

Boxes

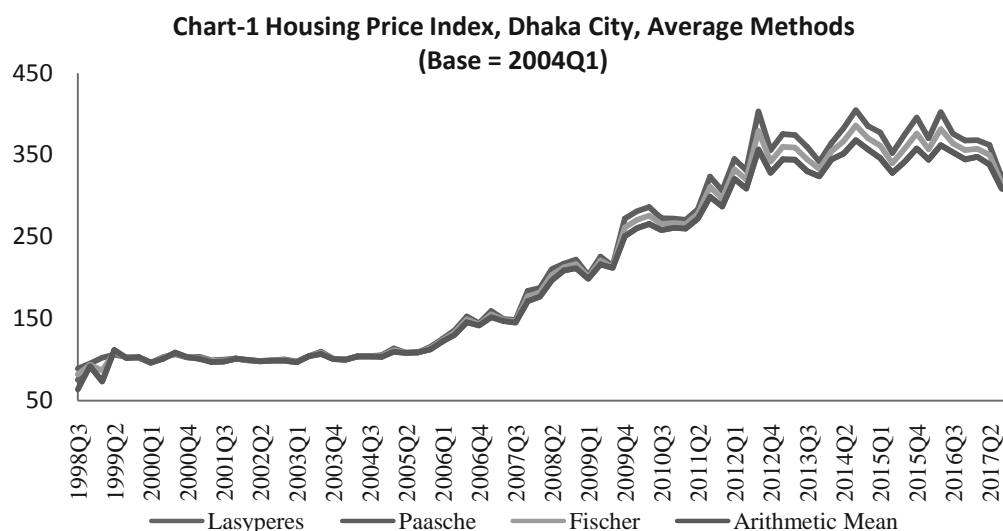
Box-1

Estimating a Housing Price Index¹

Real estate prices have important implications for macro-financial stability. Real estate is generally the predominant form of collateral used in the financial system in most developing and emerging market economies. Its price therefore serves as a key input to macro-prudential and other financial sector policies. It is also used as a leading indicator of financial stability risk buildup during periods of high credit growth and asset bubbles. The importance of tracking real estate prices is therefore well appreciated by the policymakers and regulators all over the world.

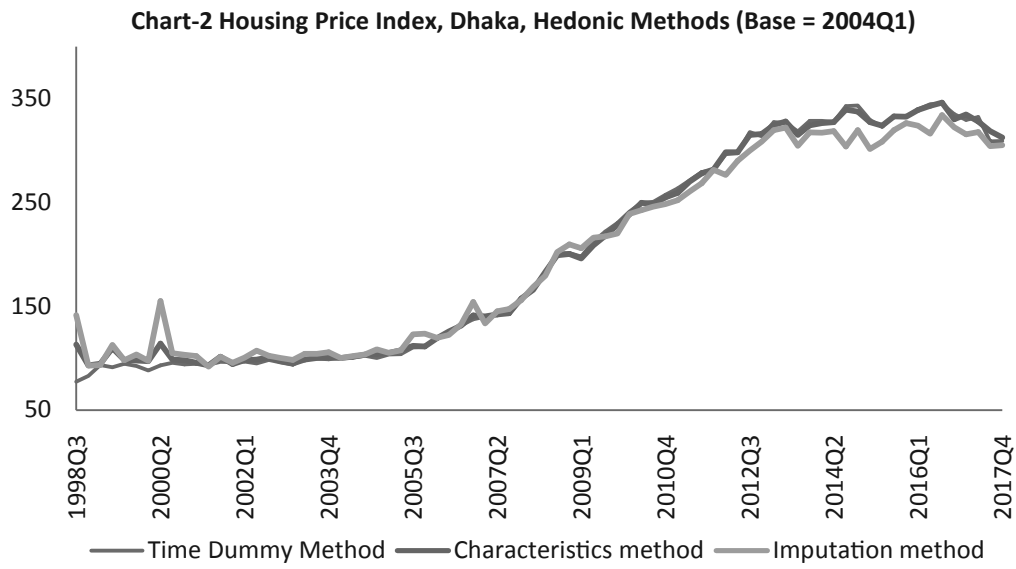
Real estate sector in Bangladesh has expanded rapidly over the last decade, supporting investment, growth, and job creation. Real estate also constitutes a large part of household balance sheet. In recent years, financial institutions are increasing their mortgage and other real estate-related lending. Therefore, fluctuations in house prices have macro implications through private consumption, residential investment, and credit allocation of the financial systems. In this context, it is important to get a reliable estimate of house price movements.

