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SUBJECTIVE WELL-BEING IN CITIES: A CROSS- CULTURAL ANALYSIS IN BOGOTÁ, BELO HORIZONTE AND TORONTO

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SUMMARY:
Subjective indicators of well-being have been proposed as guides for development policies since development is not only limited to material wealth (Veenhoven, 2002; Diener , 2006). Development studies have suffered from a materialistic bias (Easterlin, 1995). The paper presents a comparative cross-cultural investigation about domains of subjective well-being (SWB) and a global measure of Satisfaction with Life as a Whole (SWLS) in three cities: Bogotá-Colombia; Belo-Horizonte-Brazil and Toronto-Canada[1]. The Personal and National Wellbeing Indexes (PWI and NWI) developed by the International Wellbeing Group (IWG, Cummins, 1996; Cummins, et al, 2002) as well as the Satisfaction with Life as a Whole scale (SWLS, Diener, et al., 1985) were applied and successfully validated at the city level. The cities chosen have similar democratic institutions but different cultures and different "objective" indicators of development. Significant differences across cities as well as significant interaction effects were found for the subjective well-being indexes and demographical variables. Based on these results, we propose that NWI may be seen as a contextual antecedent of PWI, consistent with our view that individual evaluations of SWB may be determined by dispositional factors (top-down), context (bottom-up domains) and cultural values. The validation of the subjective well-being indexes in cultural contexts that lie outside where mainstream research is conducted is an important contribution in a field that has been mainly dominated by European, American and Australian samples.

KEYWORDS: subjective well- being; validation of the personal wellbeing index; well-being in cities; bottom-up domains of life satisfaction.

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[1] The cities studied were selected for comparative analysis as part of a project about city indicators financed by the World Bank across different nations (Hoornweg, Ruiz, Nuñez, Wills, 2007).

INTRODUCTION

The empirical study of subjective well-being (SWB) has been growing in prominence over the last 30 years (Diener et al., 1999). The search for antecedents and correlates of subjective well-being promises to enrich perspectives on social welfare and public policy that have previously suffered from a purely materialistic bias (e.g. Easterlin 1995). Public preferences may be better revealed by bottom-up approaches (Brief et al., 1993) to measure satisfaction with different domains of life directly assessed by citizens. As has been stated recently, "measures of SWB can be useful in assessing the need for certain policies and in measuring the outcomes of policy intervention" (Diener, 2006). While many studies have looked at subjective well-being as an individual difference, some research has identified stable differences across countries and cultures, suggesting that social context can be a driving factor in people's levels of well-being. For example, Eid & Diener (2004) found differences between individualistic and collectivistic cultures in norms about positive emotions. In addition, Diener (2000) presents country differences in levels of subjective well-being, suggesting strong links between what country (city) one resides in and how likely one is to experience well-being.

In general, such studies have aggregated subjective well-being to the country or culture level of analysis (Veenhoven & Hagerty, 2006). However, because one would expect subjective well-being to be most influenced by proximal situational factors, and because these factors are more likely to be displayed at the local or city, rather than national levels, it seems that the situational study of well-being should focus on the city level of analysis. Unfortunately, little research exists that explores such effects.

By stressing the contextual antecedents of subjective well-being, our aim is to develop a framework that includes a concept which can be named as "inter-subjective well-being" or "collective SWB" in cities. We consider that a more holistic inquiry into the nature of well-being should embrace the individual as well as the social level of analysis and consider both the private and public sphere of an individual's life (See Keyes, 1998, in this respect). A first step in this research is to validate existing subjective well-being indexes at city level across different cultures. For this purpose, the Personal Well-being Index as well as the National well-being indexes (PWI and NWI) developed by Cummins et al (2002) and used by the International Well-being Group are validated in Toronto, Canada and Belo Horizonte, Brazil. Both scales use a bottom-up approach to well-being by assessing directly their citizens' evaluations, both positive and negative, of how they experience their lives. The measures include both cognitive judgments and

affective reactions when people rate their satisfaction with different life domains. The Personal Wellbeing Index assesses the minimal set of domains of the construct of the personal well-being and is a measure more proximal to the individual. Cummins et al (2003) have provided both empirical and theoretical arguments for the use of seven domains including: satisfaction with the individual's standard of living, health, achievements in life, personal relationships, security, and connectedness with community and future security comprised by the Personal Well-being Index (PWI). A National Well-being Index (NWI) has been proposed (Cummins, et al, 2003) to measure satisfaction with life at the national level. This index can also be used at the local or city level. Domain's scores are averaged to produce a measure of SWB. The National Well-being Index (NWI), on the other hand, is a more distal measure composed of six domains (satisfaction with the economic situation, the state of the environment, social conditions, the government, business and local security).

If significant differences are found in the application of these indexes at the city level, we propose that dispositional, contextual and cultural variables may be seen as potential antecedents and correlates of subjective well-being.

Another important factor that comes into play at this level of analysis is social inclusion or exclusion. We used perceived social status as a proxy for this variable in explaining SWB. Including social dimensions may contribute to understanding SWB not only as an outcome of individual traits but also as the result of social relations in which the individuals or citizens are embedded (Grannovetter, 1985).

The paper unfolds as follows: In the first section a conceptual framework about SWB is formulated. It is proposed that the SWB of citizens is a multidimensional variable that is composed of evaluations about different domains of satisfaction with life, in a bottom-up (i.e. component-based) approach (Brief et al., 1993), where citizens appraise in a cognitive and affective way how they experience their lives in a particular city. It is suggested that the results of these indexes for particular cities will vary according not only to personality factors, but also in relation to the evaluations they have of particular contextual variables, which are influenced by cultural values. In this sense, we propose that some domains of NWI may be understood as contextual antecedents of PWI.

