Surveys as leading information to support central bank policy formulation: the case of Indonesia

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Abstract

This paper discusses surveys conducting by Bank Indonesia as the central bank of Republic of Indonesia. As the central bank with the objective of maintaining price stability, Bank Indonesia has core functions in monetary, payment system and financial stability. Notwithstanding Bank Indonesia has acquired primary data from reporting, it is insufficient to understand the real state of economy, the factor behind the numbers, and the behavior of economic agents. Therefore, Bank Indonesia needs to conduct surveys, particularly in corporations and households. Since 1993 Bank Indonesia has done up to seventeen types of surveys. It is acknowledged that surveys has supported economist to assess the real path of economy growth and inflation to support policy decision making process. Hitherto, there are always errors and biases in the surveys result that leave some puzzles of economic condition. In minimizing the errors, Bank Indonesia consistently reviews the surveys periodically. Nevertheless, challenges of the surveys remain exist, particularly in the quality of the survey and their optimum utilization.

Keywords: Central bank policy, Prices, Business fluctuation, Expectation

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1. Introduction

1.1 Background

The traditional role of a central bank in a country is as monetary authority in controlling money supply, including currency and interest rate management, and acting as lender of the last resort to prevent financial crisis. Central bank around the world in general has the main objective of maintaining price stability which is represented by inflation. Historically, the anti inflation objective of central bank had created an inflationary bias. The disinflation route, sometimes immolates economic growth and employment. Some central bank like Bank Indonesia has to maintain also the stability of exchange rate as the part of price stability objective. Epstein (2005) stated that the role of central bank as an agent of development is to create "macroeconomic stability", including financial stability. In particular, central bank has to formulate policies in monetary, payment system and financial stability in order to achieve its objective.

Inflation as the price stability objective of a central bank is resultant of all economy activities. Hence, in formulating policy decision, central bank needs to know in advance the future spectrum of economy to avoid misalignment. The full extent of central bank's policy transmissions should have been known. Central bank usually applies some quantitative tools such as econometrics to forecast the future economy pathway. Yet, despite its worth, econometrics models are sometimes considered as oversimplification of economic dynamic. Some claimed that model equations could not depict multifaceted state of the entire economy. Lucas critique even warns that some parameters might not be robust anymore.

Due to comprehensive coverage and procedures, some data and statistics usually have lags in their collection. For example, gross domestic product as a measurement of all economy activities of economics agents usually has one month lag. Therefore, additional data of which represents prompt and forward looking situation is highly required by central bank. Survey among others is a tool to acquire those data and information. In a dynamic economy, minor changes in economic agent behavior might generate a multiplier effect in other economic activities. Therefore, understanding this behavior becomes object of research. Some noises created by some economic agents may have impact on price stability effort by central bank.

1.2 Objective of the paper

The aim of this paper is to analyze the benefit of conducting surveys in order to get in advance some information to formulate policy decision. This paper will also discuss how central bank obtains information and data in advance prior to policy decision. Survey among others is a way to obtain information regarding future condition, including the behavior and the expectation of market. By knowing this information and data, central bank could track its objective achievement and establish more appropriate policy adjustment. This paper discusses and analyzes the organizing of surveys undertaken by central bank of Indonesia, the weaknesses and challenges that it faces.

The organization of the paper is as the following. The next section explains statistics collection through survey, including the definition of the survey and its

role. Part three describes the measurement of surveys based on the theory and some methodologies. Section four gives details of the surveys done by central bank of Republic of Indonesia. The final part discusses conclusion of the paper.

2. Statistics collection through survey

2.1 Definition of survey and its role

Grove et al (2004) explicates a survey as a systematic method for gathering information from a sample of entities for the purposes of constructing quantitative descriptors of the attributes of the larger population of which the entities are members. Surveys are the tools to track economic trend and other indicators. Social sciences utilize survey as a method to understand the manners of societies and to test the theory of behavior. A survey could become a proxy or the best tool in completing the need of surveyor in specific data or information on certain condition, in a quick and efficient way. Furthermore, identifying population behavior would be impossible within short term period, hence a survey by means of selected sampling of group would be the best approach. Information collected from the selected group would be statistically valid information that represents the large group; despite there will be no zero error. Moreover, as the data and information needed is not readily available publicly, survey would be the feasible way to obtain the information. By survey, researcher or analyst could infer descriptive statistics quantitatively and qualitatively from the data and information. Sampling as the proxy of population condition would be valid with appropriate sampling selection and survey execution.

In gathering information, the conducts of surveys have specific characteristics such as asking some people questions by way of interviewing or filling questioner. Surveys could provide information such as behavior, needs, expectation, and opinion which represents selected group. In addition, a survey could also be used as a tool to gauge specific needs for instance attitude and preference. As a primary data, surveys usually are done by means of direct contact with the respondents. The execution of surveys is by way of written questionnaire which can be distributed by mail/fax/email, or via interviewing.

It is undeniable that there are some advantages and disadvantages of different ways in conducting the surveys. Yet, there is no such the best way that fit to every survey. Surveyors should tailor the ways of survey based on their need in terms of the objective, respondent sampling, information collected, time, and budget constraint. Sometimes there is a trade-off between the cost and the quality. For example, the written survey by mail is easier and less costly, yet it usually has low response and is difficult to communicate the missing part. The following table 1 describes the pros and cons of means in survey.