In order to gauge the price movement in the real estate market, Bangladesh Bank has undertaken a study to construct a housing price index (HPI). The study uses secondary data (1998Q3-2017Q4) from the mortgage lending by Delta Brac Housing Corporations Limited (DBH). The weighted average price index is calculated by using various methods: Laspeyres, Paasche, and Fischer weighted average methods and the hedonic regression method (Chart 1 and 2).



Source: Delta Brac Housing Corporations Limited; Authors' calculation.

¹The study has been led by a team comprising of Mst. Nurnaher Begum, Deputy General Manager of Research Department, Mohammad Shahriar Siddiqui, Deputy General Manager of Financial Stability Department, and Sadia Sultana Deputy Director of Monetary Policy Department, Bangladesh Bank, respectively.



Source: Delta Brac Housing Corporations Limited; Authors' calculation.

Chart 1 and Chart 2 show the HPIs for Dhaka city using various estimation techniques. The HPI is quite robust to various methodologies and the price movements reveal that prices increased rapidly during 2006-12 and then moved largely sideways in recent years.

Box-2

Estimating Output Gap in Bangladesh^{2,3}

Output gap, the difference between actual output and potential output, is commonly used to measure the business cycle position of an economy. Potential output is generally defined as the amount of output that can be produced with maximum level of resource utilization or full employment level without creating any upward inflationary pressure. In the short run, actual output may deviate from the potential level due to shocks.

Macroeconomic stabilization policies are mainly aimed at minimizing business cycle fluctuations. Output gap contains important information about near-term inflationary pressure. Positive output gap (when actual output is higher than the potential) implies that the economy is overheating because of excess aggregate demand in the economy, creating inflationary pressures. On the fiscal side, output gap helps forecast the budget balance. Government revenue heavily depends on income which fluctuates with business cycle. On the other hand, the bulk of the government expenditure is largely unaffected by the business cycle (except social security expenses). Consequently, budget balance tends to improve during economic boom and worsen during recession. Both monetary and fiscal policy reaction functions therefore take into account the current cyclical position of the economy and the success of these policies crucially hinges upon the correct identification of current output gap.

Unfortunately, neither potential output nor output gap is directly observable and hence need to be estimated. Although a plethora of studies on output gap is found in the context of advanced economies, existing literature is relatively small for developing and emerging market economies. There has been very limited work on the potential output in Bangladesh. This note summarizes a preliminary estimate of the output gap in Bangladesh based on the data for 1982-2017.

Two popular method of estimating potential output and output gap are: first, extracting the trend and the cycle from actual output by using pure statistical methods (e.g. filtering); and, second, projecting the underlying drivers of output (e.g. labor, capital and productivity). In this exercise, we estimate potential output and output gap for Bangladesh using various statistical methods: (i) Hodrick-Prescott (HP) filter, (ii) Band Pass (BP) filter, (iii) Univariate Unobserved Component (UC) model and (iv) Multivariate Unobserved Component (MUC) model. The choice of methods is partly dictated by data availability. The HP and BP filters are univariate methods. The univariate statistical methods decompose actual output into a trend (generally considered as potential output) and residual series (output gap) using information available solely in actual output. In case of HP filter, the variation in the derived trend component depends on the size of the smoothing parameter (λ). A higher value of λ generates a smoother trend (potential output) and, hence, more volatile output gap. For annual data, we use three alternative values for λ , such as 100, 30 and 6.25 in this paper, suggested by Backus and Kehoe (1992), Ravn and Uhlig (2002) and Boije (2004), respectively. Both the HP and BP filters suffer from the “end-sample bias”. To tackle this problem we have extended the sample period upto 2022 by adding five-year-ahead forecasts of real GDP published in IMF’s World Economic Outlook, October 2017.

