



NATIONAL STATISTICAL OFFICE OF MONGOLIA

The Impacts of Weight Changes on Consumer Price Index: A Case Study in Mongolia

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Abstract

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This paper examines the impacts of weight changes on the overall CPI in Mongolia between 2011 and 2016. The CPI weights have been updated once in every five years in Mongolia since 1995. They were most recently updated in 2015. Since 2010, the Mongolian economy has been volatile. Due to this volatility, and other factors, household spending patterns have varied significantly. In this paper, we calculate the weights annually, to try and better capture this volatility. The annual CPI weights are derived from the Household Socio-Economic Survey. Then, these weights fixed for four frequency periods, and four CPI series are calculated. The results show that the four CPI series, which used more frequent weight periods, differ from the existing CPI series, which uses the fixed-five year weight period. This implies that the current practice of fixing the CPI weights for five years has not fully captured the changes in household spending patterns in Mongolia since 2010. We also find that the changes in the CPI between 2011 and 2016 significantly influenced the existing inflation rate.

Keywords: Consumer Price Index, Weight Frequency, Mongolia.

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1 Introduction

Consumer price index (CPI) is an important indicator of changes in the overall price level and the performance of the general economy. It measures the average change in prices of goods and services that resident households purchase over a period. The CPI has many important economic purposes, including calculating the inflation rate, formulating monetary policy, and indexing money indicators, namely wages, pensions, income, and social benefits. The CPI is calculated from the goods and services that resident households purchase (known as the household consumption basket or the shopping basket) and the weight of the individual goods and services, which reflect their relative economic importance to households. Households preferences and economic conditions change over time, so household spending patterns are also expected to change. In order to reflect these changes in the CPI, both items and their weights used in calculating the CPI are recommended by the International Labor Organization (ILO) to be updated at least once in every five years (ILO, 2004). The consequence of not updating the CPI weight frequently is that the CPI is likely to be misrepresented as it fails to capture the changes in household spending patterns over time. However, countries vary in how often they update the items and weights, and there is no consensus on how the frequency of updating the weights affect the CPI. The frequency in which CPI weights are updated has mixed effects on the CPI. In some countries, the CPI weights barely influence the CPI (Adriani, Marini, & Scaramozzino, 2011; Eurostat, 2001; Census and Statistics Department of Hong Kong, 2012), while in other countries they have a significant influence on the CPI (Schmidt, 1993, Yocum, 2007; Rahman, Akhtaruzzaman, & Kashem, 2009; Akem & Bradley, 2014).

The National Statistical Office of Mongolia (NSO) has been calculating the CPI in accordance with the CPI methodology recommended by the ILO since 1991. In the NSO, the items and weights involved in calculating the CPI are updated every five years, with the latest update being in 2015. International experiences have shown that countries which experience rapid economic changes and greater variation in overall price level and household spending patterns are recommended to update the CPI weights frequently as possible, preferably annually (ILO, 2004). Frequent updates of the CPI weights ensure that the CPI weights are up-to-date and relevant for the CPI

calculation. The Mongolian economy has been volatile since 2010, caused by both internal and external factors including political instability, price falls of major mineral commodities, declines in foreign direct investments, and depreciation of the national currency. The economic volatility can be seen from how economic growth, inflation, and household expenditure have changed in Mongolia since 2010. Therefore, our research question is: Can updating the CPI weights once every five years more accurately capture changes in household spending patterns in Mongolia since 2010?

The purpose of this paper is to examine the effects of updating the CPI weights on the overall CPI by using four different frequency periods (four years, three years, two years, and one year) in Mongolia for the period 2010-2016. The remainder of this paper is organized as follows. Section 2 analyzes the variations of the economic growth, the inflation, and household expenditure patterns. In section 3, we derive the annual CPI weights between 2011 and 2015, and the weights are fixed for four frequency periods to the CPI and calculate the four CPI series. Then, in section 4 the four CPI series are compared with the current CPI, in which the weights are updated every five years. To know the impact on the inflation, we estimate monthly inflation rates by using the four CPI series. Then, the inflation rates are compared with the existing inflation rate which uses the CPI where the weights are updated once in every five years. Finally, section 5 concludes the main findings of the paper and briefly discusses the implications of the results for the CPI calculation in Mongolia in the future.

