Discussion on

The Relevance of Micro Data for Evidence-Based Policies

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Microeconomic data have open the eyes of economists to **diversity and heterogeneity** of economic life. They have enabled economists to **understand more fully** a vast array of social problems. Those who initiated the extensive collection of microeconomic data deserve our gratitude.

-James J. Heckman(JPE, 2001)-

Survey Measurement of Heterogeneous Probabilistic Expectations

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Survey Measurement of Heterogeneous Probabilistic Expectations

I. Main argument and Recommendations of Manski's Paper

❖ **Emphasize the value of the survey eliciting heterogeneous probabilistic expectations. The information on individual uncertainty would be very useful to predict economic actors' behavior.**

✓ **Dr. Manski(2014) pointed out the responsibility of statistical agencies for providing information on uncertainty behind official statistics.**

⇒ **Point estimates can lead users to misinterpret it as error-free. He recommends reporting interval estimates to remind the public of the potential error.**

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❖ **Recommendations for the survey**

- ✓ Statistical organizations commissioning forecasts should not ask for point predictions in the SPF and similar surveys. Instead, they should elicit probabilistic expectations and derive measures of central tendency and uncertainty.

- ✓ Interpretation of the temporal variation in aggregated predictions can be problematic when forecasters are heterogeneous and panel composition changes over time.

- ✓ Analysis of the time series of the probabilistic forecasts made by individual forecasters is necessary.

- ✓ Suggested use of the subjective median and interquartile range. Plot showing the subjective median (IQR) of each forecaster clearly portrays the heterogeneity of forecasts at a point in time.

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II. Heterogeneity in Inflation Expectations

Why heterogeneity in inflation expectations is important?

❖ **Economic expectations are crucial in determining economic activity as they affect economic decisions of consumers, businesses and economic policy makers.**

  ✓ Mankiw, Reis, and Wolfers(2004): Disagreement among individual economic agents about inflation expectations can explain the macroeconomic dynamics.

❖ **Central banks need to understand the process of inflation expectation formation of the agents, and thus they should know what factors drive heterogeneity in households' inflation expectations and how to influence expectations formation.**

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II.   Heterogeneity in Inflation Expectations (cont.)

How household expectations are formed

❖   Rational expectations assumption on private agents' expectations has been criticized because it does not resemble the real world.

✓   Ample empirical evidences on inflation expectations suggest the assumption of homogeneity is not valid.

⇒   Not everyone has the same expectation.

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II.   Heterogeneity in Inflation Expectations (cont.)

How household expectations are formed

❖ **Three different roots of heterogeneity have been traditionally explored in the literature.**

   ✓ First, households do not forecast future inflation based on the same information sets (Branch, 2004, 2007; Mankiw, Reis, and Wolfers, 2004).

   ✓ Second, households do not entail the same capacity to process information (Branch, 2004, 2007; Mankiw, Reis, and Wolfers, 2004).

   ✓ Third, households do not employ the same model (Carroll, 2001, 2003; Mankiw and Reis, 2002)

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II. Heterogeneity in Inflation Expectations (cont.)

How household expectations are formed

❖ Socio-demographic backgrounds influence forming the individual's expectations.