The second section presents the validation of the well-being scales and summarises the comparative results of the application of the PWI and NWI in three American cities. In the third section, we suggest in line with recent

research (Wills, 2007) that PWI domains should expand to consider a new domain: satisfaction with spirituality, a variable that implies a eudaimonic approach (Ryan & Deci, 2001) to SWB. In a study that tested how to expand PWI and NWI domains, Wills (2007) applied a quantitative methodology in Bogotá, and obtained statistical evidence for the inclusion of a new domain in the PWI index, namely satisfaction with spirituality and religiosity. This cross-cultural analysis provides additional evidence of the contribution of this new domain from data collected in Toronto. In the fourth section, we propose including a new social variable (subjective social status) in the analysis as a mediating variable for income and PWI and NWI according to the data collected in Belo Horizonte. In the final section, hypotheses for exploring in future research are provided.

1. CONCEPTUAL FRAMEWORK FOR RESEARCH

Our research on subjective wellbeing (SWB) has been inspired by two main objectives; firstly to try to understand why SWB is so high among Latin-Americans, particularly Colombians, as compared with other countries, and to identify which particular Colombian factors (contextual and cultural) can explain such high levels. Secondly, to develop a parsimonious conceptual framework to explain SWB as the dependent variable, using individual, social and cultural variables as explanatory factors. It is our belief that wellbeing for citizens is the result of individual, social and cultural variables and their interactions. To use individual measures of SWB exclusively will fail to fully capture the collective and social dynamics of the relationships in which individuals are embedded (Granovetter, 1985). Other authors have posed the same question (Keyes, 1998).

As a first step in this research, we propose to validate in an exploratory analysis the indexes developed by the International Well-being Group – IWG- and test the hypothesis that domains of NWI may significantly explain part of the variance of PWI found in those cities[2]. The IWG has as one of its aims the development of a valid and reliable scale for SWB across cultures (see Cummins et al., 2003).

Once we have valid scales at the city levels we look for significant results in the application of the well-being indexes. Interesting comparative results emerged form this cross-cultural study. Differences relative to the assessment of domains of life satisfaction in a bottom-up approach versus

[2] See table 6 for the PWI and NWI items; these were administered with an 11-point (0-10) End-Defined Response Scale, where the two response anchors were 'completely dissatisfied' and 'completely satisfied'.

global measures that assess SWB via a top-down approach were found which may point to cultural differences in such assessments.

Different results for PWI may be related to contextual factors. We consider that some of the variance in individual SWB expressed by the PWI index may be explained by social and cultural variables contained in the NWI index. We propose that the NWI index include individuals' appraisals of their satisfaction alongside the contextual conditions of their cities (for example, economic and social conditions, the environment, the government and the possibility of doing business in the city at either the national, regional or local level).

Results of the comparative study in three cities led us to consider a new conceptual question in relation to the inclusion of subjective social status as a mediator between income and subjective well-being (Islam & Wills, 2007). Social status was measured from an objective point of view as recorded by the Brazilian census as well as a perceived subjective indicator obtained from the direct appraisal of participants. We also state that to use only a quantitative approach to SWB has important limitations for understanding such a complex and holistic concept as subjective or inter-subjective well-being and therefore qualitative approaches should be pursued. For future research, quantitative analysis and analysis from narratives of participants could be combined.

2. COMPARATIVE RESEARCH ON SWB IN BOGOTÁ, TORONTO AND BELO HORIZONTE

Three different cities of the Americas were chosen for this comparative research. Each city displays different levels of "objective indicators" of development. We are interested to know if quality of life and well being from the citizen's point of view, how they feel and think about their well-being, correspond to that ranking or not. Toronto has the highest objective indicators. For example, the average household yearly income is US$50000, followed by Bogotá and Belo Horizonte. The application of PWI and NWI intends to test if subjective evaluations of life of the urban population of these cities differ from what might be expected from the objective measures of development.

2.1 Data Collection Instrument

The data for Toronto and Bogotá was collected by telephone survey. In Belo Horizonte the survey was implemented face to face in the household of the person involved. The data were collected from a random probabilistic sample in the three cities. Data were collected by telephone with

randomization at both the household level (random selection into the sampling frame) and at the individual level (selecting the individual who has had the most recent birthday). Sample size was designed for each city with the criteria of meeting a +/- 5% margin of error. Sample size by city is shown in Figure 1. The residents were 18 years of age or older. This yielded a statistical sample estimated by +/-4% margin of error for Toronto and Belo Horizonte and +/- 5% for Bogotá

Table 1: Sample Size by City

City	City Size	Representative ness	Sample size
Belo Horizonte	2238536	4%	600
Bogotá	7056219	5%	830
Toronto	2,481,494[3]	4%	605

2.2 Validation and reliability of scales

A successful validation of the well-being indexes is obtained with the following criteria: i) PWI and NWI have significant bi-variate correlations with a third variable, satisfaction with life as a whole (SWLS) in the three cities, ii) the same factor structure can be found for PWI and NWI in the three cities if a principal component analysis is performed with varimax rotation, iii) high reliability indexes measured by Cronbach's (1955) alpha in the three cities and iv) high bivariate correlation factors are obtained in each city. The scales were translated and back translated specifically for the current study in Spanish and Portuguese. They had not been previously tested in a Portuguese-speaking context.

Table 2: Cronbach's Reliability for PWI and NWI by City

	B	BELO HORIZONTE	Toronto
Cronbach's alpha PWI	.756	.727	.824
Cronbach's alpha for NWI	.802	.770	.816
Cronbach's Alpha for SWLS	.812	.876	.805

Validation of the indexes was successfully performed in the three cities. The analysis of results shows a high reliability and internal validity, ranging from .75 to .87, for the SWLS, PWI and NWI applied at the city level (see Table

[3] The population of greater Toronto area is of 4,682,897

2). The same factor structure for the PWI and NWI items were found for Toronto and Bogotá (see Table 4). Belo Horizonte showed a third factor emerging in the analysis. Bivariate Correlation between SWLS, PWI and NWI were significant at p≤ .00 level in the three cities (see Table 3) and the correlation values were high.