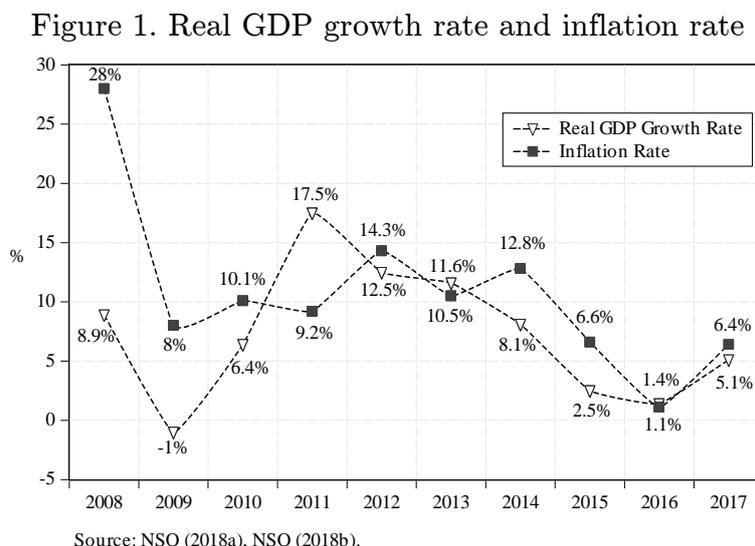
2 Economy and Household Expenditure

This section explains the need for updating the CPI weights more frequently than the five-year period that is currently used in Mongolia. The frequency of updating the CPI weights depends on how household expenditure (spending) patterns change over time. Theoretically, the larger the change in household spending patterns, the greater the need for updating the CPI weights. Household spending patterns are affected by factors such as price level, general economic conditions, income, demographics, purchasing preferences, and product substitution (ILO, 2004). Considering all of these factors is outside of the scope of this paper. Instead, for the purpose of this paper we consider two factors: the price level and the general economic

condition. Part 2.1 analyzes variation in the inflation rate, which refers to the price level, and the growth rate of gross domestic products (GDP), which refers to the general economic performance. Part 2.2 analyzes changes in household spending patterns between 2010 and 2016.

2.1 Economy and Household Expenditure

Since 2009, the Mongolian economy has been volatile. This volatility has been driven by both internal and external factors, including political instability, price falls of major export commodities, and decline in foreign direct investments. Figure 1 below shows the variation of GDP growth and inflation rates in Mongolia between 2010 and 2017.



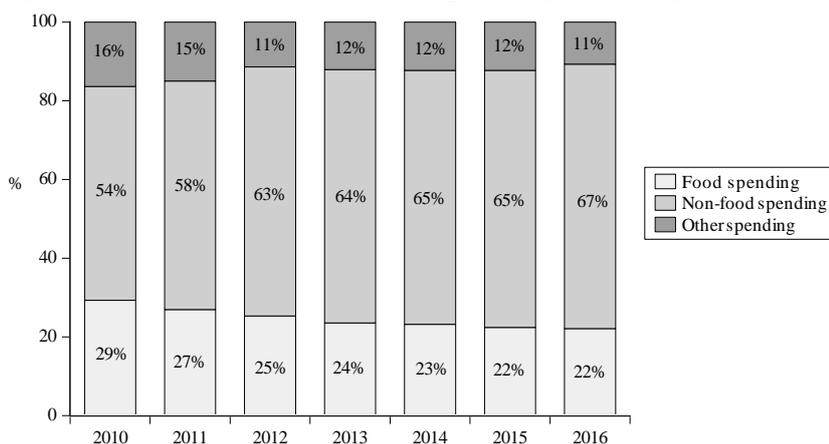
From figure 1, the annual GDP growth rate was -1% in 2009, but it sharply increased to 17.5% in 2011. But, it dropped to 8.1% in 2014 and to 1.1% in 2016. In 2017, however, it increased to 5.1%. This indicates that the Mongolian economy has been significantly unstable, and rapid changes have occurred in the economy in the period 2010-2017. Like the GDP growth rate, the annual average inflation rate also has been unstable. Between 2008 and 2014, it ranged from 9.2% to 28%. However, it dropped largely for the next three years. The annual average inflation rate in 2015, 2016, and 2017 was 6.6%, 1.1%, and 6.4%, respectively. The changes in the annual inflation rate for the

period 2008-2017 indicate that the general price level has moved significantly in Mongolia since 2008.

2.2 Household Spending Patterns

Household spending patterns are usually expected to vary over time. Depending on the stage of economic development, household spending patterns vary differently in countries. Generally speaking, household spending patterns change faster in developing and emerging countries than advanced economy countries (ILO, 2004). Theoretically, households adjust the amount of particular goods and services that they purchase relative to changes in their income and the prices of goods and services. Figure 2 shows household spending patterns in Mongolia between 2010 and 2016 in general categories.