Advantages and Disadvantages of Survey Means — Table 1

Survey Means	Pros	Cons
Mail, facsimile, email	• The respondent can fill out the survey at his or her convenience. It can be filled out whenever the respondent has time • You can make it anonymous, which is much more comfortable for some respondents • All respondents will have read the same questions, eliminating any interviewer bias • The respondent will have time to check his or her records before answering, if he or she needs to verify information, he or she will have the chance to be accurate	• They are not very flexible; there is no interviewer present to probe for answers, so you can only read what the respondent has written, with no opportunity to look at facial expressions or body language • The return rate is generally low • Respondents may leave answers blank • Surveyor cannot control when respondents will send the survey back • You may not be able to tell the difference between those who simply did not return the survey and those for whom you had an incorrect address
Face to face interview	• The surveyor could achieve a 100% response rate of the questions • Surveyor could decide on follow up question • Could hear far more than just what the interviewee tell	• Requires considerable training • Time consuming and costly to conduct • Unless strictly controlled, interviews can easily meander from the main subject
Telephone	• Combines the efficiency of a mail survey with the personal contact of an interview • More efficient as many more people can be interviewed	• Less personal that face to face and all the body language data will be lost • Response rate can also be low, but could be remedied by preceding the call with a brief letter alerting the respondent that a phone call is on the way • Best used for short and very focused interviews
Focus Group Discussion	• More effective and economical instrument • A socially oriented research	• Participants may respond in ways designed to please others • People are reluctant to contradict prevailing viewpoints • Participants may choose not to reveal certain information in a group setting • Members may be influenced by opinions of others who best articulates their opinion • The moderator has less control over the focus group compared to interview • The selection of group members is likely affect the outcome

2.2 Surveys as a tool to collect data by central bank

Central bank usually collects primary data by reporting system. The obligation of reporting data to central bank has been expanded, not only by banks as the intermediary institution but also covers corporations. In Indonesia, central bank has the obligation to maintain stability in exchange rate; therefore it requires report from the corporations in foreign exchange transactions including export, import, external debt, and transactions in financial market. Nonetheless, reports by banks

and corporations are not sufficient to infer some information particularly the behavior in expectation and forward looking actions.

By doing surveys, central bank could acquire some specific information needed since data movement in reporting system does not reflect the behavior driven behind the number. Moreover, flexible information needed could be tailor-made by central bank by conducting surveys to dig up deep information of preferences, reaction, reason, planning, and other forward looking actions of specific situation.

3. The measurement of surveys

3.1 Theory and methodology

The history of survey began in 1889, when Charles Booth tried to study the poor in London and the determinants of poverty by observing the life and labor of the people. He did not use specific technique in sampling and questionnaire. Nonetheless, he applied quantitative measurement to identify the fundamental social problem. Currently, in the 21st century, the execution of surveys has evolved to a more complex system, efficient and promptly, supported by rapid advanced in technology development. Most disciplines in social sciences have implemented survey as the methodology of the studies.

The methodology of the survey identifies the design; collection, processing, and analysis of survey in the framework of benefit and cost constraint. Each step has an effect on the quality of the survey and involves cost implication. By means of survey, researcher or analyst could infer phenomena and behavior from the data and information gathering based on sample. Yet, there is always a trade-off between cost and quality or level of error. Poor design and execution in each step in the survey; will generate bias and error. The fundamental challenge in the survey is how to minimize error so as to achieve the objective.

Converse (1987) described four perspectives of survey in United States that are the purpose of the survey, the development of the question, sampling method, and the data collection method. Each perspective has some challenges in building the survey becomes effective. The purpose of the survey should be clear given that it will effects the questions design.

Survey basically is intended to identify the population/group behavior or condition, not individual characteristics. Based on the statistics measured, analyst could draw inferences about the characteristics of the group or specific population. Groves et al (2004) stated that there are two requirements to achieve true inference: 1) Answers of the survey must accurately describe the characteristics of respondent; 2) The respondents must have characteristics similar to those of the targeted population/group observation. When this prerequisite is not met, then survey statistics will contain error. Error is defined as deviation of what is expected in the survey than what is gained. There are some possibilities of errors evolved such as mistake in questionnaire, poor record, and inappropriate/missing sampling. In building the survey design, surveyor has to minimize error in survey statistics by minimizing gap between successive steps. There are some errors such as coverage error, sampling error, non response error, adjustment error, measurement error, and processing error.

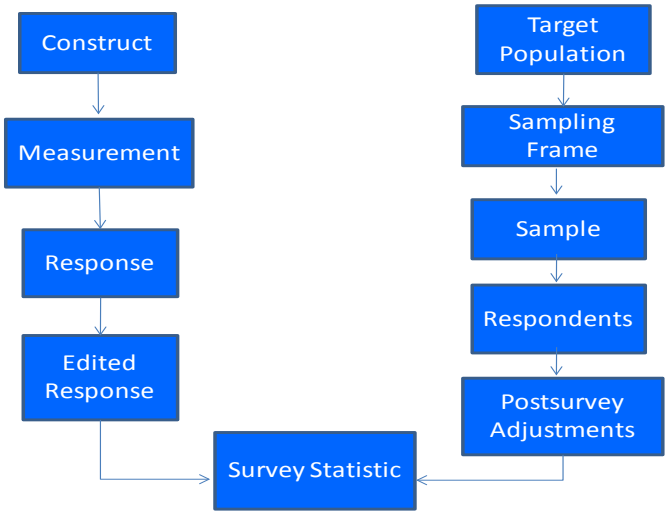
3.2 The construction of survey

Bergh (2009) in the use of surveys by central bank (IFC bulletin No 30) concluded from the workshop discussion that conducting a survey is an art as much as a science. Some central banks specifically recruit statisticians to develop and build surveys. The need of gathering information in advance has been burgeoning since macroeconomic condition becomes more dynamic and volatile. Interconnected among countries had been evolved to a borderless transaction almost in all sectors of which encouraged by advanced technology. This development has driven more complex transactions including the difficulties in data collection. One way another to obtain the data of economic activities is through survey execution.

The authority of central bank to acquire data and information from survey is based on central bank act in 1999. The legal framework of survey done by central bank has also guaranteed the confidentiality of the individual data and information as the publication always in the aggregate figure. In building surveys, central bank uses several method in sampling and statistic methodology, depends on the objective and the need. Type of questionnaires could be in the form of open ended, closed ended, or a combination questions.

