Consumer Expectations Survey and Quarterly Social Weather Survey: Evidence of Convergent Validity and Causality

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ABSTRACT

The paper tests the convergent validity and causality of the *Consumer Expectations Survey* from the Bangko Sentral ng Pilipinas and the *Quarterly Social Weather Survey* from the Social Weather Stations. The results indicate that there is convergent validity; and that there is bi-direction causality. Further results reveal that both share a common set of determinants. Overall, the findings imply that the *Consumer Expectations Survey* and the *Quarterly Social Weather Survey* embody comparable information. As such, one can be a proxy measure of the other. For policy, the findings support the view that a monetary approach for controlling the overall performance of the country, especially with regard to the inflation rate, in conjunction with a fiscal approach for securing the provision of basic social services are key to an effective management of sentiments and for an improvement in the quality of life.

1. INTRODUCTION

Each quarter since 2005, the Bangko Sentral ng Pilipinas (BSP) reports the results of its *Consumer Expectations Survey* (CES). This survey looks at the situation of the country from the point-of-view of Filipinos as consumers in terms of: (1) the economy in general; and (2) the financial outlook and income of the households in particular. Moreover, there are three timeframes for these domains (i.e., the present relative to the last year; and the expectations for the next quarter and for the next year). The BSP reports balance statistics for each domain and for each timeframe.

In a similar fashion, the Social Weather Stations (SWS) reports on the situation of the country from the point-of-view of Filipinos as individuals through its *Quarterly Social Weather Survey* (QSWS). The SWS, which started its surveys in the mid-1980s, looks at the following domains, among others: (1) the economy in general; and (2) the quality of life of individuals in particular. There is one timeframe for the first domain (i.e., the expectations for the next year) but two for the other (i.e., the present relative to last year and the expectations for the next year). The SWS likewise reports balance statistics for each domain and for each timeframe.

Juxtaposed, the CES and the QSWS represent data on how Filipinos evaluate their lives given the situation in the country vis-à-vis their experiences in the past and the present as well as their expectations for the future. Needless to say, the presumption is that these surveys contain robust information. Indeed, since the pioneering work of Katona (1975;

1980), there is now an appreciation that surveys line the CES and the QSWS reveal micro-level trends which are relevant to macro-level outcomes like economic growth. Subsequent research by Miskin (1978), Curtin (1982), Matsusaka and Sbordone (1995), Eppright et al. (1998), and Ludvingson (2004), among others, confirm that high-levels of, say, consumer confidence as revealed in consumer sentiments survey anticipate a robust macroeconomic performance. This literature provides the basis for an analysis that makes use of data like that from the BSP and the SWS.

But there is no study to date that directly tests the convergent validity of the CES and the QSWS. The same goes about causality. This paper thus seeks to fill the void. To that end, the paper uses the technique of cointegration for the first test. The contention is as follows: there is convergent validity if and only if two datasets are cointegrated datasets. The test for causality analysis, in turn, uses the technique of vector autoregression. At the same time, there is an analysis on the determinants of the CES and the QSWS.

Part 2 outlines the methodology; and then Part 3 discusses the findings. The last part of the paper concludes the discussion.

2. METHODOLOGY

2.1. Conceptual Methodology

Self-assessments like the *Consumer Expectations Survey* (CES) and the *Quarterly Social Weather Survey* (QSWS) obtain information about the life experiences of respondents.

The former looks at respondents as consumers and the latter as individuals. At one level, self-assessments reflect the discrepancies between life aspirations and life achievements (Andrews and Withey 1976; Campbell et al. 1976). As such, large discrepancies mean unfavorable self-assessments that point to some dissatisfaction in life (Michalos 1985). The reverse scenario is true. At another level, Kahneman and Sugden (2005) and Di Tella and MacCulloch (2006), for example, argue that self-assessments contain data that reveal the state of well-being of an individual. Self-assessments in this context reveal something about the quality of life over a course of time.

Self-assessments are in fact separable and independently measurable (Lucas et al. 1996). Studies find that people can make standalone evaluations about their family, job, finances, etc.; and, more important, the data are not useless for analysis. There are also studies that find self-assessments about personal affairs (e.g., family, job, finances, etc.) to be distinct from, say, self-assessments about politics and economics (Andrews and Withey 1976; Hooghe 2012). Correspondingly, self-assessments about personal affairs and about social affairs like income poverty, government corruption, public safety, etc., are separable and independently measurable.