Figure 2. Percent of household spending across general categories



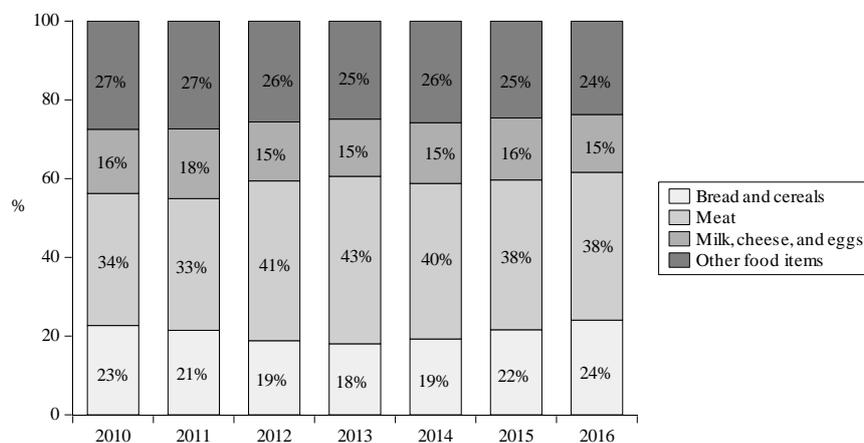
Source: NSO (2018c)

Household spending is split into food, non-food, and other spending, as illustrated in figure 2. For the period 2010-2016, on average a household spent about 25% on food items, 62 % on non-food items, and the remaining 13% on other items per month. In this period, the non-food spending increased significantly as it was 54% in 2010, while it went up to 67% in 2016. The food spending decreased as it was 29% in 2010, yet it dropped to 22% in 2016. Between 2010 and 2016, the spending on other items barely changed and leveled off except the period 2010-2011.

Next, we decompose the food and the non-food spending into general categories, as shown in figure 3 and 4. The figures reveal the

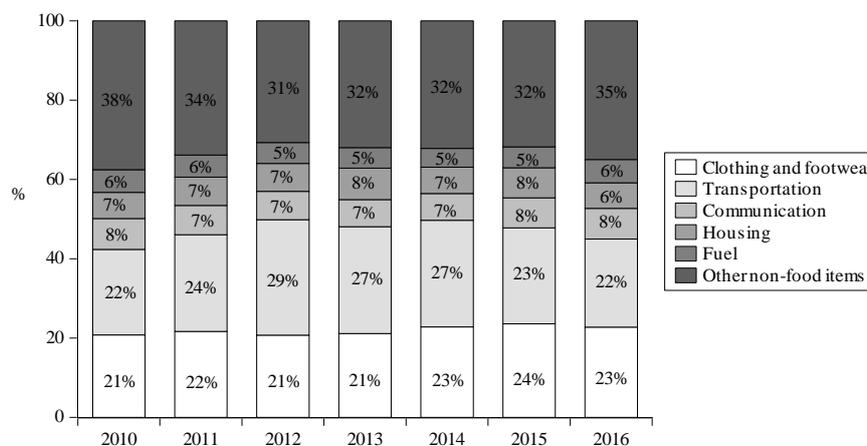
details of how the food and the non-food spending varied over the period 2010-2016. For the food spending, the three broad categories: bread and cereal, meat, and milk, cheese, and eggs make up the largest portion in household total spending. For the non-food spending, clothing and footwear, transportation, communication, housing, and fuel spending account together for the largest portion. Overall, from figure 3 and 4, year-to-year, household spending patterns were not strictly constant and varied greater for the period 2012-2014. Classifications of the categories in figure 3 and 4 can be seen from United Nations Statistical Division (2018).

Figure 3. Percent of household spending on food items across main categories



Source: The NSO internal data

Figure 4. Percent of household spending on non-food items across main categories



Source: The NSO internal data

3 Deriving New Weights

In this section, the new CPI weights are derived from the Household Socio-Economic Survey (HSES), which is an annual survey that has been conducted by the NSO since 1966. Part 3.1 introduces the current practice of the NSO on updating the CPI weights. Part 3.2 describes the data source and the methodology that are used to derive the four CPI weights. Part 3.3 presents the four CPI weights.

3.1 Current Practice of Updating CPI Weights

The NSO has been calculating the CPI in accordance with the ILO recommended methodology since 1991. Between 1991 and 2007, the CPI of the capital city, Ulaanbaatar, used to represent the national CPI. Since January 2008, the CPI has been calculated at nation-wide level. The CPI is calculated using the Laspeyres index formula, which is the most commonly used CPI index formula among statistical agencies around the world.

Currently, the HSES is the data source for updating the items and their weights used in the CPI. The HSES, which is also known as the Household Income and Expenditure Survey (HIES) in other countries, covers around 1.3-1.8 % of the total resident households in Mongolia each year. In even years, it covers around 1.3% (11,000 resident households), while in odd years it covers around 1.8% (16,000 resident households). There is no consensus on the appropriate percent of the coverage of HIES among statistical agencies around the world. Theoretically, the percent of the coverage in the HIES depends on the sampling assumptions, which are likely to vary among statistical agencies.

Between 1995 and 2000, the items in the CPI were divided across 8 different heading groups. As mentioned before, the items and weights in the CPI were updated in 1995, 2000, 2005, 2010, and 2015, respectively. Since 2005, the items in the CPI has 12 different heading groups. The CPI between 2011 and 2016 had 329 items, which were based on the 2010 HSES. While, the CPI in 2017 and 2018 had 373 items. Of these, 344 items were from the capital city and 238 items were from the provinces. Table 1 presents the CPI weights across the 12 heading groups for the period 2005-2015.

