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Variance Estimates for Price Changes in the Consumer Price Index for Kurdistan Region of Iraq (January-December, 2009)

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Abstract:

In sample surveys, variance estimate is one of the most commonly used measures for analysing error. This study is the first to introduce variance estimatesfor price changes of commodities from the Consumer Price Index (CPI) for Kurdistan Region (KR) of Iraq. The CPI, which is considered as an indicator for general level of prices, is the most significant economic indicator that enters into decisions about monetary policy settings for any country. The accuracy and reliability of this indicator (CPI) over time relies on the accurate measurements ofprice changes. Meantime, the study provides the first release of CPI for urban consumersof Kurdistan Region of Iraqand then computes the price changes of commodities for 1-month, 2-month, 6-month, and 12-month intervals and the corresponding standard error estimates using the monthly data, which is provided by Kurdistan Region Statistics Office (KRSO),for the period January to December 2009.

Key Words: Survey**,** Variance estimate, Expenditure weight, Consumer Price Index

1. Introduction

Most surveys are continuing surveys; that is, repeated monthly, quarterly, annually or with some other fixed frequency. The most commonly used measure of sampling variability is the standard error of the estimate – thesquare root of the variance, which is a measure of how close different estimates would be to each other if it were possible to repeat the survey using different samples. Variance ofthe price changes estimate in the Consumer Price Index (CPI) is a measure of uncertainty caused by the use of sample of retail prices[9]; a small variance indicates that independent samples would produce values that are consistently very close to each other. Moreover, estimates of variancegives the CPI data users additional decision making information and provide the statistics office with a valuable tool for use in improving and enhancing the CPI.

In developed countries, CPI is a key macroeconomic indicatorused by many organizations, including the government, to monitor changes in price movements and how these affect their economic policy. Basically, CPI is a measure of the average change in prices paid for a fixed market

basket of consumer goods and services over a stated period of time [7]. As CPI assesses price changes associated with the cost of living, which isamount of money needed to buy the goods and services necessary to maintain a specified standard of living, it can be used as an upper bound to a cost-of-living indexas well as a deflator to estimate fixed prices for other important economic indicators [1,2]. Furthermore, the CPI, along with the Population Census, the National Income and Product Accounts, are among the most significant national economic statistics to determine the nation's economy which shows the effectiveness of the country's economic policies; disregardingany of these indicators maybadly reflect in a transition economy than in a more stable environment [3,5]

In Iraq The Office of Statistics in the Ministry of Economics conducted the first index number for living (CPI) in 1945 and used 1939 as a base year for Baghdad city only, later on work continued in preparing this number by the Ministry of Planning/ The Central Organization for Statistics, the most recent one was the index numbers compiled by using 1993 as a base year. Since 2003 (the post-war era), Iraq has made significant progress in building the institutions needed to strengthen its economy and conduct policies for economic reform. In May 2007, The International Compact with Iraq was established to integrate Iraq into the regional and world economy. Meantime, the first Iraqi Household Social and Economical Survey (IHSES)[11] was conducted, consequently, year 2007 has been taken as a base year in pricing goods and services in the CPI structure. The most recent one depended on the base year 2007 as it is the year in which the first IHSES in Iraq (including Kurdistan Region) was conducted.

Kurdistan Region (KR), the independent region in north of Iraq, since the last decade, due to a stable security situation, is experiencing an extreme economic growth incomparable to any other parts of Iraq.During this period (after 2003), due to the massive economic growth,fundamental changes in theeconomic structure have been demonstrated in addition to extreme price changes in goods and services.However, The Central Statistics Office in Baghdadreleases the CPI for thehousehold sector forall Iraq regions including KR. The KR index is constrained to only measure the changes in prices faced by urban households living in the three main provinces (Erbil, Dohuk, and Sulaimanyah); for each province only two cities are considered, but,limitations for this index number, which are due to inattention to the changes in many factors,as for the rest of Iraq regions, such as the health care, consumer safety, crime level, water and air quality, education quality and others, have not been considered. In addition, as CPI only sticks to the experiences of people living in the urban area where psychological behavioural patterns of the buyer are not considered, possible errors and biases in measuring CPI[6] have not been identified, wherethe sources of the bias may have even bigger influence in the case of rapidlychangingtransition and post-transition countries [3].