Recent studies like Clark (2018), Diener et al. (2018), and Frey (2018), for example, apply self-assessments data to perform valuations of non-marketed goods and services like clean air or valuations of social relations like friendship (see also Beja 2012, 2013, 2014, and 2015). Such applications try to circumvent the use of surrogate markets or the use of hypothetical goods in the valuation process. In addition, they obtain estimates that

are not only directly associated with outcomes that people do care about but are also meaningful for analysis and policy. Other applications like Easterlin (1974; 2015) and Diener et al. (2009), who combine self-assessment with objective (i.e., government) statistics, and Ura et al. (2015) and Alkire (et al. 2015), who use a multidimensional-approach in putting together such data, present a much more broader understanding of human well-being (see also Beja 2016, 2017a, and 2018; and Beja and Yap 2013; c.f., Barro and Gordon 1983; Setterfield 2009).

2.1. Empirical Methodology

Copeland (1991) is an application of cointegration analysis to test for market efficiency. Economic theory asserts that market efficiency means that two assets (say, the spot and the forward exchange rates) cannot be related to each other; neither can they anticipate each other. In this context, Copeland (1991) argues, evidence of cointegration is a direct proof of an absence of market efficiency.

The innovation in this paper is to argue that a finding of cointegration is evidence that two datasets relate to each other and that they draw information from the same source. The practical implication, though, is that the two datasets are qualitatively similar: the datasets give the same descriptions of a scenario, albeit individually each remains an alternative quantitative representation of that scenario. Thus, in the context of this paper, if X and Y are cointegrated datasets, then there is evidence of convergent validity.

The test for cointegration comes in three steps following Engle and Granger (1987), as follows. The first step checks whether or not X and Y are non-stationary datasets. The procedure goes on to estimate a linear expression in the levels of X and Y like $Y_t = \alpha + \beta X_t + e_t$. The last step is to test whether or not e_t from the second step is stationary. From Engle and Granger (1987), an affirmative finding in the first and the third steps are the necessary conditions to conclude that cointegration exists between X and Y.

Causality test is the next step of analysis. The goal is to determine how X and Y relate to each other. In this case, the test follows Toda and Yamamoto (1995) whose procedure is an extension of Granger (1969). Toda-Yamamoto procedure is convenient to use because it is applicable to any type of datasets—that is, X and Y could be stationary or not—and still ensures that the standard tests for causality remain applicable.

Concretely, the Toda-Yamamoto procedure sets up an augment vector autoregressive (VAR) model for the levels of X and Y and with the order d+k lags. In the specification, d is the optimal length of the lag following the results of the Augmented Dickey-Fuller Test; whereas k is the maximal order of integration using the results of the Akaike's Information Criterion and the Schwarz's Bayesian Information Criterion. Mathematically,

$$\begin{aligned} X_t &= \alpha_1 + \sum_{i=1}^{d+k} \beta_i X_{t-i} + \sum_{j=1}^{d+k} \delta_j Y_{t-j} + e_{1t} \\ Y_t &= \alpha_2 + \sum_{i=1}^{d+k} \phi_i Y_{t-i} + \sum_{j=1}^{d+k} \varphi_j X_{t-j} + e_{2t} \end{aligned} \qquad (1)$$

After estimation, the evaluation focuses only on the d-lags results. From Equation (1), $\delta >$

151 0 for all d-lags of Y in the upper expression implies Y → X; whereas φ > 0 for all d-lags
152 of X in the lower expression implies X → Y, where the arrow sign means "Granger
153 causes". There is also a possibility that X ↔ Y.
154
155 As pointed out, Toda and Yamamoto (1995) estimate using a VAR procedure. However,
156 Rambaldi and Doran (1996) show that there are even more efficient results when the
157 estimation of Equation (1) is via the Seemingly Unrelated Regression (SUR) procedure.
158 Nonetheless, both VAR and SUR procedures can get the same results when estimating a
159 basic setup of system of equations.
160
161 **2.3. Data and Sources of Data**
162
163 The data for the *Consumer Expectations Survey* (CES) and the *Quarterly Social Weather*
164 *Survey* (QSWS) are available from the websites of the Bangko Sentral ng Pilipinas (BSP)
165 and the Social Weather Stations (SWS), respectively. What follows is a description of the
166 data and the steps for compiling the dataset.
167
168 First, the sample of the BSP is only Metro Manila households prior to 2007; but thereafter
169 the coverage is national. The sample of the SWS, in contrast, is national since 1998. For
170 completeness, the paper uses complete data for the period 2007 to 2018.
171
172 Second, the Philippine Statistical Authority conducts the survey on behalf of the BSP.
173 Surveys are scheduled in each quarter of the year. The average sample size of the BSP is

5,500 Filipino consumers, with about half from Metro Manila and the balance from the rest of the country.