Table 1. The CPI weights, at the national level, in percent

	2005 capital	2010 capital	2015 capital	% Change 2010/2005	% Change 2015/2010
Overall CPI index	100.0	100.0	100.0	0.0	0.0
Food and non-alcoholic beverages	41.08	29.30	26.07	-28.7	-10.9
Alcoholic beverages and tobacco	2.26	3.15	4.41	39.1	37.5
Clothing, footwear and cloth	12.38	16.13	16.57	29.8	3.1
Housing, water, electricity and fuels	13.40	12.29	9.32	-8.2	-24.4
Furnishings, household equipment and tools	4.30	4.71	4.94	9.3	4.3
Health	1.62	3.57	3.58	125.0	0.0
Transport	8.71	12.23	14.41	40.2	18.0
Communication	4.05	4.43	4.37	10.0	0.0
Recreation and culture	3.33	2.78	3.08	-15.2	10.7
Education services	4.15	4.73	4.80	14.6	2.1
Restaurants and hotels	1.72	2.58	3.01	52.9	15.4
Miscellaneous goods and services	3.00	4.10	5.45	36.7	31.7

Source: The NSO internal data

From table 1, on average, the weights of food, clothing, housing, and transportation all together make up about 71 percent of total CPI weights for the period 2005-2015. The changes in these weights have the largest impact on the overall CPI. Thus, the weight changes in these groups are our main interest. From 2010 to 2015, the weight of food decreased by 28.7 and 10.9 percent, while the weight of clothing increased by 29.8 and 3.1 percent. The weight of housing dropped by 8.2 and 24.4 percent, yet the weight of transportation went up by 40.2 and 18.0 percent from 2010 to 2015. Similar results are also observed for these weights from 2010 to 2015. This shows that the weights of the major groups greatly varied in each HSES in 2005 and 2015.

3.2 Data Source and Methodology

The CPI weights can be derived from various data sources, including the household expenditure survey, national accounts, retail sales surveys, point-of-purchase surveys, store scanner data, the population census, and a combination of these (ILO, 2004). Depending on data availability and technological capacity, the data source for deriving the CPI weights varies from country to country. In this paper, we use the household expenditure survey, which is equivalent to the HSES for Mongolia. As mentioned in part 3.1, the CPI has had 12 heading groups since 2005. But, in 2005, the CPI of the capital city represented the national CPI. So, for consistency, we use the annual results of the HSES between 2010 and 2015 for deriving the CPI weights.

The Laspeyres index formula is the base-weighted index formula, and it assumes that the items and their weights are fixed over the frequency period, which ranges from one to five years in practice. The general form of the Laspeyres index formula follows as:

$$I_{0n} = \frac{\sum P_{nj} Q_{0j}}{\sum P_{0j} Q_{0j}} * 100 \quad (1)$$

Multiplying both the numerator and the denominator of the right-hand side of the equation (1) by P_{0j} , we get:

$$I_{0n} = \frac{\sum P_{0j} Q_{0j} \left(\frac{P_{nj}}{P_{0j}} \right)}{\sum P_{0j} Q_{0j}} * 100 \quad (2)$$

The equation (2) can be further expanded as:

$$I_{0n} = \sum \left[\frac{P_{nj}}{P_{0j}} \left(\frac{P_{0j} Q_{0j}}{\sum P_{0j} Q_{0j}} \right) \right] * 100 \quad (3)$$

Where, P_{nj} is the price of item j in period n , P_{0j} is the average price of item j in base period 0, Q_{0j} is the quantity of item j in base period 0, P_{nj}/P_{0j} is the price relative of item j between period n and base period 0, $P_{0j}Q_{0j}$ is the spending on item j in base period 0, and $\sum P_{0j}Q_{0j}$ is the spending on the same quantity of item j in period 0.

Equation (3) is used as the standard Laspeyres index formula. But in practice, equation (3) can be transformed into various forms depending on the needs of a specific country. For Mongolia, it is usual that some item prices are not able to be collected because of seasonal factors, business cycles, or administrative units. For such items prices, substitution is essential. According to the 2016 CPI manual of the NSO, the standard Laspeyres index formula is transformed into the following form:

$$I_j^N = \frac{(E_j^1 I_j^1 + E_j^2 I_j^2 + E_j^3 I_j^3 + \dots + E_j^i I_j^i)}{(E_j^1 + E_j^2 + E_j^3 + \dots + E_j^j)} * 100 \quad (4)$$

Where, I_j^N is the national index for item j , E_j^1 is the weight for item j in province 1, E_j^2 is the weight for item j in province 2, E_j^i is the weight for item j in province i , I_j^1 is the price index for item j in province 1, I_j^2 is the price index for item j in province 2, I_j^i is the price index for item j in province i , $i = 1, 2, 3, \dots, 22$ codes for 21 provinces and the capital $j = 1, 2, 3, \dots, 238$ items for 21 provinces, $j = 1, 2, 3, \dots, 344$ items for the capital.

