, and relationship with co-workers, as factors related to current employment.³

Fig. 3 presents raw results and differences between formal and informal workers. Job satisfaction is high for both groups (8.5 formal and 8.4 informal) without significant differences. Alike life domains, formal workers are more satisfied with working conditions than informal workers. Satisfaction with salary and the relationship with the supervisor are the factors with the most considerable difference between groups.

Regression analysis of the correlation between job satisfaction and work-related factors is presented in Table 3. For formal and informal workers, job satisfaction is mainly driven by satisfaction with salary and job activities. In the case of formal workers, the work environment, the relationship with the supervisor and the challenges job represents are positively correlated with job satisfaction. These factors become particularly relevant in a sector where salaries are generally more stable, additional benefits are common, and a structured professional identity is more visible compared to the informal sector. This combination likely contributes to motivating and reinforcing both the sense of belonging and the recognition individuals experience within the formal sector

Table 3
Linear regression – job satisfaction and work related factors.

	Dependent Variable: Job satisfaction		
	Formal/ Informal	Formal	Informal
Satisfaction - Salary	0,3091*** (0,0269)	0,2804*** (0,0364)	0,3284*** (0,0412)
Satisfaction - Job activities	0,2967*** (0,0378)	0,317*** (0,0492)	0,3640*** (0,0620)
Satisfaction - Work environment	0,1044* (0,0404)	0,1761*** (0,0507)	0,0008 (0,0695)
Satisfaction - Job challenges	0,0776** (0,0278)	0,0955** (0,0356)	0,0871 (0,0447)
Satisfaction - Contribution to society	0,0101 (0,0310)	0,0163 (0,0408)	0,0003 (0,0485)
Satisfaction - Relationship with supervisor	0,0454 (0,0267)	0,1153** (0,0395)	0,0002 (0,0380)
Satisfaction - Relationship co-workers	-0,0116 (0,0360)	-0,0975 (0,0507)	0,0436 (0,0530)
Informal dummy variable ¹	Yes	No	No
Control variables ²	Yes	Yes	Yes
Number of observations	665	369	296
Adjusted R-squared	0,5134	0,5124	0,527

Notes: OLS regression. Dependent variable: Life satisfaction (0–10 scale). For better fit in the model and avoiding multicollinearity, the model controls for socioeconomic strata SES instead of income. Standard error in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$. The number of observations in Table 3 (job satisfaction regressions) is lower than in Table 2 (life satisfaction regressions) due to data loss from the inclusion of a new job satisfaction section in the CaliBRANDO survey.

¹ Quantitative indication of well-being penalty suffered by informal workers, holding other factors constant.

² Control variables: Demographic characteristics (gender, race/ethnicity, age), SES, Educational attainment, Household composition.

³ Refer to the annexes to see the distribution of the different factors related to job satisfaction.

(Hackman and Oldham, 1976; Hasan et al., 2024; Herzberg, Mausner and Bloch, 2010; Locke, 1976; Raziq and Maulabakhsh, 2015; Schultz, 1961;).

5. Discussion and policy implications

The study of well-being has gained prominence recently, especially after the COVID-19 pandemic, underscoring the need for policies centered on social resilience and quality of life (Helliwell et al., 2022; 2023; Lambert et al., 2020). Latin America, one of the regions most affected by poverty and job instability, continues to rely on an expanding informal sector, which now comprises over 50 % of the working-age population (ILO, 2021). Despite the prevalence of informal employment, little is known about its effects on subjective well-being beyond income disparities, notwithstanding its size in the labor market, the structural inequalities linked to informal employment, and its relevance for policymaking. Previous studies on well-being in Latin America have noted the paradox of high life satisfaction despite economic hardships (Rojas, 2016), but few have examined how informal work contributes to this phenomenon. This study addresses this gap by analyzing how informal workers in a post-pandemic context experience well-being across multiple dimensions, revealing significant life and job satisfaction penalties.