Inflation Expectation by Demographic Groups
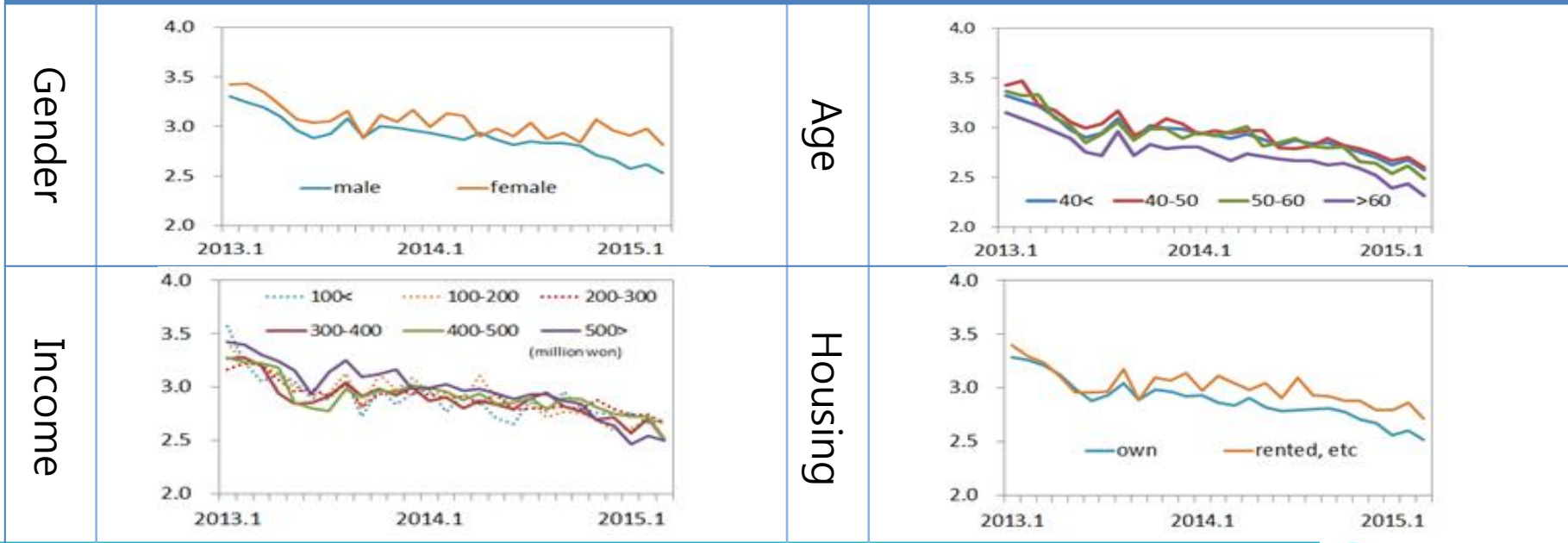
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III.   Questions and Comments

1.   Issues on surveying individual's probabilistic expectations

❖ **Manski et al.(2009) suggested that the general public are willing to and able to give probabilistic responses with high response rates and assessed probabilities adding up to 100%. This study is based on web-based surveys to RAND's American Life Panel(ALP).**

   ▪ Many CB's Survey of inflation expectation for consumers in emerging countries is conducted through mail-based system with simple worded self-administrated questionnaire.

⇒ **Can the methods of data collection (e.g. mail phone fax, internet, e-mail) make a difference?**

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III. Questions and Comments

1. Issues on surveying individual's probabilistic expectations (cont.)

❖ **Environment for economic survey has become worse. High non-response rate with refusal to answer causes a big problem.**

- In general, probabilistic questions are time demanding and tend to cause high cognitive load to respondents.

- Long list of questions and lengthy wording such as asking respondents to assign probabilities may cause refusal to answer.

⇒ Do diversity of survey environments and wording difference across countries affect your findings on probabilistic inflation expectations?

❖ With individual's bias for inflation expectations, which is common to many developing countries, can we believe their quartile like IQR?

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III. Questions and Comments

2. Are point estimates on Macroeconomic variables useless?

❖ **In recent years density forecasts have taken center stage in policy-based economic forecasting, especially for forecasting inflation. (e.g. BOE's Fan Chart).**

- Engelberg et al.(2009) drew the conclusion that: ... point predictions may have a systematic, favorable bias. ...agencies who commission forecasts should not ask for point predictions. Instead, they should elicit probabilistic forecasts...

- However, the latest assessment of the BOE's Fan Chart (2015) showed: Formal statistical tests ... suggested that the fan charts have not tended to provide an accurate guide to the eventual distribution of UK GDP growth and inflation outturns. That may reflect a tendency ... to understate the probability of especially low outturns for GDP growth, and of especially high outturns for inflation.

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III. Questions and Comments

2. Are point estimates on Macroeconomic variables useless? (cont.)

❖ **Clements(2012)**: argue that a role remains for eliciting directly-reported point predictions in surveys of professional forecasters through the lens of a Bayesian learning model.

❖ **In practice, economic policy makers demand point estimates of GDP growth rates and Inflation rates.**

✓ **Manski(2014)**: BEA Reporting practice of GDP Growth has been to report estimates without accompanying measures of potential error.

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2.   Are point estimates on Macroeconomic variables useless? (cont.)

⇒ BEA staff explains "Given that BEA routinely revises its estimates during the course of a year, one might ask why BEA produces point estimates of GDP instead of interval estimates. . . . Although interval estimates would inform users of the uncertainty surrounding the estimates, most users prefer point estimates, and so they are featured"

❖ In accordance with recommendation of IMF and OECD, advanced statistical agencies regularly conduct Revision Analysis of National Accounts and open it to the public to maintain reliability of the statistics.

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III.   Questions and Comments

2.   Are point estimates on Macroeconomic variables useless? (cont.)

❖ In time series analysis, provision of standard deviation or IQR may confuse users.