We use equation (4) for calculating the new CPI series. As mentioned earlier, the current practice at the NSO is that the CPI items and their weights are updated once in every five years. This means that the items and their weights are fixed for five years. In equation (4), we fix the weights with four frequency periods, such that fixing the weights for 4 years, for 3 years, 2 years, and 1 year, respectively. The items and the base periods in equation (4) are fixed on the basis of the HSES undertaken in 2010 and 2015, respectively.

3.3 Results of New Weights

The CPI weights are derived following the 2016 CPI methodology at the NSO. The weights are derived by calculating the portions of monthly average total spending of a household on goods and services in the CPI basket. A series of steps are taken for deriving the CPI weights. The details of these steps are not discussed in this paper. Table 2 presents the annual CPI weights we have calculated, which are derived from the annual HSES between 2010 and 2015.

Table 2. The new CPI weights, at national level, in percent

	2010	2011	2012	2013	2014	2015
Overall CPI index	100.0	100.0	100.0	100.0	100.0	100.0
Food and non-alcoholic beverages	29.30	26.04	25.06	29.58	18.70	26.07
Alcoholic beverages and tobacco	3.15	1.16	1.27	1.58	0.81	4.41
Clothing, footwear and cloth	16.13	15.18	12.04	14.17	13.37	16.57
Housing, water, electricity and fuels	12.29	13.09	10.88	7.72	15.62	9.32
Furnishings, household equipment and tools	4.71	5.59	5.59	5.33	5.78	4.94
Health	3.57	10.75	15.73	2.72	13.87	3.58
Transport	12.23	9.33	9.74	19.45	10.43	14.41
Communication	4.43	4.85	4.92	4.98	4.65	4.37
Recreation and culture	2.78	2.37	7.44	2.82	8.71	3.08
Education services	4.73	5.17	1.81	4.45	2.09	4.80
Restaurants and hotels	2.58	0.79	1.43	2.42	1.63	3.01
Miscellaneous goods and services	4.10	5.68	4.10	4.78	4.35	5.45

Source: Authors' calculation based on the NSO internal data

It is important to note that the weights listed in table 2 is based on the HSES conducted in the corresponding year. For example, the weights in 2010 are based on the 2010 HSES, and the weights in 2011 are based on the 2011 HSES, etc. However, in order to use the weights into the CPI, there is a lag in the weights. This is discussed in the next section.

4 Revised CPI Series

In this section, we examine the effects of the new CPI series on the existing CPI. The new CPI series are calculated by using the weights updated with four frequency periods: once in four years, in three years, in two years, and in one year. This means that the CPI weights are fixed for four years, three years, two years, and one year, respectively. The current practice of updating the CPI is that the weights are fixed for five years. In part 4.1, the four frequency weight periods, which are taken from table 2, are applied to the existing CPI where the items are fixed, and as a result four new CPI series are calculated. The four CPI series are compared with the existing CPI for evaluating the impact of changing the weights on the existing CPI. Then, in part 4.1, the inflation rates are calculated by using the new CPI series. After that, we compare the new inflation rates with the existing inflation rate, which uses the CPI of the frequency of updating weights every five years.

4.1 Impacts on CPI and Inflation Rate

It is important to note that there is a lag when the weights are applied to the CPI at the NSO. For instance, the 2010 weights were used to calculate the 2011 CPI. This is because in 2011 the results of the 2011 HSES were not available. As mentioned before, the items and weights were updated in 2010 and 2015, respectively. The items and their weights from 2010 were used for the CPI in 2011. And, the items and weights in 2015 were used for the CPI in 2017. For the 2017 CPI, there was a two-year lag because of the delay of the 2015 HSES results. So, the lag of applying the items and weights into the CPI depends on when the results of the HSES become available.

For our calculations in this paper, to update the CPI, weights are taken from the annual CPI weights in table 2 for the period 2011-2016.

To update the CPI weights annually, the CPI in the particular year uses the weights in the previous year; for example, the 2010 weights are used for 2011 CPI, etc. To update the CPI weights every two years, the weights are fixed for two years (e.g. the 2010 weights are used for the CPI in 2011 and 2012 and the 2012 weights are used for the CPI in 2013 and 2014). The same logic is applied to updating the CPI weights once in every three and four years. Table 3 outlines the CPI year with the corresponding years of weights and items and heading groups that are used to calculate the CPI. Note that to calculate the CPI, we are only changing the frequency of weights, while the items are fixed. Although CPI items and weights were updated in 2015, they were used for calculating CPI in 2017 and onwards. Thus, the 329 items and the 12 heading groups of the 2010 HSES are used up to 2016.