Alike Latin America (Rojas, 2016) and Colombia (PNUD, 2023), life satisfaction is high in our sample, with an average of 8.4. However, important disparities are hidden in the aggregated and high life satisfaction. One of them is the significant penalties in subjective well-being for informal workers. Our findings align with previous research indicating that informal workers in Latin America experience lower life satisfaction (Hurtado et al., 2017; PNUD, 2023). Consistent with prior studies in Chile, Brazil, Mexico, and Colombia (Cassar, 2010; Temkin, 2016), informal employment is associated with lower wages, exclusion from regulatory protections, and poorer job conditions. However, this study provides novel insights by expanding the analysis beyond economic factors to include emotional well-being. We find that informal workers report lower positive and negative affect than formal workers, reinforcing findings from Silva-Peñaherrera et al. (2022) on the psychological toll of informality. Moreover, while Rojas (2013) found little difference in life satisfaction among male informal workers in Mexico, our results suggest that informal employment consistently lowers life satisfaction across a broader demographic in Colombia.

The income-life satisfaction relationship (positive and strong) in our study follows patterns observed in low- and middle-income countries (Biswas-Diener and Diener, 2001; Boyce et al., 2010). However, in raw measures, satisfaction with income shows a significant difference between formal and informal workers, being lower for informal workers. This low satisfaction contrasts with the significant wage gap in the sample studied, in which formal workers almost double the monthly income of informal workers. The low salaries of informal workers may ripple into lower satisfaction with family and relationships since informal workers are the leading providers in their households and have children in a higher proportion than formal workers. In addition to the crucial differences in satisfaction with life domains, informal workers experience, on average, less positive emotions, and more often negative ones than formal workers.

We find a clear satiation point, where income ceases to significantly improve well-being. This threshold is far beyond the reach of the average informal worker in Colombia, highlighting persistent structural inequalities. In contrast to Killingsworth (2021), who challenges the existence of a satiation point, our findings suggest that in Latin America, income constraints remain a fundamental barrier to well-being, particularly for informal workers. In our sample, the satiation point reaches a US\$1,443 monthly income. Only 5.3 % of workers in the sample reach the point that more money does not necessarily lead to higher subjective well-being. In Colombia, with a minimum monthly salary below US\$300, the satiation point income-subjective well-being is a privilege of a few.

The information on the satiation points in income and life satisfaction sheds light on personal aspirations and redistributive policies (Jebb et al., 2018). In terms of personal aspirations, in the context of this study, expectations seem far away. Only the highly educated and employed in the formal sector may attain such aspirations. The gap between average income and the life satisfaction income may be insurmountable for an average Colombian in a context where over half of the population lives in low SES households, <4.5 % reach graduate school, and over 50 % of the population earn their income in the informal market (DANE, 2021; 2022b). The significant gap between actual income and the income where life satisfaction reaches a ceiling also speaks of the ability of people to make a decent living. The literature in this area has found that the satiation point between subjective well-being and money (Jebb et al., 2018; Kahneman and Deaton, 2010) usually happens when economic resources cover basic needs and allow people to live comfortably without thinking about money. In our sample (which reflects the general conditions of Colombia), the average respondent is far away from the satiation point, implying that for an average person, the point where the average salary covers basic needs and allows a comfortable living is a privilege. This is another angle to understand the prevalent hardships and narrative of the people who cannot make a decent living with minimum wages.

This information also speaks loudly to redistributive policies. The increase in cash transfer programs that the country has implemented in the last two decades, reaching over three million households (Arteaga et al., 2019), may have direct and positive consequences for the life satisfaction of the beneficiaries. This implies that every dollar that gets into the pockets of beneficiaries of state-supported programs has direct implications for their ability to cover pressing needs while increasing their subjective well-being. Every policy decision comes with losses and gains.

Concerning the relationship between income and life satisfaction, state-supported programs based on cash transfers may have positive returns. Nevertheless, the negative unintended consequences of cash transfers translate into fewer incentives to enter the formal sector since program recipients forfeit eligibility for cash transfers when formally employed (Pessino et al., 2021). In subjective well-being, cash transfers may be beneficial when the government does not provide the enabling conditions for the people to gain the human capital that provides access to formal employment.