The Unobserved Component model estimates unobserved or latent variable (e.g. potential output and output gap) using the information available in observed variable (e.g. actual output) assuming a structure of relationship among the observed and unobserved variables. Once the model is specified in the state space form it can be estimated using Kalman filter. The Unobserved Component model can be used in both univariate and multivariate contexts. In the univariate setting, Kalman filter estimates potential output and output gap based on the information available only in actual output. A simple UC model that has been used in this paper has following state space representation:

²The note has been prepared by Khan Md. Saidjada, Joint Director, Chief Economist's Unit, Bangladesh Bank

³A detailed version of this paper will be available in the "Monetary Policy Review", 2018 (forthcoming), Bangladesh Bank

$$y_t = \bar{y}_t + \hat{y}_t \quad \text{(Measurement Equation)(1)}$$

$$\hat{y}_t = \gamma \hat{y}_{t-1} + \varepsilon_t \quad \text{(State Equation)(2)}$$

$$\bar{y}_t = g_t + \bar{y}_{t-1} + \eta_t \quad \text{(State Equation)(3)}$$

where y_t , \hat{y}_t , \bar{y}_t and g_t are actual output, output gap, potential output and long-run output growth respectively.

On the other hand, MUC model includes additional economic variable and/or theoretical relationship which acts as supplemental sources of information for estimating output gap. For example, inclusion of inflation in the model helps identify output gap more accurately through the Phillips curve relationship. Consequently, MUC model gives more reliable estimate of output gap than univariate estimate. In this paper, the following Phillips curve equation has been added to the above state equations:

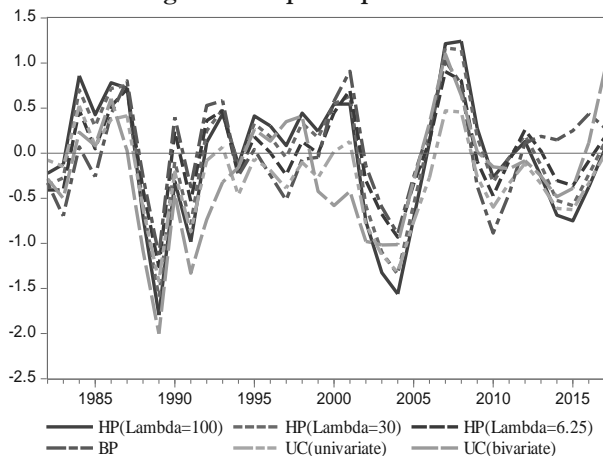
$$\pi_t = \alpha \pi_{t-1} + \beta \pi^e + \delta \pi_t^* + \theta \hat{y}_{t-1} + \varepsilon_t^\pi \quad \text{(State Equation)(4)}$$

where inflation in current period depends on inflation in previous period (π_{t-1}), inflation expectation (π^e), global commodity price inflation (π_t^*) and lagged output gap (\hat{y}_{t-1}). In this equation, global commodity price inflation (π_t^*) controls the impact of foreign inflation on domestic inflation.

Estimation results are presented in Figure 1. Although the output gap estimates vary considerably depending on the methods and specifications, they are strongly correlated. All estimates consistently point to a moderate negative output gap around 2015 which close afterwards (except the BP filter that suggests the existence of positive output gap since 2013). A composite estimate of output gaps has been formed combining all estimates using principle component analysis (Figure 2). This composite estimate points to some positive output gap in 2017.

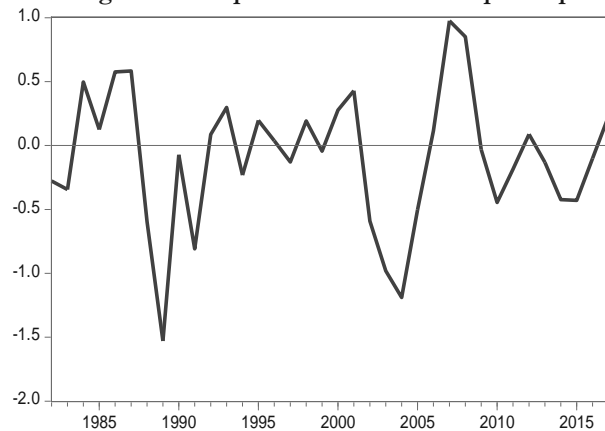
The concept of output gap has important policy implications since positive output gap indicates the need for cautious monetary policy. That said, given data limitations, the estimate of output gap needs to be weighed in along with other macro indicators of capacity utilization while forming a views on the phase of the economy. Since the BP filter based output gap has negative contemporaneous correlated with inflation, it has not been considered in the construction of composite output gap.