Table 3. Frequency periods of updating CPI weights

Frequency	CPI 2011	CPI 2012	CPI 2013	CPI 2014	CPI 2015	CPI 2016
Annually	2010 weights	2011 weights	2012 weights	2013 weights	2014 weights	2015 weights
Every two years	2010 weights		2012 weights		2014 weights	
Every three years	2010 weights			2013 weights		
Every four year	2010 weights				2014 weights	
Items in CPI	329					
Head groups in CPI	12					
Base period	December 2010					

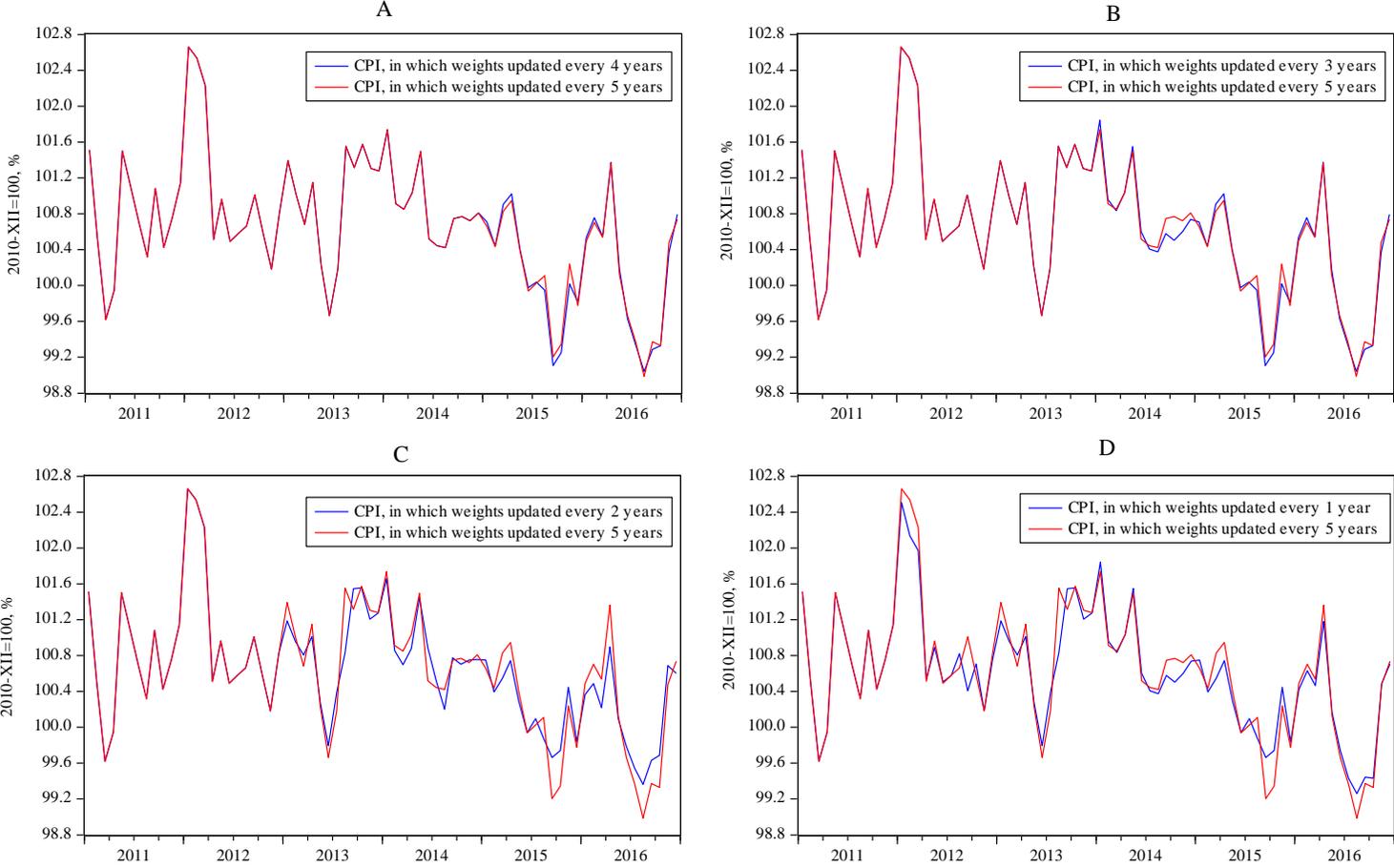
The weights with four frequency periods in table 3 are applied to the CPI between 2011 and 2016. The items and the heading groups in the CPI in this period are same as those in 2010. We only vary the CPI weights, and we recalculate the CPI on the basis of the four frequency periods, as shown in table 3.