The BSP uses a multi-stage proportional sampling design based on the population size. The primary sampling unit is the barangay; and the household-respondents are drawn from it. For Metro Manila, sampling units are drawn proportionally to the population of the cities and municipality that comprise the region. For the rest of the country, the sampling units are allocated proportionally to the population of each region, then to the population of the provinces within region, etc. The barangays are chosen in random; and, for each chosen barangay, the starting point and the first respondent are also chosen in random. Subsequent respondents are identified by fixed interval.

The BSP queries for the CES remain unchanged since their introduction in 2004. Here, the relevant queries are as follows. First, about the economy:

> *What do you think of the country's economic condition compared to 12 months ago?* [Reply: Better; Same; Worse]
>
> *What do you think of the country's economic condition in the next 12 month?* [Reply: Better; Same; Worse]

About the consumers:

> *What is the current level of your family income compared to 12 months ago?* [Reply:

Went Up; Same as Now; Went Down]

What do you think would happen to your family income in the next 12 months? [Reply: Will go Up; Same as Now; Will go Down]

What is the present financial situation of your family compared to 12 months ago? [Reply: Better; Same; Worse]

What do you think would be your family's financial situation in the next 12 months? [Reply: Better; Same; Worse]

In the above queries, income refers to the general buying capacity of a Filipino family; whereas finance relates to the overall economic condition of the Filipino family. Note that the analysis in this paper does not include the expectations with regard to income and finances, because there are no counterpart queries in the SWS survey.

Correspondingly, the SWS conducts their own survey in each quarter of the year. The typical sample size is 300 households each for Metro Manila, rest of Luzon, Visayas, and Mindanao; or a total sample of 1,200 for each survey. Except for commissioned survey items from individuals, organizations, and government, the queries in the SWS surveys remain the same since their introduction in the regular surveys.

Like BPS, the SWS also uses multi-stage proportional sampling based on the population size is applied. The barangay is its sampling unit. For Metro Manila, the SWS sets 60

prospective barangays to get a total of 300 respondents–that is, five respondents per sampling unit. The 60 barangays in NCR are drawn from the cities and municipality that comprise the region in proportion to their respective population. For the rest of Luzon, Visayas, and Mindanao, the design is similar but with more stages. In particular, for the other three regions, the design starts at the broad region categories. Using proportional sampling based on the population, SWS sets a quota of provinces for each of the three regions. Given the quota in each region, the next step is to draw the 60 prospective barangays in the provinces in the region, again, using proportional sampling based on population. With the distribution of the 60 barangays identified for NCR, rest of Luzon, Visayas, and Mindanao, the specific barangays are chosen in random. For the chosen barangay, the starting points and the first respondent are also chosen in random. The subsequent respondents are identified by fixed interval up to five (willing) respondents per sampled barangay.

The relevant SWS queries are those that ask individuals to assess the state of the economy and their quality of life. As pointed out earlier, the SWS uses only one timeframe for self-assessments on the economy but two timeframes for quality of life. Even though the SWS does not look into family income and finance as the BSP does, there is still a case to make that self-assessments about the quality of life parallel self-assessments about family income and finance given that standard economic theory posits that latter directly impacts the former. In short, the level of income and finance correlate positively with the level of welfare.

The relevant queries in the QSWS are:

Over the next 12 months, what do you think will happen to the economy of the Philippines? Would you say it will be …? [Reply: Better; Neutral; Worse]

Comparing your quality of life these days to how it was 12 months ago, would you say that your quality of life is … [Reply: Better; Neutral; Worse]

In your opinion, what will be the quality of your life in the coming 12 months? Would you say that your quality of life… [Reply: Better; Neutral; Worse]

Both the BSP and the SWS use similar scoring systems for their survey data. They report statistics to indicate the proportion of respondents who said "better/up", "neutral", and "worse/down", which sum to 100. As such, there is no need to standardize the data for the analysis given that they are in the same dimension. Both the BSP and the SWS report balance statistics—that is, the proportion of respondents who said "better/up" minus the proportion of respondents who said "worse/down"—for the abovementioned domains and timeframes. Accordingly, given the nature of the data, the aggregation of balance statistics to form an index (see below) is not problematic.

There are further steps to take so as to make the CES and QSWS compatible for analysis. The first is to align the datasets because of different survey schedules: the CES follows the survey schedule in January, April, July, and October; in contrast, the QSWS uses their quarter schedule in March, June, September, and December. Following Beja (2016), the adjustment is on QSWS: lagging the data by one quarter so in the end the two datasets show comparable time intervals. Consequently, the CES January data of the current year

pairs with the QSWS December data of the pervious year. The other pairings for the current year then are: CES April pairs with QSWS March; CES July pairs with QSWS June; and CES October pairs with QSWS September.

The next step concerns the process of data aggregation. As for the CES, data that concern the present situation with regard to the economy and that which concern income and finance constitute BSP1. Those which concern the expectation for the next year for the same domains constitute BSP2. Correspondingly, there is a similar grouping for the QSWS to form SWS1 and SWS2. Both aggregations just use simple averaging procedure.