In general, it is doubtful that the CPI, which is computed based from the monthly survey of retail prices for fixed basket of goods and services commonly purchased by Iraqi households, has been able to accurately follow up changes in the true prices. These raise questions about the adequacy of the CPI as the only information available for conducting monetary policy for KR and Iraq. Despite the importance of CPI and its related economic indicators,there has been no attention given to the scientific studies or investigations to improve the accuracy and reliability of the statistics released by this organization, specifically those aimed at improving the methodology for collecting, processing and compilation of data derived from the censuses and surveys.

However, investigating the CPI along with the estimates of price change variance (or standard error) raise important issues regarding the behaviour of price changes

wherevariance is considered as a measure of uncertainty caused by the use of a sample of retail prices, instead of the complete coverage of the universe of retail prices. Although, the standard error of the estimate (the square root of the variance), which is the most commonly used measure of sampling variability, gives the CPI data users additional decision making information and provide the statistics office with a valuable tool for use in improving and enhancing the CPI [9,10],these estimates have not beenstudied in KR or even in Iraq.

This studyis part of a larger one aimed at investigating the CPI for KR, which is released monthly by The Central Statistics Office in Baghdad, and supporting the KRSO to release new index numbers for KR. First, it introduces the first empirical study to derive the firstreleaseof Kurdistan Region CPI for the three main provinces for the period May, 2008 to December, 2009. Second, becausethe quality of statistical data is one of the main problems faced by KRSOwhere the reliability of price data has not been assessed, this studyprovides the first release of standard error estimates for price changes of commodities from the CPI.It calculates price changes of commodities for 1-month, 2-month, 6-month, and 12-month intervals, and its corresponding standard error estimates using the monthly data, which is provided by KRSO, from January to December 2009;these estimates are computed for all major product groups. In section 2, the background forCPI in KR and the methodology are introduced as well as the sample selection and expenditure classification and then the CPI for KR over the period of 2007-2010 is computed, using theLaspeyres formula. Section 3 estimates the variance for price changes for CPI and then in section 4, the empirical results are analyzed and discussed. In section 5, the major conclusions for the empirical findings are summarized.

2. Background: The Consumer Price Index for KR and the CPI Basket

In Iraq, since 2007, the year where the first IHSES was conducted, the CPI for urban consumersfor all governorates and regions (Kurdistan, Middle and South), isreleased every month byThe Central Organization for Statistics; it covers the urban area of Iraq account for 67% of the total population.This index number can be thought of as the amount the average consumer would have to spend in a given year to buy the same basic goods and services that one would have to pay for that in the base year. In KR, this indexcovers urban households in the three main provinces(Erbil, Dohuk, and Sulaimanyah), each with only one city and one district, which includes Erbil Center, Koya, SulaimanyahCenter, Ranya, and DohukCenter and Zakho.

The simplest way of thinking about CPI is to imagine a basket of goods and services comprising items bought monthly by households in Iraq (KR is included). The market basket includes specific items relating to housing, food, transportation, medical care, clothing, entertainment, education and communication. Currently, there are approximately 633 items in the basket where price data for these items is collected monthly from different outlets for different provinces. The prices for identical goods from the same area are averaged, and individual price indices are calculated for each item and geographic area. Finally, the individual price indices summed up to determine the price of the entire market basket. In KR, the CPI Basket covers the majority of household expenditure, which is divided into 12 major groups, each representing a specific set of commodities.