Figure 5 shows the four CPI series that we calculate using the four weight frequency periods. The base period of the CPI is December 2010 (2010-XII=100). So, this means that all of the CPI series in figure 5 and 6 are the indices relative to December 2010. Each of the four CPI series is compared with the existing CPI, which refers to the CPI in which weights are updated every five years. In figure 5, the red line represents the CPI series, in which weights are updated every five years, while the blue lines represent the CPI series, in which weights are updated every four, three, two years, and annually as the graphs

are denoted by A, B, C, and D, respectively. Updating the weights annually has the greatest impact on the CPI as the blue line diverts more from the red line as shown in graph D. On the other hand, updating the weights every four years has the smallest impacts on the CPI as the blue line differs less from the red line in graph A in figure 5.

Note that in graph A in figure 5, the red line is exactly same as the blue line for the period 2011-2014, and there is no difference between the two lines. This is because as shown in table 3, the existing CPI uses the 2010 weights between 2011 and 2014, while the new CPI uses the 2010 weights between 2011 and 2013.

Figure 5. New CPI series vs existing CPI series, month-to-month, for the period Jan 2011-Dec 2016



Source: the authors' estimation

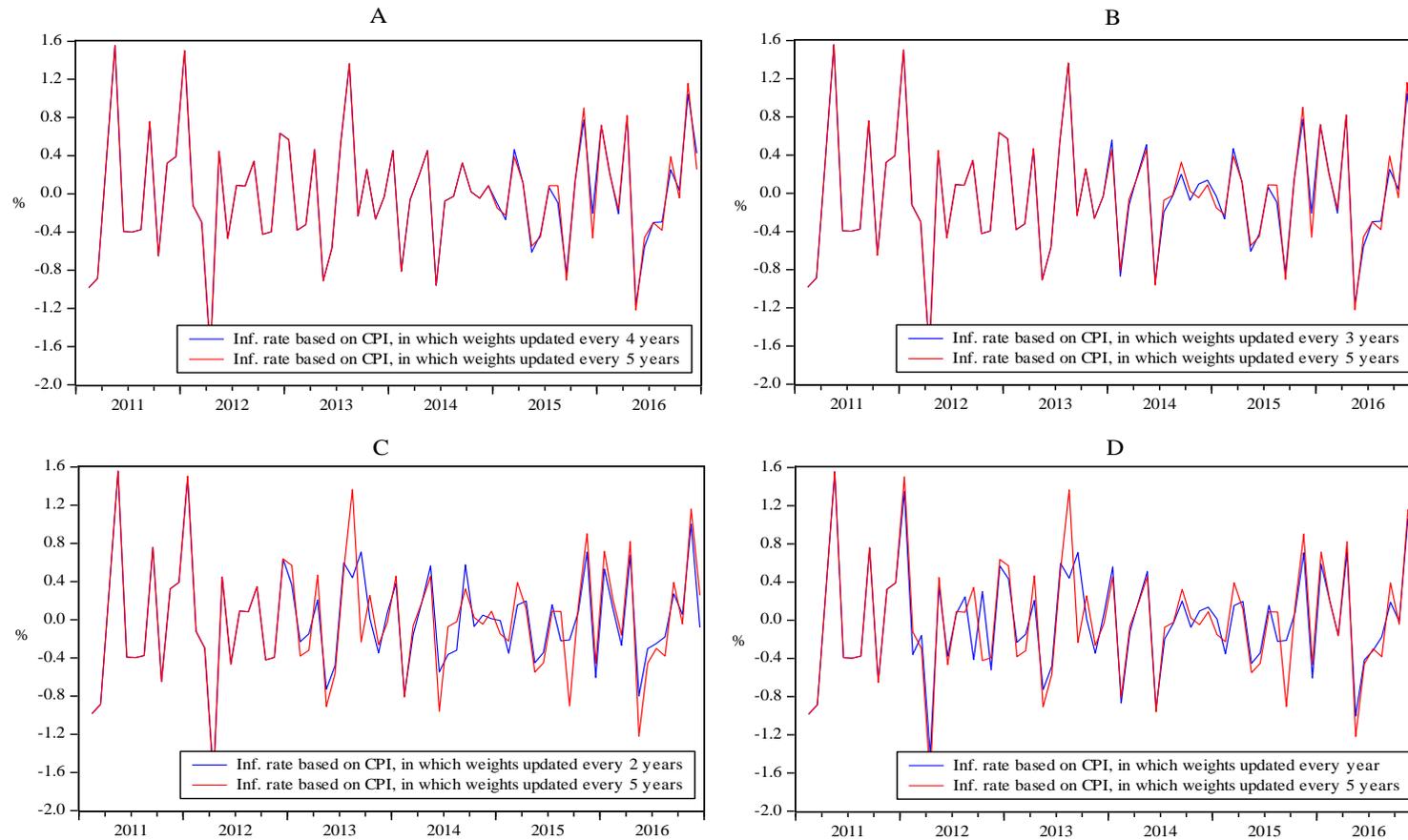
So, for the period 2011-2014, there is no difference between the two lines. This is also applied for the remaining CPI series in graph B, C, and D in figure 5. Overall, from figure 5, the main take away point is that the red line is the CPI that the NSO has already released to the public, while the blue lines are the CPI series that would be released to the public if the weights were updated more frequently than five years.