Regarding job satisfaction, previous studies suggest that informal workers sometimes report similar or even higher satisfaction levels than formal workers, particularly in contexts where informality is a choice rather than a constraint (Maloney, 2004). However, our results contradict this view by showing that informal workers consistently rate their satisfaction lower across multiple job-related dimensions. This aligns with findings from Hurtado et al. (2017), who highlight the vulnerability of informal workers due to precarious work conditions. Our data suggest that informal workers experience greater dissatisfaction with salary, work environment, and job challenges, which likely undermines their productivity and engagement (Aamodt, 2022; Judge et al., 2020). These insights inform about informal workers' job conditions and work relationships, with lower bargaining power with direct supervisors, fewer challenges, and repetitive activities with diminished wages. The lower job satisfaction in specific areas provides granular information to consider the quality of the jobs informal workers have access. Also, information disaggregated by components speaks loudly about productivity. Job satisfaction is a pillar for higher productivity and engagement in the workforce (Aamodt, 2022; Judge et al., 2020). Low wages, work activities, challenges, and societal contributions may work against productivity. Low productivity has been a major structural problem for economic growth in the region for decades (ECLAC-ILO, 2021). Overall, in this study, we find high aggregated rates of subjective well-being and work satisfaction, but behind the surface, there are important differences based on the employment sector. We find that informal workers are less satisfied in almost all factors evaluated, affecting their overall

well-being. This information adds another layer of the multiple penalties informal workers face. Besides lower income, lower educational attainment, and the exclusion of the formal sector, informal workers also have lower subjective well-being. In terms of policy, these results translate into the need to strengthen all the mechanisms and programs to support the most vulnerable and overrepresented in the informal sector. Investments in increasing years of education and higher accumulation of human capital ripple into the different mechanisms that promote access to better-paid employment opportunities.

This analysis faces several limitations. Available data only accounts for one year, which limits the ability to track changes over time and explore how the pandemic could have affected the subjective well-being of informal workers. Also, the study is restricted to one city, limiting generalizations to a broader context. Finally, this descriptive study intends to inform policy discussions but does not shed light on the causal relationship between informal employment and subjective well-being.

6. Conclusions

Using data from a population survey collected in Cali, the third largest city in Colombia, in 2022, we analyze the subjective well-being of over 1100 formal and informal workers. Two questions guided the analysis: i) how is life satisfaction for formal and informal workers, and ii) how satisfied are formal and informal workers with their job? Our analysis is novel and contributes to the scarce literature on subjective well-being for informal workers when the informal sector is expanding in Latin America due to the pandemic.

We find high subjective well-being for both formal and informal workers, following the region's high records of life satisfaction. However, behind the surface, we find important differences in subjective well-being. Informal workers score lower in all factors analyzed, with significant differences regarding formal workers. Informal workers, alike the pattern in Latin America, have significantly lower wages, have lower educational attainment, and live more often in low socioeconomic conditions. Life satisfaction for informal workers is lower, and score below formal workers in life domains like satisfaction with job, income, or education. Similarly, informal workers are less satisfied with work-related factors, including wages, activities, challenges, and interpersonal relationships in the work environment. We also find a ceiling in the relationship income – life satisfaction. In our sample, the satiation point in which more money does not translate into higher subjective well-being is a privilege only attainable for highly educated people. <5.3 % of respondents in the sample reach the threshold where resources contribute little to higher life satisfaction.

This analysis studies another layer of penalties that informal workers experience. Besides poverty and exclusion from regulated structures, informal workers are less satisfied with their lives. The subjective well-being dimension of informal employment explored in this analysis informs policy-making in redistributive policies using cash transfers as the primary mechanism to reach the most vulnerable policies to increase human capital and labor productivity.

Ethics statement

We, Lina Martínez and María Isabel Zafra the authors of the manuscript "Subjective Well-being of Informal Workers in the Global South: Evidence from Cali, Colombia", declare that the work presented is original and has not been previously published nor is it under consideration for publication elsewhere. We confirm that the manuscript is free from any form of plagiarism and that all sources of information and data used in the research have been properly cited.

We have adhered to the ethical guidelines and standards of our respective institutions and the academic community in conducting this research. All necessary permissions and approvals, including those for human and animal subjects where applicable, have been obtained and documented.

There are no conflicts of interest to disclose. All authors have significantly contributed to the research and preparation of the manuscript and have reviewed and approved the final version of the paper. We agree to take responsibility for the content and for the integrity of the research presented.

By submitting this manuscript, we acknowledge and accept the terms and conditions of the Wellbeing, space and society regarding the peer review process and the publication of our work.

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CRedit authorship contribution statement

Lina Martínez: Writing – review & editing, Writing – original draft, Supervision, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Maria Isabel Zafra:** Writing – review & editing, Methodology, Formal analysis, Data curation.

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.

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