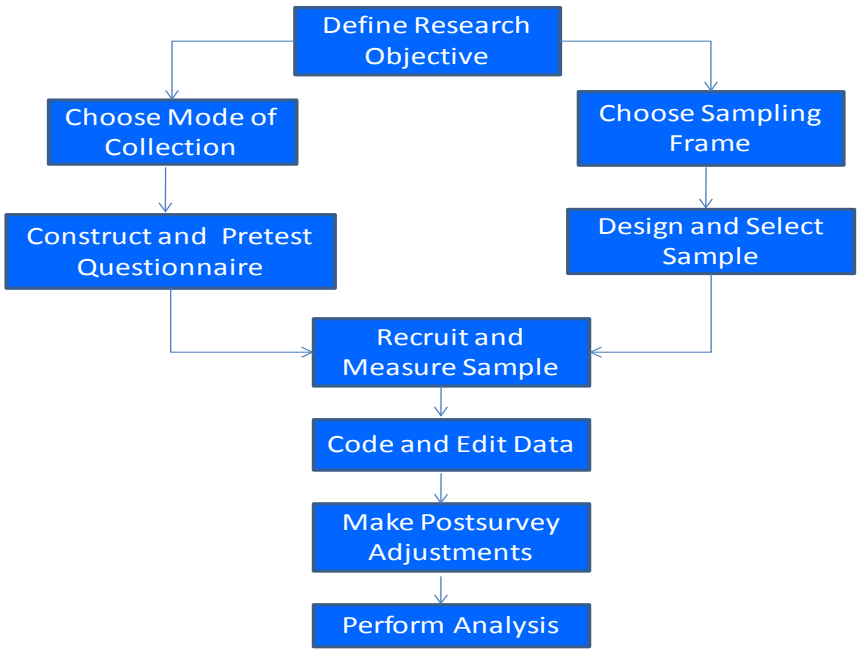
Groves (2004) stated that a survey is developed from designing to processing. Good survey design usually determines the quality of the survey. There are two parallel dimensions of a survey, the element of information needed and the population description as describes in the diagram 1. The measurement of a survey consists of several steps from construct, measurement, response, up to edited response. On the other side, representation covers stages of target population, sampling frame, sample, respondents, and post-survey adjustment. In the edited response stage, outlier responses could be identified. The missing data could be estimated in the post-survey adjustment stage by imputation. Based on the stages, analyst and researcher could infer statistics of the survey.

Survey cycle in design perspective — Diagram 1



Likewise, survey cycle based on process perspective begins with the objective which then follows into two paralell processes. One process consists of stages in choosing sampling frame, and in designing or selecting sampling. The other process encompasses of choose mode of collection, and construct or pretest questionnaire. Based on these two processes, surveyor could recruit and measure sample, followed by code and edit data, make post-survey adjustment, and finally perform analysis.

Survey cycle in process perspective — Diagram 2



3.3 Survey index construction

There are many methodologies in index construction. Some of the survey indexes conducted by Bank Indonesia are constructed by the net balance which is the difference between the percentages of respondents with the answer "increasing/better off" with the percentage of respondents with the answer "decreasing/worse off". Several surveys use balance score which is the net balance added by 100. The index above threshold of 100 indicates an optimism condition, and vice versa, the index below threshold of 100 indicates a pessimism condition. In retail survey, it implements index calculation by weighted balance score with the city weight. Furthermore, business survey applies weighted net balance by multiplying the net balance with the weight of each sector in gross domestic product.

Besides the above index calculation, primary residential property survey employs chained weighted index. In secondary residential property index utilizes cost approach and market value approach. For commercial property index, the weight is based on the spacious of leased property or unit sales. On the other hand, retail survey utilizes real retail index to measure the real retail volume by deflating the index. The retail index is also weighted based on the city weight. Consensus forecast survey uses mean point estimate in finding the average forecast from the

expert. Pooling methodology is also utilized in some surveys. The following are the index calculations of some surveys.

1. Net Balance = $\sum U_i + \sum D_i$

   U_i = The number of respondents with the answer of "increasing/better off"

   D_i = The number of respondents with the answer of "decreasing/worse of"
2. Weighted Net Balance = ∑Weight *(Net Balance)
3. Balance Score = Net Balance + 100 = $(\sum U_i + \sum D_i) + 100$
4. Weighted Balance Score = ∑Weight *(Balance Score)
5. Chained index = Price Index $_{t-1}$ + (Price Index $_{t-1}$ x Price $_t$ /100)
6. Chained weighted index = ∑weight x(Chained Index)
7. Pooling = Median answer /Total Respondent
8. Mean point estimate = ∑ Answer/Total Respondent

3.4 Error and bias in survey

Why error occurs in a survey? The starting point is to understand the procedure of conducting a survey. It is necessary to identify potential sources of error in survey and minimizing its gap. Errors in the survey could be classified as sampling error and non sampling error. Survey always relates to a sample selection of population. Sampling error usually occurs to a particular group selection which does not represent the targeted respondents and sample size that creates low response rate. In addition, non sampling error such as measurement error arises as the consequence of mismeasurement. This among other includes incompetence surveyor, interviewing process, and inappropriate methodology. Yet, errors sometimes are recognized when the result creates biases and contains puzzles or contradictions. The following table lists common sources of error and some strategies to minimize them.

Survey's error and strategies to minimize error — Table 2

Source of error	Examples	Strategies to minimize error
Planning and interpretation	Inadequate definitions of concepts, terms or populations.	Ensure all concepts, terms and populations are defined precisely through consultation between data users and survey designers.
Sample selection	Inadequate list from which sample is selected; biased sample selection.	Check list for accuracy, duplicates and missing units; use appropriate selection procedures.
Survey methods	Inappropriate method (e.g., mail survey for a very complicated topic).	Choose an appropriate method and test thoroughly.
Questionnaire	Loaded, misleading or ambiguous questions, poor layout or sequencing.	Use plain English, clear questions and logical layout; test thoroughly.
Interviewers	Leading respondents, making assumptions, misunderstanding or misreporting answers.	Provide clear interviewer instructions and appropriate training, including exercises and field supervision.
Respondents	Refusals, memory problems, rounding answers, protecting personal interests or integrity.	Promote survey through public media; ensure confidentiality; if interviewer-based, use well-trained, impartial interviewers and probing techniques; if mail-based, use a well-written introductory letter.
Processing	Errors in data entry, coding or editing.	Adequately train and supervise processing staff; check a sample of each person's work.
Estimation	Incorrect weighting, errors in calculation of estimates.	Ensure that skilled statisticians undertake estimation.