Goods and services included in the market basket are items, which are reported in the final Iraqi Survey IHSES, divided into 12 main groups:

1. Food and Non-Alcoholic Beverages; it includes subgroups, Food, Cereals and their Products,

Meats, Fish, (Yogurt, Cheese and Eggs), Oils and Fats, Fruits, Vegetables, Sugar and Sugar Products, Other Food Products
2. Alcoholic Beverage, Tobacco
3. Clothes and Footwear; includes Cloths, Cloth Fabric, Sewing Clothes Services, Men's Ready Made Wear, Ladies Ready Made Wear, Children's Ready Made Wear, Clothes Cleaning, Footwear
4. Housing, Water, Electricity, LPG, it covers Rent, House Maintenance and Services, Electricity and Water Supply, Fuels (Gasoline, Kerosene and LPG)
5. House Supplies, Appliances and Maintenance; includes Furniture Equipments, Home Appliances
6. Health
7. Transportation
8. Communications
9. Recreation and Culture
10. Education
11. Restaurants
12. Miscellaneous Services and Goods

2.1 The Methodology for Calculating CPI

The methodology for calculating CPI in KR, as for the rest of Iraq, involves devising a basket (Market Basket) of goods and services representing those acquired by urban private household monthly. The basket used is based on data obtained from IHSES in 2007, which is the latest source of data on the expenditure of different households in each of the Iraqi cities including the three main provinces in KR.In computing the CPI, the KRSO takes into accounta reference base year. At present, the reference base year is 2007, this means that fromJanuary 2007 through December, i.e. over this 12 month period, the CPI is 100. The year 2007 has been chosen as the base year since it presents the period after 2003, which witnessed great changes in the household living conditions due to the economic growth in the country, where the final survey was conducted.

2.2 Sample Selection

In measuring CPI for many countries, the sampling method for selecting product basket is some kind of cut-off selection, in which a large part of the population (usually the items with the lowest expenditures) is deliberately excluded[4]. In KR, to select products basket, which is comprising items bought monthly by households in Iraq (KR is included) that is used in measuring CPI, the cut-off sampling method has been used. The sample only includes products from IHSES in 2007 with monthly individual average expenditure exceeds 25 Iraqi Dinar (ID). Other excluded products from the sample selection are included later into the sample as they are considered, from the consumer's point of view, as important products. Meantime, some products, which are appeared to be with, are expenditure that exceeds 25 ID, are excluded as they are considered not to be important to the consumers. Therefore, product sample includes only 416 out of 786 products from IHSES. This represents 53% of the total number of products reported in the final survey.

2.3 Expenditure Classification and Weighting Scales

In Iraq, The Ministry of Planning\ The Central Organization for Statistics, based on the United Nations (UN) Classification of Individual Consumption According to Purpose (COICOP), has recently completed the development of COICOP for whole Iraq. This classification, which consists of 12 divisions according to Iraqi's requirements, is used in the classification of private consumption expenditure in the national accounts, as well as the classification of goods and services in the CPI basket and IHSES. The relative importance, weights, for every commodity

or service is calculated by depending on the individual's monthly expenditure average, which is reported in IHSES in 2007. In order to maintain the relative importance of some products, which have been excluded from the main and sub groups according to COICOP, the expenditure value of these products has been distributed relatively on other products included in the basket.

2.4 The formula for calculating CPI

In computing the CPI, KRSO takes into account approximately 633 products (goods and services) assumed to be representative of an average needs for urban household to lead an average life. These items are distributed on 12 divisions due to COICOP and 64 subgroups compared with 446 items for the old basket divided into 9 main groups(divisions) and 33 subgroups due to the International Standardized Classification (ISIC) for Iraq. Prices and services used to calculate CPI are collected from urban areas (6 regions). The year 2007 has been chosen to be the base year for CPI; this means that from January 2007 through December 2007, i.e. over this 12 month period, the CPI is set equal to 100.

In this study,the CPI for urban consumers for the three governorates in KR are calculated usingLaspseyr's formula[9,1], which is a ratio of the costs of purchasing a set of items of constant quality and quantity in two different time periods; the original data is provided by KRSO. This index formula is the most practical and commonly used formula; iteasily measures the change in the cost of purchasing the same basket of goods and services in the current period as was purchased in a specified base period (year 2007). Therefore, the conducted CPI in this study is a Laspeyers index.