The final step is to compute the *Consumer Expectations Survey* (CES) and *Quarterly Social Weather Survey* (QSWS), as follows: CES = 0.6 BSP1 + 0.4 BSP2; and QSWS = 0.6 SWS1 + 0.4 SWS2. Though the weights look arbitrary at first glance, there is an argument for so doing. In particular, the aggregation puts more weight on the cognitive components (i.e., BSP1 and SWS1) than on the affective ones (i.e., BSP2 and SWS2). In other words, BSP1 and SWS1 are relatively more stable self-assessments since they relate more to the actual experiences of respondents and so they must get more weight; whereas BPS2 and SWS2 are more about feelings of the future—which are subject to change given the relatively uncertainty of unknown events—must get less weight. Needless to say, using other weighting metrics can only bring about quantitative but not qualitative differences in the CES and the QSWS.

There is no reason to believe that the results of BSP surveys affect the results of the SWS surveys, and vice versa, given that they use different instruments and protocols. There is

also no reason to believe that the BSP and the SWS carry out their surveys in order to assess the validity of their datasets or their analyses. Neither is there reason to believe that the BSP and the SWS perform a racehorse on which dataset is able to capture better the situation of Filipinos or to explain better the condition in the country. In short, there is reason to believe that both BSP and SWS datasets are independent of each other.

3. RESULTS

3.1. Descriptive Results

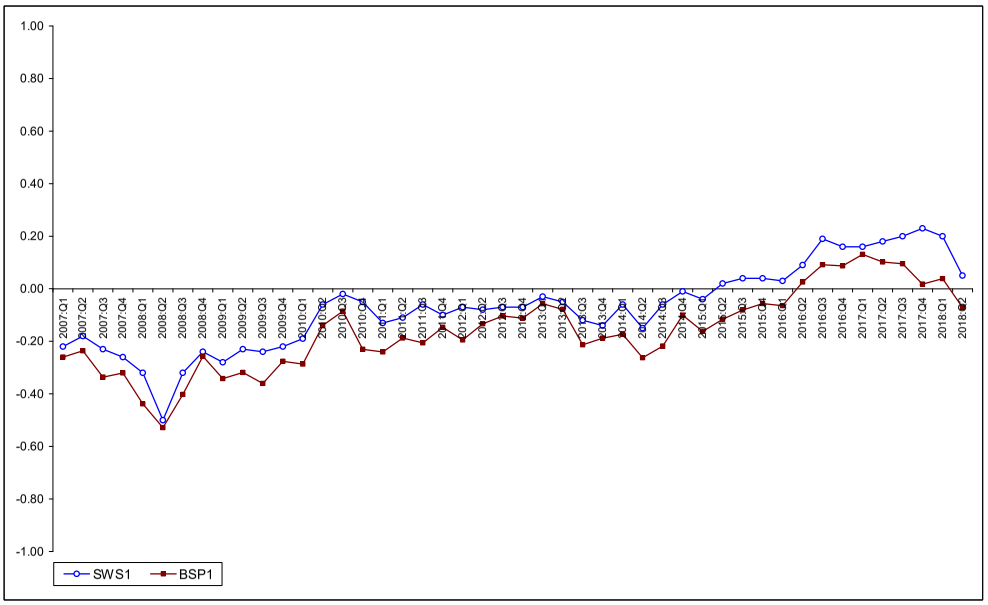
Figures 1, 2, and 3 present the trends for the components of the *Consumer Expectations Survey* (CES) and Quarterly Social Weather Survey (QSWS). Notice that trends move in a tight fashion across time. This observation can be a preliminary result on the convergent validity of the CES and the QSWS.

Figure 1 shows a general upward trend. There is a noticeable change in the values from negative to positive in 2015 for SWS1 and in 2016 for BSP1 (i.e., self-assessment of the present viz., quality of life and that on the economy as well as income and finance). The dips in 2008 and in 2018 are perceptible; and so, too, are the humps in 2010 and between 2016 and 2017. The trends are relatively steady between 2010 and 2015.