❖ For example, let the GDP growth rate be 1.7% in 1st quarter. If the forecast value of GDP growth rate for 2nd quarter is 2.5% and the corresponding IQR is 1.5%p, then what is the information on the speed of growth?

⇒ Acceleration or Deceleration on aggregate economic activity?

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III. Questions and Comments

3. Aggregation of heterogeneous individual uncertainties.

❖ **The figures in the paper show that subjective IQRs can be revised and the direction and magnitude are very heterogeneous across individuals.**

  ✓ If we just average up those IQRs, then we will lose information on individual distribution.

  ✓ Tracing the heterogeneous subjective distribution would be very hard task for policy makers.

⇒ **Generally accepted method of aggregating heterogeneous probabilistic expectations need to be provided.**

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IV. Concluding remarks

❖ Expectation measurement remains an important subject in economics, especially for central banks at this age of high uncertainty.

❖ Although lots of efforts have been put towards improving survey measures in recent times, more effort is needed to increase the response rates and develop an advanced survey methods.

❖ Official statisticians should strive to provide clear and detailed information on uncertainty of statistics to maintain user's trust.

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IV. Concluding remarks (cont.)

❖ With emphasis on evidence-based policy, policy makers are demanding more timely and realistic data.

  ✓ Statistical agencies in many countries are struggling with insufficient budget and manpower.

⇒ Strengthening statistical capacity is an important prerequisite for making better policy.

Recent Experience on
Inconsistency between Micro and Macro Data (Korea)

I.   Recent Movement of Manufacturing Production

II.   Major Factors of the Inconsistency

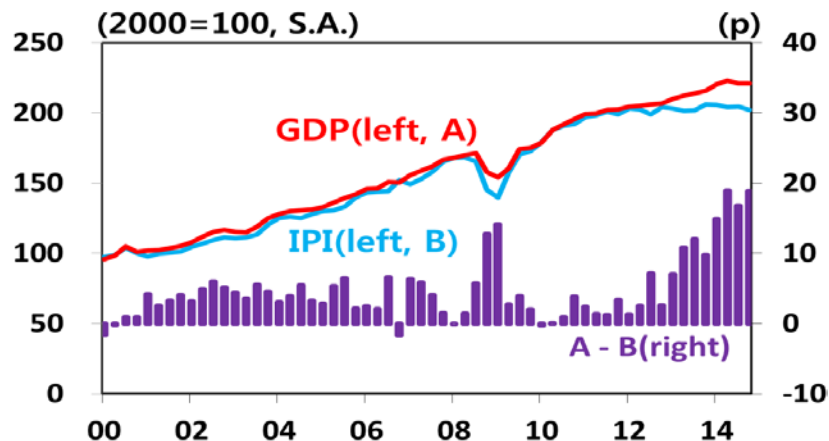III.   Factors Decomposition of the Difference

IV.   Implications

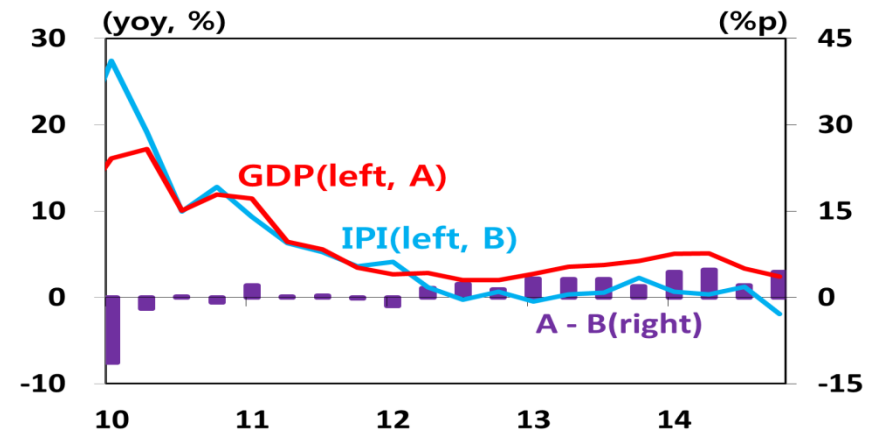# Recent Experience on Inconsistency between Micro and Macro Data (Korea)

I. Recent Movement of Manufacturing Production

❖ **The discrepancy between Manufacturing Industry's Value added (from National Accounts) and Industrial Production Index (from Firm-level survey) has been widened since 2012.**

  ✓ Two important economic indicators recently show different signals.