Table 3: Bivariate Correlations for PWI, NWI and SWLS in the three Cities

	PWI	NWI	SWLS
Bogotá			
PWI	1	.466**	.586**
NWI			.206**
Toronto			
PWI		.517**	.552**
NWI			.310**
Belo Horizonte			
PWI		.534**	.598*
NWI			.357**

Table 4: Factor Analysis with Principal Components with Varimax Rotation for Toronto, Bogotá, and Belo Horizonte

Varimax Rotation	Toronto Component		Bogotá Component		Belo Horizonte Component		
Satisfaction with:	1	2	1	2	1	2	3
1. Standard of Living	.793	.185	.607	.384	.379	.726	.320
2. Health	.625	.125	.496	.292	.074	.511	.254
3. Achieving in Life	.816	.066	.573	.349	.345	.791	.276
4. Personal relationships	.691	.114	.493	.501	.264	.797	.198
5. Safety	.475	.410	.472	.44	.235	.320	.862
6. Feeling part of community	.501	.326	.446	.235	.326	.363	.429
7. Future security	.688	.315	.661	.209	.352	.307	.753
8. Economic Situation	.361	.581	.707	-.172	.718	.315	.297
9. State of environment	.034	.733	.676	-.399	.724	.184	.342
10. Social Conditions	.183	.788	.671	-.424	.776	.281	.300
11. Government	.086	.756	.481	-.388	.770	.195	.228
12. Business	.290	.604	.598	-.306	.623	.322	.252
13. Local Security	.244	.672	.619	-.372	.565	.114	.566

As can be seen two factors emerge in Toronto and Bogotá: the first one corresponds to the seven domains of PWI and the second to the six domains of NWI. However, in Belo Horizonte the two component structure was not confirmed as three components with eigen-value greater than one emerged. The reason for this is that component one, which in the other cities contained the items from the PWI, showed two different components for Belo Horizonte: one related to satisfaction with health, achievements in life, standard of living and personal relationships, and another related to satisfaction with security and community relatedness. This result may suggest that subjective evaluations of security in the city are closely related with community connectedness, in the sense that the community is the

primary source for feelings of security, an interesting hypothesis that should be furthered researched. Component two, which corresponded to NWI in the other cities, emerged in Belo Horizonte also. Results from principal component analysis suggest that PWI and NWI are valid measures at the city level. Belo Horizonte provides new evidence that component one can be unfolded into two components, one more closely related to community security.

Moreover, inter-item correlations between PWI and its corresponding seven domains and NWI and its corresponding six domains were all significant at $p \leq 0.01$ for all three cities which shows a high construct validity of both scales. Table 5 shows the results for Toronto as an example. Similar results were found for Bogotá and Belo Horizonte. Given that the scales were translated specifically for the current study, and had not been previously tested in a Portuguese-speaking context, these relatively high reliabilities give good evidence that the scales are appropriate for use in their current translated form. The generally high item-total correlations also suggest this conclusion, with the possible exception of the "health" item in the PWI scale, whose item-total correlation was the lowest at .298. Even so, this item loaded on its respective factor component with a factor loading of .537, which suggests that even this item should be kept.

Table 5: Inter-item correlations for PWI and NWI with SWLS for Toronto

PWI	Standard of Living	.776**
	Health	.642**
	Achieving in Life	.768**
	Personal relationships	.703**
	Safe	.610**
	Feeling Part of Community	.629**
	Future Security	.758**

NWI	Economic Situation	.691**
	State of Environment	.713**
	Social Conditions	.799**
	Government	.760**
	Business	.673**
	Local Security	.694**

** Correlation is significant at 0.01 levels

With regards to the relationships between the global life satisfaction question and the scales for the PWI and NWI constructs, the multiple regressions tend to show stronger overlap in the case of the PWI, and less overlap in the case of the NWI. For example, in Belo Horizonte, the adjusted R squared of .396 in predicting the single item measure with the SWLS scale suggests that the two are related, but different (construct homogeneity was disproved). In fact, the general PWI item correlated with the scale at about the same level as the individual item-total correlations, which could be interpreted to mean that the single item would function fine as a scale item, but might be too weakly related to be used as a replacement for the scale as a whole.

In the case of the NWI, the adjusted R squared was much smaller (.186), suggesting that the single item is not strongly predicted by the scale as a whole. One possibility would be to argue that satisfaction with life in general might be more related to immediate personal concerns (e.g. health, achievement, security), and less so to more global social conditions (e.g. state of public services), thus explaining the higher predictive power of the PWI. More research establishing the exact nature of the relationship between PWI and NWI would help to clarify how these two constructs work together, but one may note the high correlation between the two in the current study (.577).

High construct validity was found for both PWI and NWI scales in the three cities. The strong single factor solutions lend further credence to the unitary nature of the scales, and generally strengthen the argument for their use in their current form.

Therefore, we can conclude that the methodology for the bottom-up well-being indexes (PWI and NWI) provides a common frame to extend the measures and methodology to cities in other cultural contexts. The successful validation of scales in three different urban contexts suggests that the measures have additional explanatory capacity and that including subjective indicators of well-being enables the construction of a more integrative index of quality of life of cities.