Figure 1 tries to convey that economic progress does manifest as positive assessments of Filipinos on their state of affairs. Indeed, as the trends in 2008 and in 2018 show—or periods that coincide with the Global Financial Crisis in 2008 and the rise of the inflation

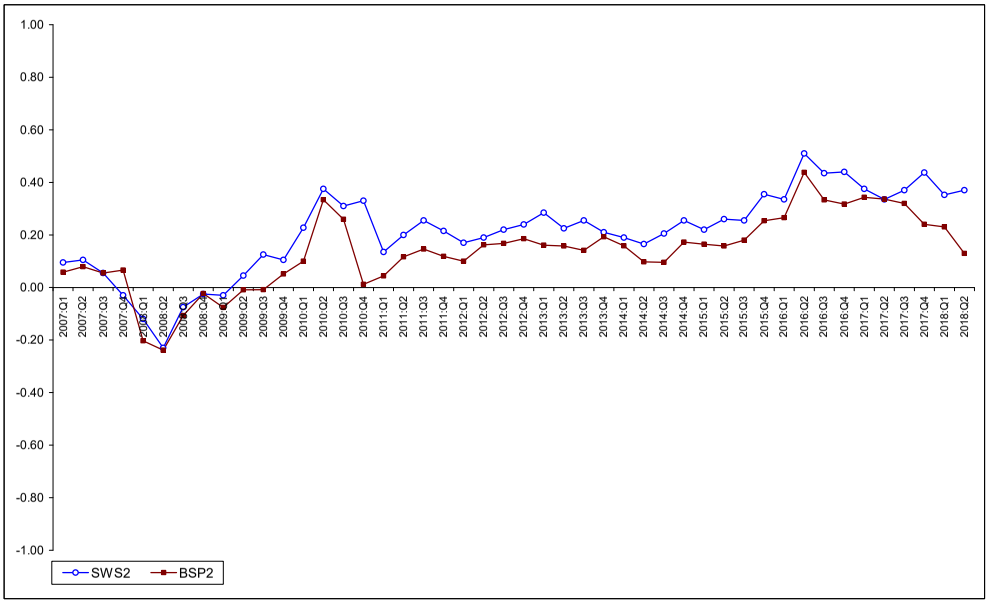
rate in the country—adverse economic conditions in or out of the country can affect the way Filipinos make self-assessments in a significant way.

Figure 1: Data for BSP1 and SWS1



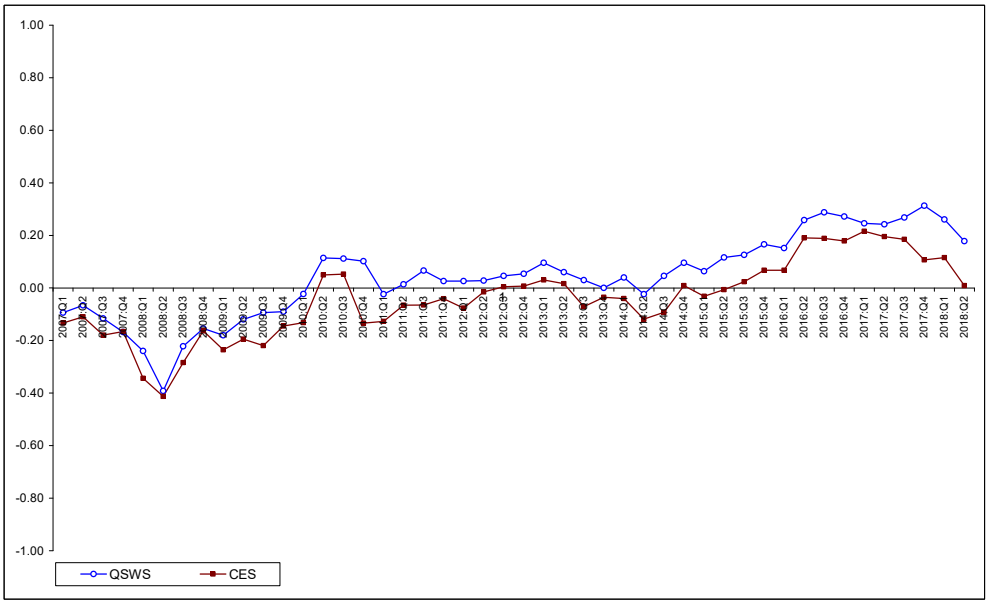
Sources of raw data: Bangko Sentral ng Pilipinas and Social Weather Stations

Figure 2: Data for BSP2 and SWS2



Sources of raw data: Bangko Sentral ng Pilipinas and Social Weather Stations

Figure 3: Data for CES and QSWS



Sources of raw data: Bangko Sentral ng Pilipinas and Social Weather Stations

Figure 2 presents BSP2 and SWS2 (i.e., expectations for the next year). The trends in this case point to an increase in optimism with regards to how Filipinos see their state of affairs in the future. Such reading is consistent with the view that Filipinos tend to believe and trust that something better for them is going to turn up in the future. Notice, though, that the values in Figure 2 are positive except in 2008; and there are humps in 2010 and in 2016. The latter periods seem to reveal that a change in the national leadership (i.e., the national elections in 2010 and 2016) can likewise influence the way Filipinos make self-assessments. Still, apparent in Figure 2 (especially 2010 onward) is a general positive economic outlook of the economy with improvements in national income, economic growth, among others, that sequentially raises the optimism of Filipinos about their future. As expected, given the trends in 2008 and in 2018, perceived threats to the realization of a better future can shake confidence and pull the level of optimism down, thereby showing a reversal in the way Filipinos see their state of affairs.