4. Surveys conducting by central bank of Indonesia

4.1 Bank Indonesia surveys

Realizing the importance of surveys as the means of economic intelligence, Bank Indonesia has conducted surveys since 1993. Bank Indonesia has been developing surveys in line with the need to establish more credible and effective policies. To support the development and the quality of surveys, Bank Indonesia established a special division in the statistics department to manage surveys for requirements in all of its function in monetary, payment system, and financial stability policies. Currently, the variety of surveys undertaken by Bank Indonesia has reached up to seventeen (17) surveys as in the table 2. The majority of surveys are related to corporations as respondent to gather and comprehend the path of business condition and expectation. In addition, consumer and household is the target of the survey to measure the behavior in consumption and investment. The frequencies of surveys are varied from weekly to annual. The objective of data collection from surveys could be classified into 3 targets of factual information or economic intelligence area of measurements. These are economic development trend, expectation behavior in economic and price; and action plan of respondents. By conducting the surveys, central bank could gain early information of macroeconomic indicators and their trend movement to measure the economic condition, despite the lags in the release of macroeconomic indicators.

Bank Indonesia carries out surveys by building collaboration with all regional branches. Regional branches undertake similar surveys with the coverage of areas under their authorities. The head office collects all surveys and makes recapitulation and summarization as a national index of surveys. The surveys could also be undertaken by outsource surveyor as not all surveys could be done by Bank Indonesia itself. Sometimes there are differences of the qualitative information among regional branches which have specific factors related to the regional circumstances. This is happened as Indonesia is a country with a vast area from west to east, and has many big islands that made it has wider gap in economic development and infrastructure as well.

Survey execution is usually costly given that it needs a lot of resources in terms of human resource as interviewer, recorder and statistician. It also takes time to accomplish the whole process of survey. Therefore, the benefit and cost of survey should be measured considerably. The design and process of survey should be thoroughly prepared as it is difficult to step back when the survey has begun. Nonetheless, the refinement of the survey is usually done when there is bias in result. Some of the huge surveys need to be tested through the pilot project so that fine tuning in questionnaire and in sampling could improve the quality of the result and its effectiveness.

Bank Indonesia Surveys

Table 3

No	Type of survey	Sampling respondent	Regional coverage	Index Method	Survey method	Period	Establish-ment	Objective
1	Business tendency	Purposive sampling: 2700 corporations of all sectors in GDP	38 cities	Weighted net balance	Mail and web (on line)	Quarterly	1993	To get early information and expectation on the development of economic activities in real sector and pricing in the upcoming months (three and six months)
2	Corporation	Stratified purposive sampling : 100 non listed corporations (previously 42), sectoral	Several cities	Quantitative and qualitative descriptive analysis (pooling and simple average)	Mail	Annually	2010	To identify the sources of vulnerabilities in financial stability from the transmission of corporations activities
3	Consumer Confidence	Stratified random sampling: 4600 households	18 major cities	Balance score (net balance+100) and weighted average for qualitative data	Telephone and interview	Monthly	1999	To obtain early information on household consumption tendency and inflation expectation
4	Household	Stratified random sampling: 4700 household	10 major cities	Quantitative and qualitative descriptive analysis	CAPI (computer assisted personal interviewing)	Annually	2009	To measure the asset and liability composition of household, particularly the leverage and repayment capacity as the basis for estimation in full sectored account statistics and macro-prudential policy
5	Retail	Purposive sampling: 650 retailers	10 major cities	Weighted index – retail sales, Weighted Balance score-inflation (net balance+100)	Interview	Monthly	1999	To get early information and expectation on retail sales, consumption spending, and inflation pressures

Bank Indonesia Surveys (cont)

Table 3

No	Type of survey	Sampling respondent	Regional coverage	Index Method	Survey method	Period	Establish-ment	Objective
6	Production	Stratified purposive sampling: 250 corporations in manufacturing	Several cities	Weighted net balance	Mail, fax, email	Quarterly	1999	To get information the development of production, capacity utilization, and expected producer price.
7	Price	Stratified purposive sampling: – 48 highest weighted commodities in CPI (of 859 commodities) – 3 retailers in each market, hypermart	Markets in 18 major cities (CPI=82 cities)	Weighted commodities and cities price changes	Interview	Weekly	2006	To identify monthly inflation through the weekly price movement monitoring as nowcasting indicator.
8	Primary Residential property	Purposive sampling: 441 developers	14 Major cities	Chained weighted index	Interview	Quarterly	1999	To understand the direction of residential property price development in the primary market, as well as its supply and demand.
9	Secondary Residential property	Purposive sampling: brokerage and residential owner	Jakarta	Weighted price	Interview	Quarterly	2011	To understand the direction of residential property price in secondary market and its sales velocity as an indicator of potential bubble.
10	Commercial Property	Purposive Sampling: office, hotel, mall, apartment, industrial	3 Major cities	Weighted selling price/ rented price	Interview, telephone	Quarterly	1996	To identify the development of commercial property and its relation to the economic condition.
11	Consensus forecast	Purposive sampling: 200 of economist, academician, banker, market analyst, researcher	18 major cities	Pooling, mean point estimate	Mail, fax, email	Quarterly	2001	To discover the level of macroeconomic indicators (GDP, inflation and exchange rate) prediction by experts.

Bank Indonesia Surveys (cont)

Table 3

No	Type of survey	Sampling respondent	Regional coverage	Index Method	Survey method	Period	Establish-ment	Objective
12	Banking	Purposive sampling: 42 banks	Jakarta (head office)	Net balance	Email	Monthly	1999	To identify the movement of lending, pooling fund, liquidity and lending policy of banks in the next term. As the complement and quick information to the monthly banking reporting which has 1 month lag.
13	Liaison	Stratified purposive sampling: leading corporations in the region	41 regions	Descriptive analysis, Likert scale	In depth interview	Quarterly	2007	To get in depth qualitative information and guidance of economic condition (GDP, inflation, balance of payment, financial market) from corporations. As the complement and explanation of quantitative/statistics development.
14	Foreign direct investment	Stratified purposive sampling: corporations with foreign share of 10% and above	Major cities	Simple average and weighted average	Mail survey	Bi-annual	2000	To know the coverage of foreign capital/ownership role in corporations and the data of foreign direct investment activities. As the information of potential flows in capital account of balance of payment and international investment position.
15	Workforce (inflow-outflow)	Stratified purposive sampling: Indonesian who work abroad for a year or more, retired worker abroad and their family	9 cities classified as migrant enclave areas	Pooling data, quantitative and qualitative descriptive analysis	Interview	Biennial	2010	To understand the movement and the behavior of remittances flows as well as their impact to economy activities (in consumption and investment/saving), and welfare (education and health). As the information for proxy estimation in balance of payment.
16	Foreign Debt	Stratified purposive sampling: corporation which have external debt	Majority in Jakarta	Pooling data, quantitative and qualitative analysis	Interview	Bi-annual	2011	To identify the potential risk and risk management of corporation's external debt. As the measurement of potential demand in foreign exchange and the volatility of exchange rate.
17	Special/Ad hoc	Purposive sampling	Majority in Jakarta	Tailor made	Telephone (majority)	One time (non routine)		To get in depth qualitative information for specific current issues in economic, monetary, payment system, financial stability, balance of payment etc.