2.3 Results for PWI and NWI

Results for PWI, NWI and its domains for each city are shown in Table 6

Table 6 Results for PWI, NWI and its domains by City

Domain	Bogotá		Toronto		Belo Horizonte	
	Mean	SD	Mean	SD	Mean	SD
PWI	7.59	1.167	7.35	1.419	6.92	2.434
Standard of Living	7.53	1.828	7.51	1.948	6.58	2.296
Health	7.63	2.003	7.35	2.071	8.24	2.675
Achievements	7.45	1.802	7.20	2.007		2.360
Personal Relationships	8.05	1.634	7.56	2.230	6.94	2.989
Security	7.98	1.572	7.73	1.773	7.61	2.772
Community	7.59	1.957	6.82	2.086	6.12	3.044
Future Security	6.87	1.982	6.95	2.096	7.05	1.634
NWI	5.55		5.87	1.375	5.42	1.86
Economics	5.19	1.496	6.10	1.840	5.96	2.527
Environment	5.30	1.947	5.03	2.044	5.75	2.534
Social Conditions	4.55	1.919	5.56	1.934	5.5	2.869
Government	5.35	1.847	5.45	2.116	5.81	2.752
Business	5.49	2.504	6.61	1.640	5.23	2.752
Local Security	5.84	2.179	6.45	1.838	4.28	2.785
Others						
Spirituality/religiosity	8.65	1.692	7.09	22.58	2.615	

PWI has shown high results for Toronto and Bogotá and relatively low numbers for Belo Horizonte. This was an expected result. Previous studies have shown that Colombians show high levels of happiness and subjective wellbeing despite lower Gross Per Capita Product and incomes. During the last ten years the city of Bogotá has greatly improved its environment to enhance the quality of life of its citizens. These efforts have been highlighted and recognised internationally, particularly in relation to its public transport system and availability of public spaces, parks and libraries. Its transportation system based on an exclusive lane for public buses, the betterment of public spaces and urban infrastructure and the lowering of very high historical crime rates to record low levels have been recognised by their inhabitants who feel much better today in terms of quality of life than ten years ago. Toronto also showed very high results. This was expected for the high income per capita of the city and the experienced quality of life of

Canadian cities. Results for Belo Horizonte showed lower values for PWI, perhaps because individuals in this city face increasing socioeconomic challenges that exceed individual resources such as personal relationships, income or living with a partner. In tracking PWI in the future, it is proposed that the economy of the city should be closely monitored as increasing unemployment rates, salary rises below inflation, and the increasing age of retirement could be causes of the diminished individual resources to sustain subjective well being. On the other hand, results for PWI around 75 in a 0-100 range for Bogotá and Toronto, with standard deviations around 15 confirm the homeostasis theory, i.e. that SWB fluctuates around a in-built set point for each person, so that people who go through life-altering events return to their homeostatic level, which is mainly determined by personality (Brickman et al., 1978, Kahnemann et al, 1999) and subjective well being (Cummins et al., 2004).

Some of the most interesting results of the comparative analysis for the different relationships between demographics and PWI and NWI are as follows:

A significant difference in the results for PWI, NWI and SWLS indexes was found (F= 39.58; F= 35,93, F= 61,15, p ≤.00) for the three cities (see results in Table 7). This provides empirical evidence that contextual factors play an important role in explaining the different levels of SWB.

Table 7: Anova Results for NWI, PWI and SWLS by City

		Sum of Squares	Gl	Quadratic mean	F	Sig.
PWI	Inter-group	153.298	2	76.649	39.586	.000
	Intra-groups	3897.705	2013	1.936		
	Total	4051.003	2015			
NWI	Inter-groups	178.752	2	89.376	35.936	.000
	Intra-groups	4959.296	1994	2.487		
	Total	5138.048	1996			
DIENER SWLS	Inter-groups	185.195	2	92.597	61.153	.000
	Intra-groups	3070.756	2028	1.514		
	Total	3255.950	2030			

A significant difference by city was obtained for satisfaction with life as a whole as a single and composite measure (F= 91.98, p≤0.00, F= 61.15, p≤0.05). However, comparative values vary for PWI, NWI and SWLS by city. In the first case, Bogotá showed the highest results followed by Toronto

and Belo Horizonte. For NWI, Toronto showed the highest results followed by Belo Horizonte and Bogotá. For the SWLS, Toronto showed the highest results followed by Bogotá and Belo Horizonte. This interesting result suggests that there may be cultural differences in the appraisal of SWB when it is measured in a top-down approach (SWLS) as compared when it is measured in bottom-up approach (PWI).

Social status showed a significant difference by level with PWI for Belo Horizonte where this hypothesis was proposed ($F= 8.65, p \leq 0.05$) showing that the higher the perceived social status of the respondent, the higher the PWI. These results confirm that perceived social status is one of the most powerful determinants of subjective well being: PWI increases with income, perceived social class or socioeconomic level in Bogotá and Toronto. Belo Horizonte does not show this trend clearly. Policies oriented to secure income level and economic stability may therefore increase the subjective well being of citizens in the future.

Bogotá and Belo Horizonte show that the younger the population the higher the PWI index, contrary to the international evidence. Young adults feel more optimistic about their future in these cities than in Australia and Portugal, where PWI increases with the age percentile, being lowest with the young population. For Toronto no clear evidence was found in the relationship between PWI and age. The younger population represents a higher percentage of total population in South American countries whereas in Toronto the older population is the majority. The result that the younger population has higher PWI in South American cities is an important finding which contradicts the international evidence for other countries, particularly the Australian surveys.

3. Importance of satisfaction with spirituality and religiosity

Satisfaction with spirituality and religiosity ("How satisfied are you with your spirituality or religion?") contributes significantly to SWLS scores, with a significant change in $\Delta r^2 \leq 0.05$ in Bogotá (Wills, in press). Hierarchical regression analysis in which the seven domains of PWI were regressed against satisfaction with life as a whole, as a first block of independent variables, and satisfaction with spirituality as a second block, shows a significant change in R squared. Results for Bogotá and Toronto contradict other international studies where spirituality has not shown any significant contribution to PWI, although Belo Horizonte had a similar result to Australia (Cummins et al, 2004).