Figure 3 is just Figures 1 and 2 put together. The pattern indeed reflects the underlying data. Given the foregoing descriptions, Figure 3 shows that there is support for putting more weight on BSP1 than BSP2 and on SWS1 than SWS2 in the aggregation procedure for the CES and the QSWS, respectively.

Figure 3 shows the values of CES are negative before 2015, albeit there are brief episodes when the values turn positive. Meanwhile, the values of QSWS are negative even earlier but positive since 2010. Both CES and QSWS show an upward direction, albeit there is a dip by 2018. Again, the trends in Figure 3 suggest that the assessments of Filipinos are sensitive to the adverse changes in the economy and on what they expect for the future. Nonetheless, the important item to emphasize is that Filipinos are quick to update their assessments upward when they perceive that their state of affairs improves (c.f., Beja 2017b).

3.2. Empirical Findings

Table 1 presents the results of correlation analysis. Column 2 is for the full data; and it shows at least $r > 0.90$ for all pairings. The data are split into an up-trend and down-trend segment to see the difference between the sanguine period and the uncertain period, where the former refers to a positive change in the balance statistic (i.e., $BSP1_t - BSP_{t-1} > 0$, $SWS1_t - SWS1_{t-1} > 0$, etc.) and the latter the converse (i.e., $BSP1_t - BSP1_{t-1} > 0$, $SWS1_t - SWS1_{t-1} < 0$, etc.). The results in Columns 3 and 4 are consistent with Column 1—that is, more specifically, Column 3 for the up-trend reports $r > 0.90$ for all the pairings; whereas Column 4 for the down-trend reports $r > 0.95$ for all the pairings.

Table 1: Results of Correlation Analysis

Pair	Pearson, r	Up	Down
BSP1 with SWS1	0.962	0.961	0.966
BSP2 with SWS2	0.910	0.966	0.980
BSP1 with BSP2	0.912	0.886	0.954
SWS1 with SWS2	0.917	0.882	0.959
CES with QSWS	0.954	0.958	0.954

Notes: Correlation results are statistically significant at $p < 0.001$; up = uptrend; down = downtrend

But notice that, in Table 1, the figures in Column 4 are larger than those in Column 3. Perhaps, this finding just shows that Filipinos take on more positive outlooks and become much more confident about their future during the good times but become rather cautious and tend to focus more on the moment during the bad times (c.f., Dunning et al. 1990; Griffin et al. 1990). Perhaps, too, the finding shows an asymmetry in the way Filipinos make assessment on their state of affairs (c.f., Kahneman and Tversky 1979; Kahneman et al. 1991)—that is, uncertain periods make certain matters more salient and thus impacts self-assessments much more than the sanguine periods do (see also Beja 2015, 2017a, and 2017b). Put another way, the self-assessments in uncertain periods can turn out to be much more accurate about the actual situation of Filipinos and the country than those in periods that are sanguine. Nonetheless, there is the facet that self-assessments in uncertain periods can be overstated because of the focusing effect (c.f., Gilbert et al. 1998; Wilson et al. 2000; Kahneman et al. 2006; see also Beja 2015). In any rate, Table 1 is an initial proof that there is convergent validity between the CES and the QSWS.

Table 2 presents results of the cointegration test. The table shows that, while the data are non-stationary, their linear combination obtain residuals that are stationary. In short, the results indicate that there is cointegration between the CES and the QSWS; and, therefore,

there is evidence of convergent validity between them.

Table 2: Results of Augmented Dickey-Fuller Test

	BSP1	SWS1	Residual
Constant	ADF = -1.624	ADF = -1.429	ADF = -5.274
	p = 0.462	p = 0.560	p < 0.001
Constant with trend	ADF = -3.254	ADF = -3.162	ADF = -5.348
	p = 0.087	p = 0.105	p = 0.002
Constant with trend-square	ADF = -3.049	ADF = -2.920	ADF = -5.434
	p = 0.279	p = 0.336	p = 0.005

	BSP2	SWS2	Residual
Constant	ADF = -1.693	ADF = -1.501	ADF = -5.625
	p = 0.435	p = 0.524	p < 0.001
Constant with trend	ADF = -3.708	ADF = -2.785	ADF = -5.593
	p = 0.022	p = 0.210	p < 0.001
Constant with trend-square	ADF = -3.741	ADF = -2.913	ADF = -5.607
	p = 0.063	p = 0.339	p = 0.003

	CES	QSWS	Residual
Constant	ADF = -1.729	ADF = -1.307	ADF = -5.631
	p = 0.410	p = 0.618	P < 0.001
Constant with trend	ADF =-3.066	ADF = -2.804	ADF = -5.691
	p = 0.127	p = 0.203	p < 0.001
Constant with trend-square	ADF = -2.928	ADF = -2.713	ADF = -5.691
	p = 0.332	p = 0.438	p = 0.003

Notes: The p-value is below the Augmented Dickey Fuller (ADF) statistic. H_0 is non-stationary data.