Next, in figure 6, we reestimate the monthly inflation rate by using the four CPI series. The purpose is that we would like to see how the new inflation rates would differ from the existing inflation rate if the CPI weights are updated more frequently. We estimate the monthly inflation rate between January 2011 and December 2016. The monthly inflation rate is estimated by using the following formula.

$$Inflation\ rate_t = \frac{I_t - I_{t-1}}{I_{t-1}} * 100 \quad (5)$$

Where, $Inflation\ rate_t$ is the inflation rate in percent at t month, I_t is the Laspeyres based CPI at t month, I_{t-1} is the Laspeyres based CPI at $t - 1$ month. Figure 6 presents the monthly inflation rates, which use the new CPI series where the weights are updated every five, four, three, two years, and one year. The existing inflation rate, denoted as the red line, refers to the inflation rate which uses the CPI where the weights are updated every five years. And, the new inflation rates, denoted as the blue lines, refer to the inflation rates which use the CPI series where weights are updated every four, three, two years, and annually. Like, the results in figure 5, the inflation rate which uses the CPI where weights are updated annually has the largest impact as the blue line differs the most from the red line, shown in graph D in figure 6. While, updating the CPI every four years has the smallest impact on the inflation rate as the blue line barely differs from the red line, shown in graph A in figure 6. Thus, from figure 6, we may conclude that if the CPI weights were updated more frequently than five years, the monthly inflation rates would differ from the existing monthly inflation rate.

Figure 6. New inflation rates vs existing inflation rate, month-to-month, for the period Jan 2011-Dec 2016



Source: the authors' estimation

5 Discussion and Conclusion

This paper examines the impact of changing the update frequency of weights for the overall CPI and the monthly inflation rate in Mongolia between 2011 and 2016. The Mongolian economy has been volatile since 2010, mainly caused by political instability, price falls of major mineral commodities, decline in foreign investments, and depreciation of the national currency. Due to greater volatility in the economy, household spending patterns have also varied in Mongolia since 2010. Household consumption patterns are expected to vary over time due to factors including general movements in the price level, rapid changes in the economy, and changes in household income, household demographics, and purchasing preferences. From these factors, we consider general movements in the price level, referred to as the inflation rate, and rapid changes in the economy, denoted by the GDP growth rate.

The volatility in these factors between 2010 and 2017 leads to that there is the need for updating the CPI weights more frequently than the current five-year period in Mongolia for this period. In addition to the volatility in the inflation rate and the GDP growth rates, we analyse how household spending patterns changed between 2010 and 2016. Like the volatility in the economy, household spending patterns have also varied greatly in the same period, particularly with regards to major food and non-food items: meat, bread and cereals, communication, transportation, and fuels. The changes in household spending patterns also leads to that there is the need for more frequent periods of updating CPI weights between 2010 and 2016.

We derive the annual CPI weights from the HSES for the period 2011-2015. By using these weights, we fix the CPI weights for four years, three years, two years, and one year. Each of the frequency weight periods are used to calculate a new CPI series. So in total, we calculate four CPI series. Then, the four CPI series are compared with the existing CPI, in which the weights are fixed for five years. Fixing the weights annually has the largest impact on the overall CPI, while fixing the weights for four years has the smallest impact. The impact is determined by how the new CPI series, denoted by the blue lines, diverges from the existing CPI series, denoted by the red lines in figure

5 and 6. Because of the changes in the overall CPI, we suspect that the existing inflation rate may have been misrepresented for the period 2011 and 2016.

To examine the impact of CPI weights on the inflation rate, we reestimate the inflation rate by using the new CPI series, in which the weights are updated every four, three, two, or one years. Similar to the CPI, the impact on the inflation rate is also significant. The inflation rate based on the CPI, in which weights are updated annually, differed most from the existing inflation rate based on the CPI, in which weights are updated every five years. We believe that the CPI series, in which the weights are updated every four years, three years, two years, and annually, have produced less bias and more accurate CPI series for the period 2011-2016 compared to the existing CPI.

The results in this paper suggest that the CPI weights should have been updated more frequently than five years, preferably annually, in Mongolia, between 2011 and 2016. This is because the household spending patterns changed significantly in this period, and these changes should have been reflected in the CPI calculation. The suggestion of the paper is consistent to the recommendations of EFTA (2014) and IMF (2017). Both studies recommend that the CPI weights need to be updated more frequently than five-year period in Mongolia.

To conclude this paper, although CPI weights were required to be updated more frequently for the period 2011-2016, this does not necessarily mean that in the future the CPI weights will be required more frequently. How frequent the CPI weights should be updated in Mongolia will depend upon the changes in household spending patterns over time. Larger changes in household spending patterns lead to a greater need for more frequent periods of updating CPI weights.

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