The addition of the spirituality component into the wellbeing indexes had mixed results across the two scales. Running a stepwise regression, after controlling in the first block for all PWI items, spirituality explained a negligible amount of additional variance. When applied to the NWI case, however, spirituality added a significant amount of explanatory value after controlling for all other items. Two opposing interpretations could explain this result. First, a direct interpretation could point to the importance of spirituality as a social versus a personal variable, thus explaining why the variable would be more appropriate to a community satisfaction scale than to a personal well-being scale. Another interpretation, however, is that much of the variance in the spiritually item may have been already accounted for in PWI items such as achievement, community, and personal relationships. If spirituality acts on wellbeing indirectly through these other variables, then controlling for them would erase any effect of spirituality, suggesting that spirituality can be an exogenous variable rather than an item of the scale. This is an important result that should be further researched in the future.

A significant gender difference was found for satisfaction with spirituality in the three cities ($F= 46.95 \leq 0.05$), a result of such satisfaction being significantly higher for women than for men.

4. Contextual Domains of NWI as antecedent of PWI

The results reported in section 2 suggest that PWI consists of a personal dimension that can be explained through the homeostasis theory of subjective wellbeing (Cummins et al., 2004) as well as cultural and contextual variables related to the socio-cultural environments of each particular city. Empirical results show that NWI at the city level highly correlates with PWI in a cross-cultural analysis and we propose it as an antecedent of PWI. On the basis of this evidence, we tested the hypothesis that NWI (more distal and contextual) is not only highly correlated with PWI (a more proximal measure) but that it can explain part of the variance found in PWI as the dependent variable. We consider that NWI, a bottom-up constructed measure, takes into consideration the cognitive evaluation of specific domains (aspects) of life in cities and that therefore it should be interpreted not only as core affect (Russell, 2003) but also as a cognitive evaluation of domains.

As it is possible that SWLS, a top-down measure may also explain the variance found in PWI, we tested the significant contribution of the NWI domains above the contribution of SWLS to PWI. Significant contributions were found for four domains of the NWI index in the three cities (see Table

10). Additionally, Islam & Wills (2007) stated for Belo Horizonte that with regards to the relationships between the single item indicators and the scales for the PWI and NWI constructs, the multiple regressions tend to show stronger overlap in the case of the PWI, and less overlap in the case of the NWI. This is result is corroborated by Bogotá and Toronto. The adjusted R squared of .396 in predicting the single item measure with the scale suggests that the two are related, but not so much as to conclusively prove construct homogeneity.

More research establishing the exact nature of the relationship between personal and contextual well being would help to clarify how these two constructs work together, but one may note the high correlation between the two in the current study (.577). As an illustration, bivariate correlations between domains of PWI and NWI for Toronto are shown in the following table. All are significant at the 0.01 level[4] (additional results from multiple regressions are presented in the appendix).

[4] It is possible to consider that NWI and SWLS show high colineality as independent variables of PWI. However the analysis of tolerance and the Index of colineality which shows values less than 15 do not support this.

Table 8 Correlation of Life as a Whole and all domains for Toronto

	Life	PWI	NWI	1	2	3	4	5	6	7	8	9	10	11	12	13	14
life		.70	.36	.58	.44	.62	.60	.34	.37	.44	.36	.17	.24	.25	.33	.23	.25
PWI			.54	.77	.64	.77	.70	.61	.63	.76	.47	.29	.42	.33	.42	.43	.28
NWI				.40	.30	.32	.31	.46	.41	.46	.69	.72	.80	.76	.68	.70	.23
1					.40	.62	.46	.41	.32	.59	.46	.21	.30	.21	.34	.27	.17
2						.50	.32	.28	.27	.34	.24	.17	.23	.21	.22	.27	.08
3							.47	.29	.39	.47	.30	.13	.28	.18	.29	.22	.18
4								.34	.35	.44	.29	.18	.22	.22	.24	.19	.28
5									.30	.43	.36	.27	.33	.22	.31	.51	.15
6										.41	.27	.21	.34	.28	.36	.33	.32
7											.39	.27	.37	.29	.31	.37	.16
8												.41	.41	.39	.46	.37	.17
9													.56	.45	.28	.34	.15
10														.57	.45	.46	.18
11															.39	.43	.16
12																.46	.17
13																	.15

** All significant at 0.01 level

Consideration was given that some domains of NWI can be interpreted as antecedents of PWI. For this purpose, NWI is an index that is interpreted as the evaluation of citizens of their satisfaction with different contextual variables of the cities where they live. In a hierarchical regression, PWI was used as the dependent variable and the domains of NWI were introduced stepwise in each city as descriptive and explanatory blocks to analyze if significant changes in ΔR^2 occurred when each contextual variable was introduced. Interestingly, the same domains in each city showed a significant contribution: satisfaction with economic conditions, satisfaction with social conditions, security and business. The ΔR^2 for each domain was significant which means that they produce a significant contribution to the description of the dependent variable PWI.

This is an interesting and important result: it shows that PWI is not only explained by dispositional variables of individuals but that contextual variables of cities describe also part of its variance. The state of the economy, of social relationships, security and possibilities of doing business are important factors to explain the personal wellbeing of citizens. This result is derived from a bottom-up approach to SWB so that it implies that each citizen interprets in their own terms the importance and significance of being satisfied with the economy, social relationships, security of the city where she lives. The interesting and important result obtained from this exploratory cross-cultural research is that contextual variables, of the city in this case, matter significantly for the citizen's well-being. What and by which mechanisms each variable contributes to well-being should become the basis of a conceptual and empirical agenda for future research.

The following table illustrates how four domains of NWI contribute to the change in variance of SWB in the case of the three cities.