In designing the questionnaire of each survey, Bank Indonesia gathered all the needs of analyst, economist, and researcher in the central bank. All of surveys are designed to support the analysis and recommendation to the policy maker or board of governor. Central bank also publishes all of the surveys in the website, and sometimes arranges media conference. The aim of the publication is to provide information and to drive the market to a more rational expectation based on the fundamental economic condition. Liaison and ad hoc surveys have been used to collect specific economic intelligence, particularly when the economic diagnostic indicates there is a certain issue. To confirm the fundamental issues, by interviewing related corporations, liaison surveyor could gain in depth insights of economic condition and the expectation of business agents. The qualitative information from the liaison survey is valuable to gauge and judge the real state of economy in feeding the process of the appropriate policy of central bank.

It is acknowledged that primary data from the report is not sufficient to tell the story behind the numbers. Therefore, economic intelligence by survey is expected to support the factual information to identify the actual current economic condition and to forecast the future state of economy. The coverage of information in the surveys is as in table 4; among others is information of current condition and expected condition. The essential information to guesstimate the trend path of inflation is pricing and expected price movement.

The coverage of information in the surveys — Table 4

Business survey	*Consumer Survey*
• Business condition	• Current Condition
• Production volume	• Expected Consumption (6 months ahead)
• Capacity utilization	• Consumer Confidence
• Employment	• Expected price (3,6 months ahead)
• Sales, orders, inventory	• Employment
• Sales price (next quarter)	• Current income
• Expected inflation	• Expected income (6 months ahead)
• Investment realization	• Repayment capacity
Retail Survey	*Production Survey*
• Current retail sales	• Production (sector)
• Expected retail sales (3,6 months ahead)	• Capacity utilization (sector)
• Expected price (3,6 months ahead)	• Pricing (sector)
• Loan interest rate (3,6 months ahead)	• Factors affected production and price movement
Banking Survey	*Liaison survey*
• Current New Loan	• Production, inventory, sales, capacity utilization
• Loan projection	• Prospect of business, investment plan
• Deposit and projected deposit funding	• Leverage
• Sources and uses of fund	• Cost structure, pricing
• Cost of loanable fund, Cost of fund	• Employment
• Deposit and credit interest rate	• Financing
• Lending policy	• Current issues

The coverage of information in the surveys (cont) Table 4

Corporation Survey

- Production, capacity utilization, input, inventory
- Cost structure
- Balance sheet, profit and loss
- Financing, Leverage, Liquidity
- Sales, Return
- Employment

Price survey

- Price of volatile food
- Price of core inflation
- Price of administered commodities

Foreign direct investment survey

- Investment inward, outward (current and plan)
- Capital investment (current and plan)
- Share of ownership
- Retained earning
- Capital flows (outward and inward)
- Liabilities to non resident

Risk management survey of foreign debt

- External debt outstanding
- Risk management, Hedging position
- Repayment capacity
- Liquidity, Solvability
- Utilization of external debt

Secondary residential property survey

- Sales velocity
- Land price
- Financing mortgage
- Current and expected price

Special/Ad hoc survey

- Tailor Made based on the requirement in monetary, payment system, and macroprudential policies

Household Survey

- Asset, Liabilities items
- Share of loan in liabilities
- Share of financial asset
- Consumption share of income
- Expenditure of household to corporate

Workforce (outflow-inflow) survey

- Remittance of workforce
- Salary and remittance ratio to the salary
- Impact of remittance to the local welfare
- Frequency and mode of transfer of fund

Consensus forecast survey

- Estimated economic indicators of GDP, inflation, and exchange rate (4 quarter ahead, average of the year, and next year)
- Factors behind the movement of estimated indicators

Primary residential property survey

- Residential property price (current, next quarter)
- Factors behind price movement
- Residential property sales and construction
- Demand and supply
- Financing of residential property

Commercial property survey

- Occupancy leased office (trend and price)
- Supply of commercial property
- Price of commercial property

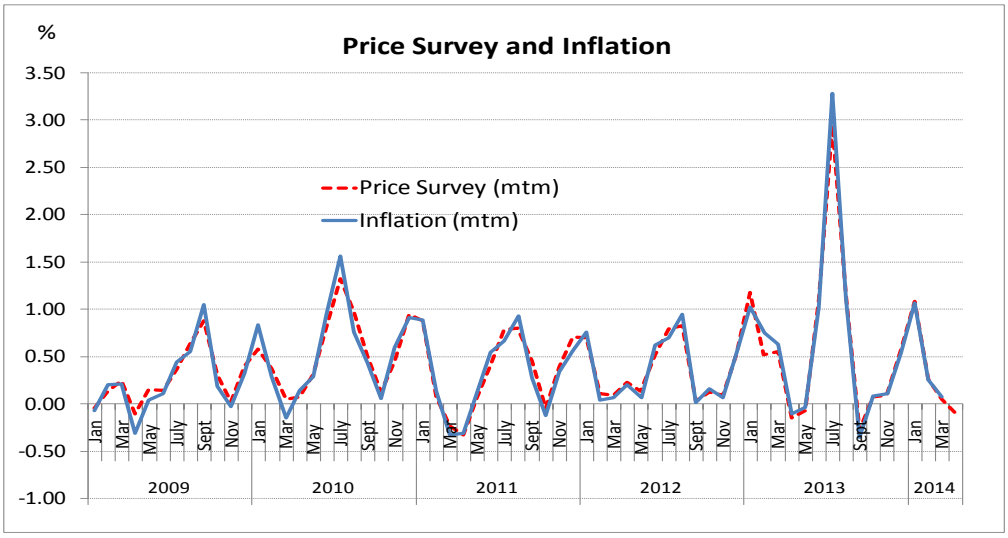
4.2 The utilization and role of surveys in Central Bank policy