Table 3 contains results for robustness. The results imply that the pairings of BSP1 and SWS1, BSP2 and SWS2, and CES and QSWS, respectively, are similar; that is, they convey the same story (c.f., Figures 1, 2, and 3). As such, Table 2 points to an equivalence of the data. There is therefore basis to assert that the CES can stand as a proxy measure for the QSWS, and vice versa.

Table 3: Results of Toda-Yamamoto Procedure

	BSP1	**p-value**	**SWS1**	**p-value**
Constant	-0.042	0.196	0.021	0.469
BSP1, lagged 1	0.538	0.038	0.394	0.092
BSP1, lagged 2	0.048	0.854	-0.166	0.491
SWS1, lagged 1	0.410	0.155	0.554	0.034
SWS1, lagged 2	-0.120	0.663	0.156	0.534
Adj. R-square	0.794		0.846	

	BSP2	**p-value**	**SWS2**	**p-value**
Constant	-0.023	0.306	0.021	0.314
BSP2, lagged 1	0.410	0.046	0.295	0.122
BSP2, lagged 2	-0.498	0.016	-0.420	0.029
BSP2, lagged 3	-0.036	0.870	-0.127	0.543
SWS2, lagged 1	0.612	0.004	0.673	0.001
SWS2, lagged 2	0.046	0.845	0.387	0.082
SWS2, lagged 3	0.202	0.360	0.039	0.847
Adj. R-square	0.49		0.826	

	CES	**p-value**	**QSWS**	**p-value**
Constant	-0.054	0.044	0.008	0.699
BSP2, lagged 1	0.464	0.051	0.388	0.056
BSP2, lagged 2	-0.234	0.340	-0.379	0.070
SWS2, lagged 1	0.592	0.027	0.696	0.002
SWS2, lagged 2	0.005	0.983	0.220	0.302
Adj. R-square	0.792		0.869	

Notes: (1) The analysis focuses on the first lag for the pairing BSP1 and SWS1 and the pairing BSP-CES and SWS-CSS. (2) The focus of analysis is up to the second lag for both BSP2 and SWS2.

The results of the Toda-Yamamoto procedure in Table 3 suggest bi-directional causality —that is, the CES and the QSWS tend to anticipate each other. Thus, juxtaposing Table 2 and Table 3 leads to the following interpretation: the CES or the QSWS can be a standalone dataset about how Filipinos assess their state of affairs. Either CES or QSWS can lead to the same interpretation about the situation of Filipinos and, by extension, about the country. In fact, given the findings, there is also the possibility that the CES can

418 serve not only as a leading indicator for the QSWS but also as robustness check of their
419 respective findings.

420

421 **Table 4:** Determinants of the BSP and the SWS data

	BSP1	**BSP2**	**CES**	**Inflation expectation**
Constant	0.061	0.431	0.211	6.219
	0.325	0.000	0.000	0.000
Inflation expectation	-0.030	-0.039	-0.034	
	0.000	0.000	0.000	
Inflation	-0.006	-0.009	-0.007	0.414
	0.487	0.244	0.361	0.045
Inflation, lagged				-0.380
				0.067
DW Statistic (original)	0.548	0.723	0.524	0.450
DW Statistic (corrected)	2.286	2.125	2.284	2.222
Adj. R^2	0.343	0.486	0.443	0.114

422

423

424 **Table 4:** *Continued…*

	SWS1	**SWS2**	**QSWS**	**Inflation expectation**
Constant	0.131	0.469	0.261	6.219
	0.063	0.000	0.000	0.000
Inflation expectation	-0.021	-0.030	-0.024	
	0.002	0.000	0.000	
Inflation	-0.017	-0.014	-0.016	0.414
	0.034	0.103	0.024	0.045
Inflation, lagged				-0.380
				0.067
DW Statistic (original)	0.483	0.372	0.339	0.450
DW Statistic (corrected)	2.087	2.119	2.011	2.222
Adj. R^2	0.289	0.344	0.367	0.114

425 **Notes:** (1) The results are estimates of Prais-Winsten procedure with corrected values.