Table 9. Hierarchical Regression Analysis for PWI as Dependent Variable with NWI Domains

City	Model	R	R squared	Corrected R square	Estimation Error	Change Statistics				
						Change in R square	Change in F	gl1	gl2	Sig. del cambio en F
Belo Horizonte	1	.456(a)	.208	.207	1.040	.208	217.185	1	828	.000
	2	.483(b)	.233	.231	1.024	.025	27.107	1	827	.000
	3	.495(c)	.245	.242	1.016	.012	13.439	1	826	.000
	4	.503(d)	.253	.249	1.012	.008	8.294	1	825	.004
Toronto	1	.467(a)	.219	.217	1.255	.219	165.811	1	593	.000
	2	.545(b)	.297	.294	1.191	.078	65.921	1	592	.000
	3	.568(c)	.323	.319	1.170	.026	22.574	1	591	.000
	4	.578(d)	.334	.330	1.161	.011	10.161	1	590	.002
Bogotá	1	.406(a)	.165	.163	1.494	.165	109.892	1	557	.000
	2	.474(e)	.224	.222	1.441	.060	42.748	1	556	.000
	3	.511(f)	.261	.257	1.408	.036	27.406	1	555	.000
	4	.527(g)	.278	.273	1.392	.017	13.178	1	554	.000

a Predictive variables: (Constant), Economic Situation
b Predictive variables: (Constant), Economic Situation, Security in City
a Predictive variables: (Constant), Economic Situation
b Predictive variables: (Constant), Economic Situation, Security in City
c Predictive variables: (Constant), Economic Situation, Security in City, Social Relationships
d Predictive Variables: (Constant), Economic Situation, Security in City, Social Relationships, Business
e Predictive Variables: (Constant), Economic Situation, Social Relationships
f Predictive Variables: (Constant), Economic Situation, Social Relationships, Security in City
g Predictive variables: (Constant), Economic Situation, Social Relationships, Security in City, Business

As can be seen, satisfaction with economic conditions of the city, with social relationships, security in the city and possibilities of doing business in the city did contribute significantly to the model with significant changes in r squared , p≤.05. For Toronto, satisfaction with social relationships did not show a significant change in R squared, which implies that this domain is significant for the two South American cities but not for Toronto. In relation to the regression coefficients the following results were obtained:

Table 10: NWI regressed against PWI

		Security in City	.055	.019	.104	2.909	.004
		Social Relationships	.069	.023	.109	2.973	.003
		Business	.055	.019	.102	2.880	.004
2	1	(Constant)	5.101	.179		28.471	.000
		Economic Situation	.362	.028	.467	12.877	.000
	2	(Constant)	4.122	.209		19.767	.000
		Economic Situation	.276	.029	.357	9.625	.000
		Security in City	.233	.029	.301	8.119	.000
	3	(Constant)	3.934	.209		18.857	.000
		Economic Situation	.236	.029	.304	7.994	.000
		Security in City	.181	.030	.233	5.973	.000
		Social Relationships	.139	.029	.189	4.751	.000
	4	(Constant)	3.640	.227		16.058	.000
		Economic Situation	.207	.031	.267	6.765	.000

		Security in City	.155	.031	.200	4.973	.000
		Social Relationships	.118	.030	.161	3.977	.000
		Business	.114	.036	.132	3.188	.002
3	1	(Constant)	5.360	.162		33.080	.000
		Economic Situation	.263	.025	.406	10.483	.000
	2	(Constant)	4.793	.179		26.827	.000
		Economic Situation	.184	.027	.283	6.777	.000
		Social Relationships	.188	.029	.273	6.538	.000
	3	(Constant)	4.603	.178		25.820	.000
		Economic Situation	.157	.027	.242	5.820	.000
		Security in City	.121	.023	.205	5.235	.000
		Social Relationships	.156	.029	.226	5.413	.000
	4	(Constant)	4.447	.182		24.488	.000
		Economic Situation	.142	.027	.219	5.247	.000
		Security in City	.096	.024	.162	3.992	.000
		Social Relationships	.135	.029	.197	4.660	.000
		Business	.090	.025	.150	3.630	.000

a Dependent Variable: PWI

Satisfaction with economic situation in Toronto is the domain that shows a higher significant correlation in all hierarchical models, followed by the domain of security, spirituality, the environment and business. These results suggest that four domains of NWI (economic situation, security, social relationships and business) may be proposed as contextual antecedent of PWI in cities. Surprisingly and interestingly, the new domain of satisfaction with spirituality is significantly regressed with PWI. These are promising results that correlate how more distal domains focusing on contextual variables may be causes of PWI at the city level.

5. Influence of Social Status (class) in Belo Horizonte

In Belo Horizonte, Islam & Wills (2007) measured social status (class) objectively and subjectively. Satisfaction with Life as a Whole Scale (SWLS) showed a significant relationship with income. Two different measures of social class were used: objective social class (OSC) and subjective social class (SSC), or the "feeling" of being in a high, middle or low class. Past literature comparing psychological effects of income versus social class have emphasised that the latter is more reflective of lifestyle differences (e.g. Schaningler, 1981). According to Islam & Wills (2007) "Objective social class was measured using official census measures (based on a representative array of consumer goods indices used by the federal government statistical association [IBGE]), and subjective class was measured by a questionnaire item asking respondents to classify themselves between class A-E (a common colloquial way to speak about class in Brazil). Low scores indicated higher social class (i.e. 1st class, 2nd class, etc)."

The study showed that "the effect of income on SWLS was mediated by both objectively measured and subjectively measured social class". In a stepwise regression, SWLS was regressed on income, showing a significant linear relation ($\beta = .186$, $t = 2.719$, $p < .01$). In the second step, social class measures were regressed on income, showing a strong relation for both objective and subjective social class (OSC: $\beta = -1.198$, $t = -25.498$, $p < .01$; SSC: $\beta = -.594$, $t = -13.198$, $p < .01$). In the third step, both objective and subjective social class were significantly related to SWLS (OSC: $\beta = -.117$, $t = -2.825$, $p < .01$; SSC: $\beta = -.304$, $t = -.5601$, $p < .01$). Finally, to show mediation, SWLS was regressed on income, as in the first step, but controlling for social class. Controlling for OSC, the income-SWB relationship was non-significant ($\beta = -.097$, $t = .964$, $p = .335$). In the case of SSC, the relationship was also non- significant ($\beta = .002$, $t = .027$, $p = .978$. These effects reinforce, extend, and internationally generalise the "person x situation" perspective elaborated by Diener et al. (1999).