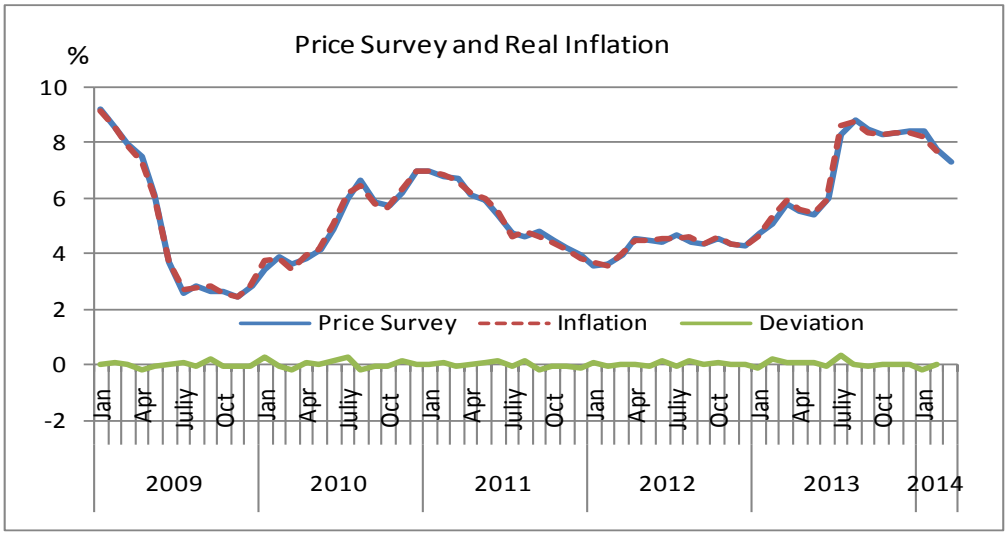
As economic intelligence, the utilization of surveys as has been described previously is to fill the data gaps and to feed the information to support economists better understand the real story behind the numbers of current and projection indicators. The result of surveys and their benefit among others are illustrated in the following graphs below. Price survey is the most significant nowcasting and accurate survey in predicting monthly inflation. The deviation of price survey to the real inflation is relatively small as indicated in the graph. In general, the deviation is close to zero for both based on month to month and year on year growths. Related to the expected inflation, consumer survey could predict the trend of inflation in most of the time, particularly in the recent years.

In addition, production index could also become signals of cycle movement trend to gross domestic product (GDP). Previously, the movements of production index tend to become a coincident indicator of GDP in manufacturing, however, in the recent years it inclined to become leading indicator. The shifting of this movement might be driven by respondent selection which moving towards manufacturers in intermediary good compare to final good production. Production index is also co-movement to the transaction in real time gross settlement (RTGS) in the payment system. This reflects that the movement of RTGS and production index are able to predict the trend of growth in GDP of manufacturing. Furthermore, retail sales index has the same tendency movement with cartal or bank notes and coin circulation, and card payment transaction. On the other side, banking survey has the capability to project the new credit growth path in the future, regardless of some inappropriate signals in the recent years.