Figure 1: Output Gap Estimates



Source: Author's Calculation

Figure 2: Composite Estimate of Output Gap



Source: Author's Calculation

Annexure

Chronology of Major Policy Announcements: October-December, 2017

<p>FEPD Circular Letter No. 15 8 October, 2017</p> <p>Arrangement to collect payment against foreign payment instruments.</p>	<p>To facilitate smooth repatriation of wage earners' remittances, banks are directed to accept emolument like retirement benefits, death benefits, insurance payments etc through normal banking channel with different types of instruments like cheque, foreign demand draft, etc. In case of incapability for some valid reasons beneficiaries should be informed in written form with a copy to Bangladesh Bank.</p>
<p>FEPD Circular No. 36 9 October, 2017</p> <p>Inclusion of export oriented jute products manufacturing industry in Green Transformation Fund.</p>	<p>Manufacturers of export oriented jute products can also avail of foreign currency loans from Green Transformation Fund (GFT) for importing capital machinery & other accessories along with eligible textile & leather product exporters.</p>
<p>FEPD Circular No. 37 15 October, 2017</p> <p>Import and Export of currency notes.</p>	<p>From now, one can carry Bangladeshi Taka ten thousand in cash instead of previous Taka five thousand on arrival to or departure from Bangladesh.</p>
<p>ACD Circular No. 03 22 October, 2017</p> <p>Target for Disbursement of Agricultural & Rural Credit and its Implementation for all Private Commercial & Foreign Banks</p>	<p>Bangladesh Bank has revised the provision for loans and advances in agriculture and rural sector based on the demand for credit at the field level, ability and efficiency to disburse credit in this sector, total loans and advances of the bank and the target for the previous year for all private and foreign commercial banks.</p>
<p>SMESPD Circular Letter No. 03 30 October, 2017</p> <p>Grace Period for the Entrepreneurs' of Cottage, Micro & Small industry sector for the sanction of current loans and recovery for Short, Medium & Long Term Loans</p>	<p>Based on the banker customer relationship banks and non-bank financial institutions are directed to provided three months grace period against one year tenure loan and 3-6 months grace period for medium and long term loans in the cottage, micro & small entrepreneurs specially the women entrepreneurs. In this regards the grace periods should be treated as an extra tenure of loans.</p>

<p>FEPD Circular Letter No. 16 01 November, 2017 Long Term Financing Facility (LTFF) under the Financial Sector Support Project (FSSP)</p>	<p>Bangladesh Bank (BB) has revised the interest rate for the Long Term Financing Facility (LTFF) regarding the Financial Sector Support Project (FSSP). Now banks would pay interest at a rate between 2.0 percent and 3.0 percent in excess of LIBOR (London Inter Bank Offered Rate) for the tenures of five to ten years.</p>
<p>PSD Circular No. 06 05 November, 2017 Instructions Regarding Mobile Financial Services</p>	<p>Customers of Mobile Financial Services (MFS) can maintain outstanding balance of maximum Taka three lakhs in their mobile financial account from the beginning of 2018.</p>
<p>BRPD Circular No. 16 06 November, 2017 Code of Conduct for Banks & Non-Bank Financial Institutions</p>	<p>Banks and Non-bank financial institutions (NBFIs) must have to prepare their own code of conduct in line with the Bangladesh bank issued Code of Conduct. Banks and non-bank financial institutions (NBFIs) are instructed to follow the Code of Conduct from January 2018.</p>
<p>FID Circular No. 01 15 November, 2017 Refinance fund for development of cottage, micro, small & medium Industries.</p>	<p>A refinance scheme equivalent to USD 240.0 million has been formed with the financial support of Asian Development Bank and the People's Republic of Bangladesh to enhance the financial services to cottage, micro, small & medium Industries.</p>
<p>FEPD Circular No. 40 15 November, 2017 Family Remittance facility for foreign nationals who are resident in and have income in Bangladesh.</p>	<p>Foreign nationals who are resident in and have income in Bangladesh are permitted to make monthly remittances to the country of their domicile out of their current savings up to 75% of their net income as per declaration by them in the prescribed application form.</p>