Perceived social status may be one of the collective variables that may contribute considerably to the variance of PWI in Latin American cities where social class and socio-economic status generate social injustice and skew income distribution. Skewed income distribution may have very negative effects on satisfaction with health and goal achievements, two of the domains of PWI. Discrimination against social classes is also a common issue on these countries. Therefore this variable may entail part of the explanation found for PWI across different levels of income. Additionally, there are no available studies about the distribution of well-being across groups. For Latin American cities, distribution of well-being across social class or social status will undoubtedly contribute to our understanding of well-being.

6. Discussion

The majority of international studies of levels of happiness or its close correlate Subjective Wellbeing (in particular Inglehardt & Baker 2000), show that Latin American countries, and Colombia in particular, have high levels of happiness, despite their poorer objective conditions (income per capita, GDP per capita, income distribution, poverty and social unrest). This leads a researcher to think that there are either methodological problems in measurement, or other contextual or cultural variables in these countries that had not been considered in previous research, which may explain those high levels of happiness or SWB. In this study, SWB of citizens has been used as the dependent variable rather than happiness because SWB entails an evaluation of how people think and feel about their lives as opposed to hedonic or 'instant' happiness. SWB has been measured by individuals' own evaluation of their personal well-being (PWI) and their evaluation of other contextual variables (NWI).

From the results of the exploratory studies presented in this paper, we reaffirm and propose interesting new ideas for research:

Theoretically, we reaffirm that SWB should be seen as a multidimensional concept whose antecedents include individual traits, social and cultural variables. This proposition has also been advanced by other well-being researchers (McGregor, 2006; Gough, McGregor & Camfield, 2006). In relation to this we propose that the NWI, the more distal index developed by Cummins et al (2004), may be understood as the subjective appraisal of satisfaction of citizens with contextual variables including economic conditions, social relationships, state of the natural environment, government, business and security in the city. We hypothesise that some

domains of NWI can be interpreted as a contextual antecedent of PWI which is a more personal index for individuals. Although these two indices have been tested in different cities by the International Wellbeing group, domains of NWI have not previously been researched as antecedents of SWB. The comparative results of this cross-cultural analysis show that the same domains of NWI describe and may explain some of the variance found in the PWI index.

The rationale for explaining the contribution of four domains of NWI to PWI variance in cities is as follows: the NWI Index can be interpreted as the aggregation of contextual variables in cities as evaluated directly by their inhabitants. These contextual variables provide a framework to obtain increasing or diminishing resources for citizens to adjust their decisions related to their quality of life. For instance, citizens evaluate and appraise increasing resources allowed by the contextual variables comprised in the NWI index and they state how they feel and think about their satisfaction with these variables. This evaluation will widen or restrict the possibilities for individual's choices and strategies (see Gough, McGregor & Camfield, 2006). Increasing opportunities and choices for citizens, highlighted by Sen in his characterisation of 'development as freedom' (1999, 2000) increase an individual's functionings and heighten the possibilities for greater achievements in life (see for instance, Welzel, Ingelhardt, Klingelmann, 2002).

Achievement in life is an important domain of PWI and has been shown to add a significant statistical contribution to explaining satisfaction with life as a whole using the SWLS (Diener et al, 1985). Achievements in life can be framed in a prospective or preventive focus (Higgins et al, 1994). From a prospective view, greater achievements in life can occur due to increased choices. From a preventive point of view, achievements can occur due to the adaptation of individuals to contextual conditions, particularly in those environments where deprivation and social unrest occur.

Some authors have explained this relationship in terms of adaptive preferences, the hedonic treadmill (Brickman et al, 1978, Parducci, 1995) or homeostasis theory (Cummins and Nistico, 2002). Homeostasis theory (Cummins, 1996) states that people's levels of SWB fluctuate around a in-built set point for each person, so that people who go through life-altering events return to their homeostatic level, which is mainly determined by personality (Kahnemann at al, 1999). The proper functioning of this homeostatic level is crucial for each individual's well being. At normal levels of well being (around 75 according to Cummins, 1996) people feel good about themselves, and are optimistic and willing to take risks to achieve

personal goals. Therefore it is expected to find differences in SWB across cities and nations. Cummins and colleagues (2004) have provided the following explanation: When the homeostatic level falls, due to improper provision of material and psychological goods in cities, the essential qualities of life may be compromised. According to Cummins and colleagues (2004) this can result from circumstances created by distress, chronic pain, failed personal relationships, failed security and failed relations with the community in which the person lives. In these cases, we hypothesise that higher and lower values for NWI will correlate with higher and lower values for PWI.

Adversity as a characteristic of the context of a particular city may therefore contribute to higher resilience (see Gough et al., 2006) and the expression of more realistic goals. For this reason, the attainment of the goal despite adversity may lead to higher satisfaction, in comparison with that attained from the unrealistic goals that individuals pursue in richer objective environments (Kasser 2002). This mechanism involves the possibility of individuals adapting their expectations and goals to their objective or real conditions of life so as to frame their goals according to the possibility of achieving them. Through the operation of this mechanism it is possible to generate a level of satisfaction that otherwise could not be fulfilled.