Price Survey and Real Inflation

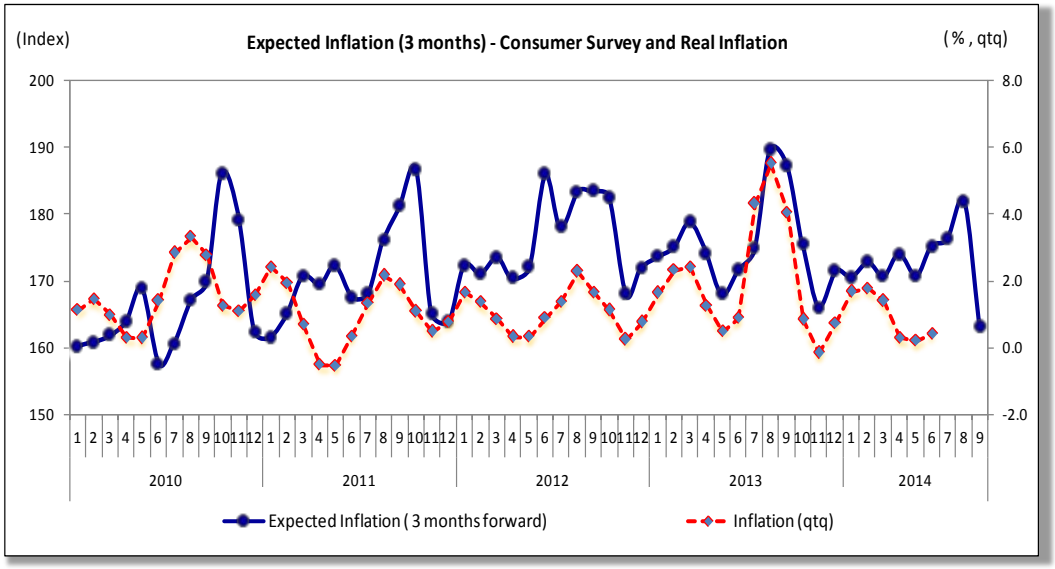
Graph 1





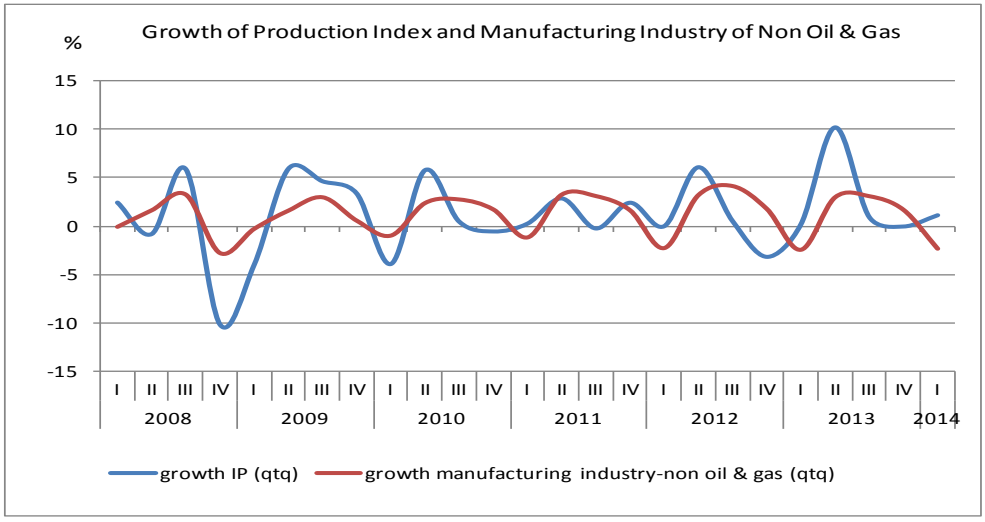
Expected Inflation (Consumer Survey) and Real Inflation

Graph 2



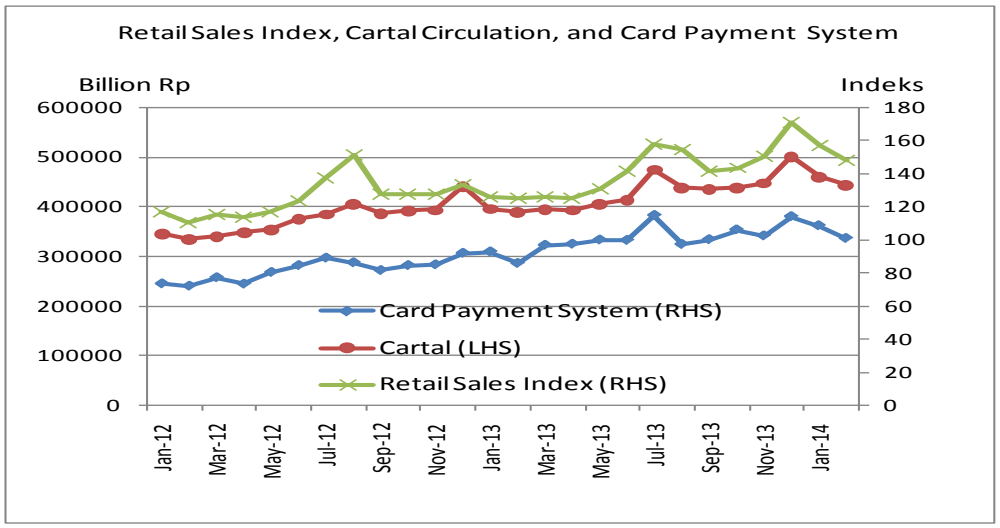
Production Index and GDP of Manufacturing Index (non oil and gas)

Graph 3



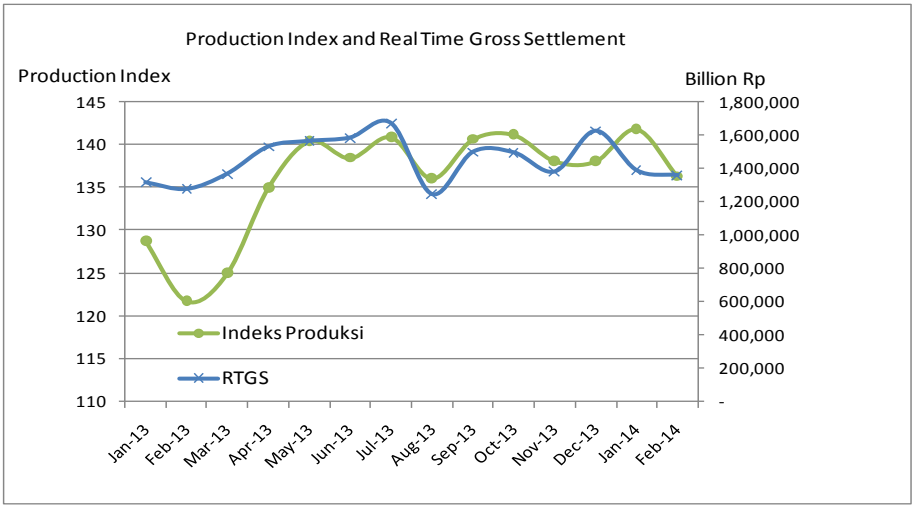
Retail Sales Index, Cartal Circulation, and Card Payment

Graph 4



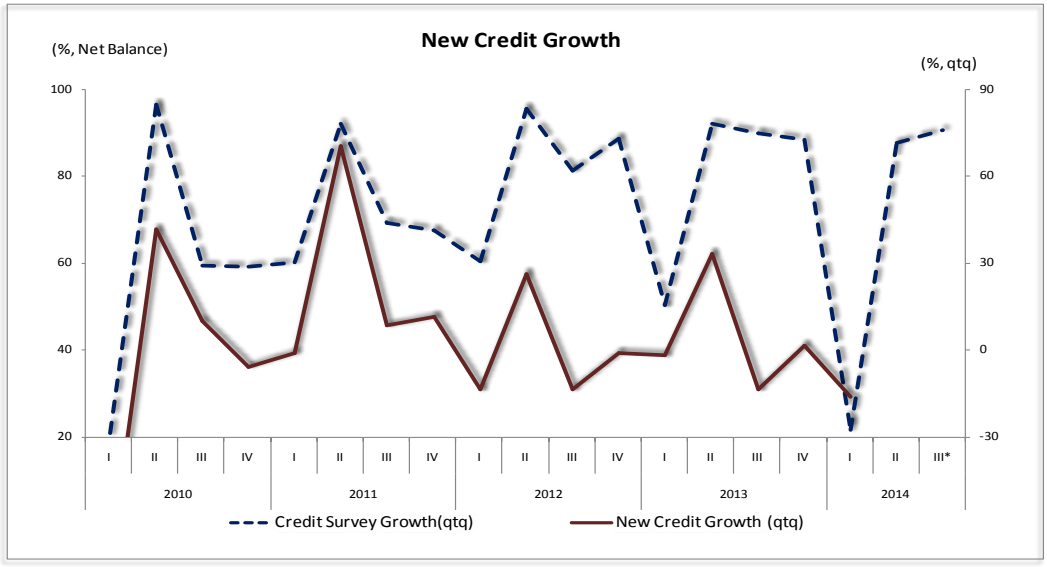
Production Index and Real Time Gross Settlement