<p>FEPD Circular No. 42 29 November, 2017</p> <p>Application of Bangladesh Investment Development Authority Act, 2016 for remittance on account of payment of royalty, fees for technical knowledge or technical assistance and franchise fees</p>	<p>Authorized Dealers shall be observed the following instruction before execution to outward remit payments of royalty, technical knowhow or technical assistance fees, operational services fees, and marketing commission etc.</p> <ol style="list-style-type: none"> a. Ensure that the authority for remittances as per approval letter issued by Bangladesh Investment Development Authority (BIDA) b. Satisfied that applicable taxes payable on remittable amounts have duly been deducted and paid. c. Satisfy the genuineness of the relevant documents and immediately contact with BIDA in case of any doubt. d. To preserve customer-wise documents for eventual examination by Bangladesh Bank inspection team and shall report the transactions to Bangladesh Bank.
<p>FEPD Circular No. 18 16 November, 2017</p> <p>Matching of Bill of Entry (ies)/ Certified invoice(S)</p>	<p>It has been decided that Authorized Dealer (ADs) on behalf of importers who has failed to submit the bill of entry/certified invoices within stipulated or the allowed extended period may open new LCs as the tune of up to USD 200 or equivalent to other foreign currencies without prior approval of Bangladesh Bank.</p>
<p>SFD Circular Letter No. 6 30 November, 2017</p> <p>Regarding expenditure for training to develop the efficiency of wage-earners and opening & maintenance of wage-earners' bank account under Corporate Social Responsibility activities to increase the foreign remittance.</p>	<p>In order to increase the foreign remittance inflow, all scheduled banks are directed to allocate expenditure for the purpose of training to develop the efficiency of wage-earners and opening & maintenance of wage-earners bank account under Corporate Social Responsibility (CSR).</p>

<p>BRPD Circular Letter No. 11 10 December, 2017</p> <p>Refinance fund for agro-processing, small enterprise, renewable energy and environment-friendly ventures for the Islamic Banks and Financial Institutions.</p>	<p>Bangladesh Bank has revised Islamic Refinance Fund Account which has been formed for agro-processors, small enterprise, renewable energy and environment-friendly ventures. Islamic banks and Financial Institutions (FIs) can invest the fund for one year instead three months. The fund will return to the Bangladesh Bank every year including profit in the cumulative installments.</p>
<p>DMD Circular No. 04 27 December, 2017</p> <p>Active participation of all Authorized Dealer (ADs) Branches of Scheduled Banks regarding issue/re-issue of WEDB, USDIB & USDPB.</p>	<p>In order to easing investment of foreign remittance in WEDB/DPB/DIB, All Authorized Dealer (ADs) Branches of Scheduled Banks are advised to take necessary steps for active participation to issue or re-issue of WEDB, USDIB & USDPB.</p>
<p>FEPD Circular No. 43 14 December, 2017</p> <p>Collection of Demurrage, Detention, Handling or equivalent charges by the foreign shipping lines/ their agents as</p>	<p>In view of scope of wider sources of fund in Bangladesh, it has now been decided that these charges shall be considered for calculation of remittable surplus of foreign shipping lines/their agents working in Bangladesh subject to deduction of taxes and commission. Accordingly the quarterly returns of foreign shipping lines/their agents will be submitted to Bangladesh Bank</p>

Bangladesh Bank welcomes suggestions and comments for improvement of the contents and form of this publication. Comments and suggestions may be sent to:
ezazul.islam@bb.org.bd

Website : www.bb.org.bd

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