The evaluation of contextual variables expressed in the NWI index provides a basis to understand SWB from a collective or social point of view. These explanatory domains are complementary to the dispositional variables, particularly personality and optimism, which play an important role in explaining the SWB of individuals. When individual evaluations of SWB are aggregated at city levels they express how SWB is assessed at that level and differences in the results of PWI across different contexts can be found. Nevertheless, aggregation of scores about what an individual feels and thinks over the different domains of wellbeing at the city level may generate what methodologically is called an ecological fallacy. This is a recognised error in interpretation of data that can lead to false generalizations about the level of SWB of individuals based on the average obtained for the city. That is to say, the fact that on average the level of SWB was significantly higher in Bogotá as compared to Toronto and Belo Horizonte does not exclude the possibility that many individuals in Bogotá have lower levels for SWB in the same city. Therefore, inferences should not be made at that level of analysis.

Methodologically, we suggest that future research explore issues of individual versus city-based SWB using multilevel models. In this study, we establish city-based effects. However, since individual effects are nested

within cities, which in turn are nested within countries, and since both individual differences and country level effects have been established in the past, future research should try to separate more cleanly these three levels of analysis. One way to do this would be to sample from different cities within each country. A related line of research would be to explore whether the antecedents of SWB are identical or divergent at the individual, city, and country levels.

Four contextual domains were found to contribute significantly to NWI in the three cities: i) the economic condition of the city, ii) the quality of social relationships, iii) security in the city, and iv) possibilities for doing business. These results are particularly interesting and important if one considers that SWB is not exclusively determined by personality factors but that cultural and historical factors in nations and cities play an important role in explaining differences between societies.

Nevertheless, the quality of social relationships did not show a significant contribution in the R square change for the case of Toronto, suggesting that cultural differences may exist between Latin countries and Toronto in relation to the importance each individual gives to the quality of her social relationships contributing for their SWB. The high quality of close social relationships with families and social networks in Brazil and Colombia provide the needed feeling of security and new possibilities to overcome social vulnerabilities that objective conditions in those cities do not provide. For more collectivistic countries as Brazil and Colombia (Hofstede, 2005), the quality of social relationships, the extent and strength of social networks, and possibly the extent of trust should weigh than for Canada, a country that displays higher levels of individualism according to Hofstede (2005). Nonetheless, other studies have shown contradictory results in that levels of trust are very low in Latin America (e.g. Klesner 2007).

A new stream of research should extend the result of the significant contribution of satisfaction with spirituality to PWI to the case of Toronto and Belo Horizonte, a result that was validated in other cultural contexts distinct from the first city, Bogotá, where significant results were obtained. The objective of this research was to develop a valid scale that taps spiritual and religious beliefs across countries where people hold different worldviews across different cultural settings. Results showed that the measure had good psychometric qualities and provided evidence for the importance of these domains for people's quality of life and wellbeing (see also Saxena, O'Connell & Underwood, 2002). If satisfaction with spirituality is a significant contributor to satisfaction with life as a whole, a question that must be tested empirically, a different approach to hedonic wellbeing is

needed. In this debate, the eudaimonic philosophical approach can contribute important elements. Various philosophers from Aristotle onwards have stressed the importance of considering a reflective rather than a momentary approach to wellbeing (Adler, 1978). In this approach, measurements of happiness from an hedonic point of view are not sufficient to fully evaluate the quality of life of societies because people have final values and ends to which they ascribe and aim to fulfill, in addition to simply avoiding pain or feeling pleasure at particular events. Eudaimonism sees happiness in terms of meaning and self realization and defines wellbeing in terms of how a person is fully functioning (Ryan & Deci, 2005).

From these propositions it is possible to suggest a research agenda to develop a conceptual framework based on an understanding that firstly, the value of individual subjective wellbeing aggregated by cities is more and different than individual happiness, although it is closely related. Secondly, contextual variables, in particular cultural variables, play an important role in explaining SWB and can be seen as antecedents of the individual's SWB results. Finally, that this causal explanatory mechanism operates across cultures.

We now have a set of valid and reliable measures at both the individual and city level to be applied in cross-cultural comparisons of cities in order to test these assumptions. In relation to SWB, a measure in line with an eudaimonic rather than an hedonic approach is proposed. This means that wellbeing from the citizen's point of view, stresses the human flourishing aspect rather than the instant hedonic pleasure provided by a decision that is expected to bring happiness. SWB also privileges a bottom up approach rather than a top-down approach, which makes it a more appropriate tool for participatory democracies.

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APPENDIX

Multiple Regressions with Life as a whole for Toronto

PWI	Life as A whole	1	2	3	4	5	6	B	β	t
Constant								1.062		3.70**
1.Standard	0.582							0.207	0.216	5.35**
2.Health	0.437	0.399						0.087	0.097	2.95**
3.Achive	0.619	0.620	0.501					0.242	0.262	6.62**
4.Relations	0.598	0.453	0.325	0.472				0.270	0.323	9.63**
5.Safe	0.344	0.419	0.284	0.289	0.338			0.035	0.033	1.03
6.Community	0.373	0.327	0.271	0.390	0.348	0.302		0.055	0.062	1.93
7. Future Security	0.443	0.597	0.344	0.474	0.439	0.438	0.413	-0.022	-0.024	-0.65

Adjusted R^2 = .54

Anova F= 101.72**

**significant at 0.01

NWI	Life as a whole	1	2	3	4	5	B	β	t
Constant							4.202		12.55**
1.Economic Situation	0.357						0.245	0.240	5.29**
2.Environment	0.166	0.406					-0.038	-0.042	-0.89
3.Social	0.241	0.410	0.558				0.032	0.033	0.62
4.Government	0.253	0.386	0.454	0.567			0.075	0.086	1.78
5.Business	0.329	0.462	0.274	0.442	0.391		0.197	0.174	3.75**
6. Local Security	0.222	0.367	0.334	0.461	0.429	0.450	0.018	0.018	0.40

Adjusted R^2= .161

Anova F= 20.15**

List of WeD Working Papers

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