Graph 5



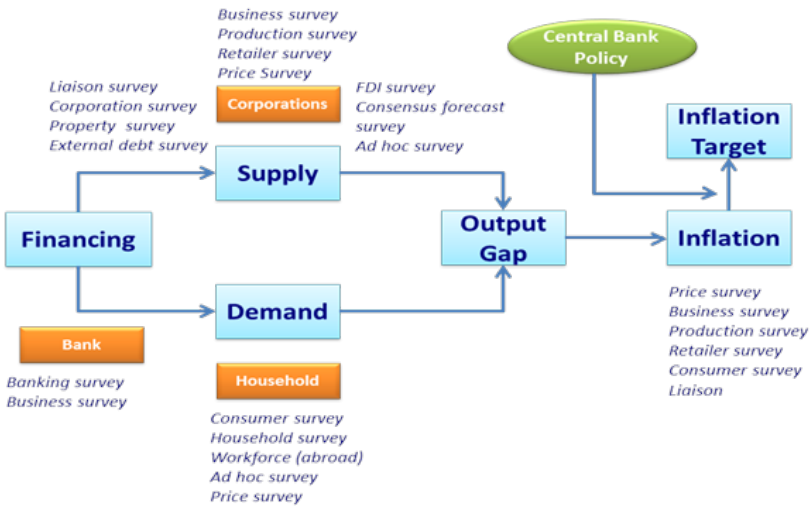
Credit Growth (Banking survey) and New Credit Growth

Graph 6



The role of surveys in policy formulation

Diagram 3



4.3 Bias, error, and challenge in survey

It is unavoidable that there are always errors and biases in the surveys, either sampling error or non sampling error. Nonetheless, Bank Indonesia always tries to minimize the error by evaluating the survey and its result periodically. Weaknesses and challenges among others are low response rate, bias sampling, discontinue response of panel data respondents, refusal, misinterpret questionnaire, and bias

answers. Even though, there is a legal basis in the act of central bank for the surveys undertaken, hitherto there are a lot of refusal and discontinued response of respondents both in corporations and consumers. Central bank has no authorities to penalize or enforce respondents to participate in the surveys.

In dealing with obstacles in surveys, central bank always makes efforts in building engagement with the respondents. The most difficult thing is in maintaining the panel data of the survey. To fill the missing respondents of panel data, central bank always replaces respondents to persistently maintain appropriate structural sampling. Inappropriate respondents in panel data might also create biases in results. Therefore, Bank Indonesia refreshes the respondents periodically, particularly respondents with high bias result.

In building engagement with respondents, Bank Indonesia gives souvenirs as the appreciation of participation in the surveys. Periodically, Bank Indonesia arranges respondents meeting to communicate directly and gains some insights for survey improvement. Moreover Bank Indonesia always publishes the surveys in the websites so that respondents -especially corporations- could guess their position in the market compare to their competitor position in general. Nonetheless, there are always biases as the consequences of sampling error. This is attributable to the incorrect classification, false group of respondents or error in structural sampling design. Beside error in sampling, furthermore, unsatisfied result could be originated from misinterpret questionnaire by respondents.

Challenges has not just come from the current surveys, but also from the requirement of international needs such as Data Gap Initiative (DGI) recommendation in the G-20 countries commitment. This includes among others are the property price and full sequence account of sector, particularly household and corporation. To fulfill the commitment in Data Gap Initiative recommendation, Bank Indonesia develops surveys as the tools to acquire the data needed. The surveys include, inter alia, corporations, households, and property surveys. The demand of data needed by central bank and international database commitment becomes more granular. This could be understood given that the state of economy becomes more dynamic and more specific issues entrenched in it.

In addition, errors could be arisen from the inappropriate methodology. For instance, in the calculation of business index which is designed to track the gross domestic product is based on all sector productions including goods and services. As the value added calculation of services production is different to goods production, the base of index calculation of services should also be calibrated analog to gross domestic production calculation. Moreover, economy structure has been changing continuously; hence the weight of each sector has also been varying. Consequently, weights of sectors in surveys should also be reviewed from time to time.

The strategy to build strong and cohesive relationship with the respondents, either enterprise or household has been developed. It is acknowledged that the binding of Bank Indonesia with the respondents of the surveys is still in the mediocre level. Notwithstanding, Bank Indonesia keeps trying to fasten the relationship with the expert in consensus forecast survey by organizing focus group discussion occasionally. In addition, Bank Indonesia also holds workshops to educate and to appreciate corporations as respondents, and to explain the importance of surveys for the central bank policy as well as for the corporations in doing the business.

5. Conclusion

Lag in macroeconomic indicators release has made central bank in difficult position of discovering the real state of current economic condition. This has generated some limitations in accuracy of predicting future state of economic to set up appropriate policy. Furthermore, the indicator and forecasting in numbers could not fully describe the factual activities of economic agents, their expectation, and their action plan. To overcome this impediment, central bank needs to do nowcasting, among others by doing the surveys to obtain data and information of current economic circumstances and expectation of economic agents. Thereafter, central bank could track the real path of economic state and make economic state prediction in the short run.

By conducting surveys as economic intelligence, central back could get more insights in the trend and cycle of current economic condition, as well as inflation path to drive the inflation movement into the corridor of central bank target band. It is proven that surveys could become powerful sources of information to confirm the state of the economy and acquire the factual issues as well as the explanation behind the numbers.

Surveys have been admitted to be useful in providing enriched information to the economist to assess the economic condition for the policy decision process. Bank Indonesia has conducted survey since 1993, and developed its varieties up to seventeen surveys currently. Nevertheless, central bank still faces challenges in improving the quality and the accuracy of its surveys as the measurement of the real state of the economy as well as economic projection. There are many parts of the surveys that have to be improved. These among others are inappropriate sampling in group and quantity, improper methodology, and the utilization of surveys.

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