(2) The numbers below the estimates are p-values. (3) Surveys of the BSP include the following query: *What do you think would happen to the prices of the following goods and services in the next 12 months?* "Goods and services" cover the main categories in the consumer price index: rice, meat, fish or seafood, fruits and vegetables, clothing, rent, fuel, light, water, education, medical care, transport, communication, and personal care. The calculation of "inflation expectation" by the BSP uses the household responses to each category in the list.

Following the Toda-Yamamoto analysis, the last step is to determine whether or not the CES and the QSWS share the same determinants. To that end, Guinigundo (2016) and BSP (2017) identify the main drivers of the CES, namely: inflation expectations and (actual) inflation rate (see the notes below Table 4). However, while there is no study that looks into the determinant of the QSWS, the foregoing results about cointegration and bi-directional causality seem to support an argument that inflation expectation and (actual) inflation rate can likewise be the main drivers.

Table 4 summarize the analysis of determinants. The results show that the BSP1, BSP2, and CES are driven mainly by inflation expectation. The effect of (actual) inflation rate is statistically not significant, albeit the sign on the coefficient is correct. In addition, Table 4 also shows that the SWS1, SWS2, and QSWS are in fact driven by both the inflation expectation and the inflation rate.

The last column of Table 4 is for results on the determinants of inflation expectation. The results show that the (actual) inflation rate and its one-period lag rate drive the inflation expectation. The negative sign on the one-period lag inflation rate suggests an adjustment in inflation expectation over time—that is, Filipinos appear to fine-tune their reaction after their experience with high inflation rates. Presumably, the result indicates that some form

of adaptation occurs in the subsequent periods. The additional lags on the inflation rate do not give useful results and are not anymore shown in the table. But the results in the last column of Table 4 are comparable to Guinigundo (2016) and BSP (2017). Still, the more significant observation is that the last column of Table 4 shows evidence of an indirect effect of the (actual) inflation rate on the CES through inflation expectation; whereas there are direct and indirect effects of the (actual) inflation rate on the QSWS. In any case, there is evidence that inflation rate—whether actual or expected—is a central item in the way Filipinos make assessments about their state of affairs (c.f., Mapa et al. 2011, 2015).

Regardless of the channel of impact or transmission of the inflation rate, Table 4 indicates that managing inflation expectation help mitigate the insecurity of Filipinos and, in turn, help control the swings in the CES and the QSWS. Correspondingly, the trends of the CES and the QSWS across time might indicate how effective policy is in managing the (actual) inflation rate. In this regard, the findings seem to corroborate the prevailing view that a steadfast yet broad-based approach to the management of the (actual) inflation rate—one that blends monetary and fiscal policies to a potent mix—remains the key not only to an effective management of sentiments and assessment of the quality of life but also for the attainment of real progress in the economy. Lastly, the findings can be useful for policy makers to find out not only how effective the government is in carrying out its role in managing the (actual) inflation rate but also to see how beneficial its application of policy is to the Filipinos.

4. CONCLUSION

This paper tested the convergent validity and causality of the *Consumer Expectations Survey* (CES) from the Bangko Sentral ng Pilipinas and the *Quarterly Social Weather Survey* (QSWS) from the Social Weather Stations. First, the results from trend and correlation analyses were presented as initial evidence of convergent validity. Second, the direct evidence for convergent validity was obtained using cointegration analysis. Then causality analysis was performed to determine the nature of relationship of the CES and the QSWS.

Overall, the results showed that there is convergent validity between the CES and the QSWS. The results suggested that the two datasets drew from the same information source; and that they gave relatively equivalent descriptions of the state of affairs of the Filipinos and of the country in general. The results of causality analysis further suggested that the CES could be a useful proxy or a leading indicator for the QSWS, and vice versa. Indeed, for the same reason, each could be used as a measure for robustness check.

Furthermore, the study found that the CES and QSWS had similar determinants. It found evidence of indirect effects of the (actual) inflation rate on the CES via the inflation expectation. But the study found both direct and indirect effects of the (actual) inflation rate on the QSWS. The results implied that efforts at cushioning the effects of the (actual) inflation rate and tempering inflation expectations would be the most important considerations for managing the insecurity of Filipinos.

Controlling the swings in the CES and the QSWS would require an effective management of the (actual) inflation rate through monetary policy and the provision of basic services

through fiscal policy. Correspondingly, the way the CES and the QSWS change across time would indicate how effective policy was in managing the (actual) inflation rate. Therefore, steadfast yet a broad-based in approach to managing inflation and mitigating its impact would continue to be a valid policy direction to take for the government.

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Conflict of interest

The author declares no conflict of interest.

Ethical approval

This paper does not contain studies with human participants or animals performed by the author.

Informed consent

Not applicable

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