⇒ **This discrepancy caused disagreement on economic condition among policy makers.**

Manufacturing production(GDP vs IPI)	Manufacturing Production Growth Rate(GDP vs IPI)

II.   Main Reasons of the Inconsistency

❖   This inconsistency has been mainly attributed to different statistical treatments of sharp increase in electronic products, such as smart phone production.

❖   Differences in Statistical Method between GDP and IPI;

①   Concept of Production

- ✓   GDP : measured by value added.
- ✓   IPI : based on output (quantity)

⇒   When the Value add ratio increases, due to technology improvement, etc., GDP growth rate exceeds IPI increasing rate.

II.   Main Reasons of the Inconsistency

② **Deflation Method**
- ✓ GDP : Nominal Value deflation (quantity + quality)
- ✓ IPI : Quantity extrapolation

⇒ *When the production of items with significant improving quality increases faster, GDP growth rate is higher than IPI increase rate.*

③ **Weighting Methodology**
- ✓ GDP : chain-weighted method.
- ✓ IPI : fixed-weighted method.

⇒ *With Implementation of Chain-weighed method in National Accounts, high-growth Industry's weight has become larger than that of IPI as time passed from the reference year.*

④ **Applying the 2008 SNA guideline in the GDP**
- ✓ International production(i.e. merchanting and goods sent abroad for processing) and R&D are included in the GDP

⇒ *Difference of coverage between GDP and IPI is expanded.*

III. Factors Decomposition of the Difference

❖ **The results show that the effect to reflect the quality change and more relevant weight method (Deflation Method and Chained Weighted Method) has been the largest reason to cause the discrepancy between two indicators since 2012.**

✓ Another noticeable point is that the effect of including international production has recently increased due to slowdown in Chinese processing industry since second half of 2014.

Decomposition of Factors of the Growth Rate Difference between GDP and IPI in Manufacturing Production Growth Rate
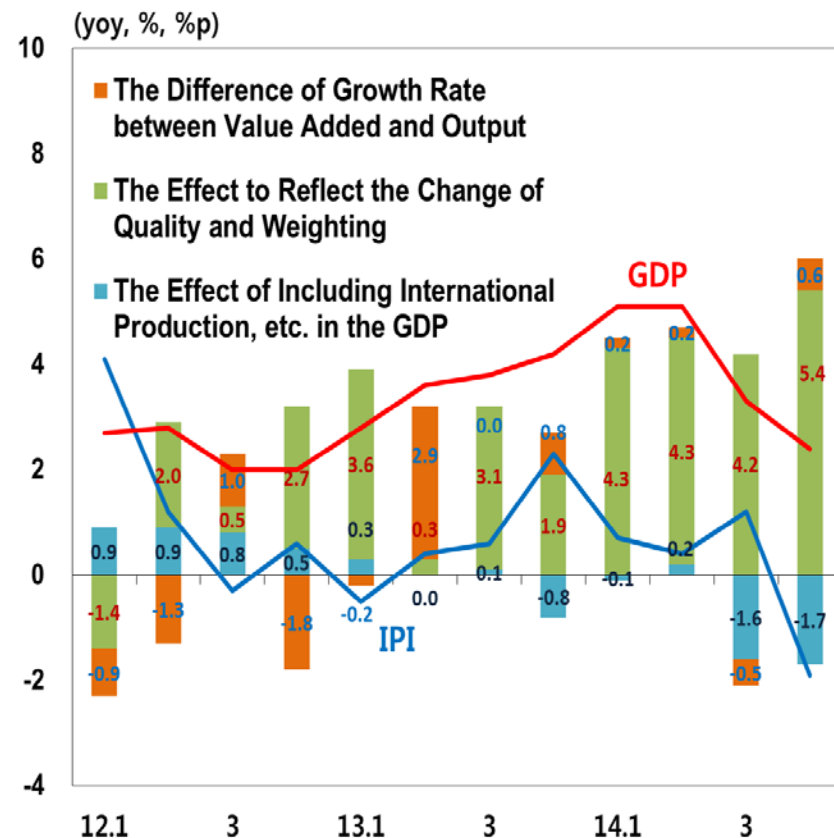
IV.   Implications

❖ **Inconsistency between Micro and Macro economic data may confuse economic policy makers and public in evaluating economic condition.**

  ✓ **Distorting or interpreting data to suit their position and interest.**

  ✓ **Official statistician feel communication burden with non-specialist and public on statistical issues.**

⇒ **For users, it is crucial to better understand the statistical difference between Micro and Macro economic data.**