The following figure, Figure 1,represents the computedCPI for KR, which is the first index to be released for the three main provinces (Erbil, Sulaimanyah, and Dohuk) for the period May, 2008 to December, 2009 and the base year is 2007.The weights that are derived from IHSES used in the computation of CPI to reflect the actual consumption pattern for KR.

3. Estimating variances of the CPI and price changes

A practical way of analysing error in a survey estimate is to compute its variance or the standard error where a small variance indicates that various independent samples would produce values that are consistently very close to each other. The variance of the CPI is a measure of how close different estimates of the CPI would be to each other if it were possible to repeat the survey using different samples.

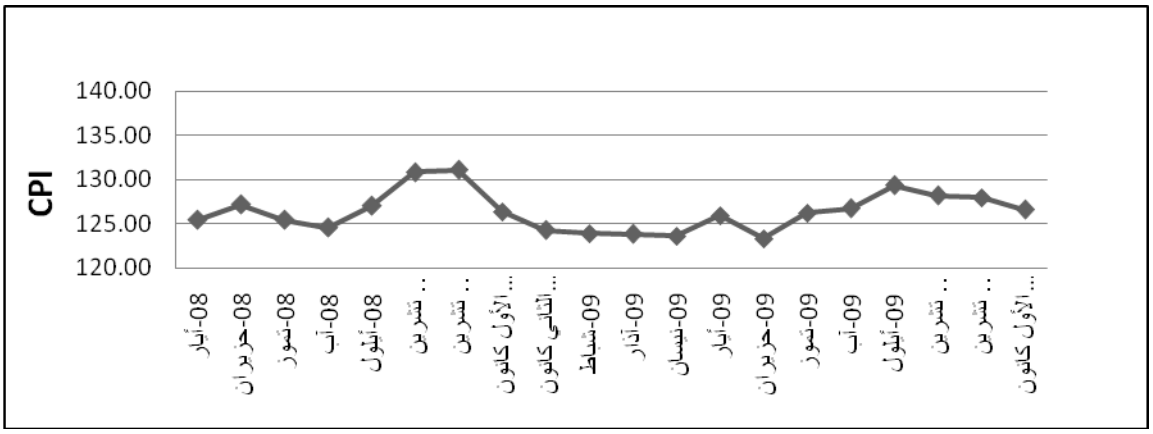

Figure 1. TheCPI for Kurdistan Region of Iraq (May, 2008-December, 2009)

In this study, the standard error (the square root of variance) for price changes from the CPI is estimated directly from the sample data, which is provided by KRSO; it is the only statistical agency responsible in collecting data. Since KR does not have the lists of all commodities and retail outlets as basis for measuring the sampling error, then it is only possible to compute the variability of price changes of sample commodities in the CPI. Data is collected from the three main provinces (Erbil, Dohuk, and Sulaimanyah), each with only one city and one district, which includes Erbil Center, Koya, SulaimanyahCenter, Ranya, and DohukCenter, Zakho. The standard error estimatesrepresent the variability of price changes across provinces/selected cities throughout the region where monthly prices of sample commodities for CPI are collected. Theseestimates are used to evaluate how reliable are the price changes from the monthly prices of sample commodities collected in sample areas/outlets to the true price changes of the universe of commodities.Standard errors are computed separately for geographical areas and group items, and then combined to produce the standard error for the entire area and item combination.Price changes for 1-month, 2-month, 6-month and 12-month interval, its corresponding standard error estimates are calculated using only the monthly data from January - December 2009, which is considered as the most reliable and available data for KR.

3.1 Methodology

The study uses the following methodology in estimating standard errors of price changes of sample commodities for Kurdistan Region CPI.

Let $CPI(A,I,t)$ denotes the CPI index wherethe upper-case letter A denotes a set of areas, such as the geographical areas of the region; and the upper-case letter I denotes a higher-level item category, such as item group, and t = month, and$CPI(A,I,t-j)$denotes the same index in month = $t-j$. Hence, the j-month percent change between months $t-j$ and t is computed from thecorresponding CPI; it is denoted by

$$PC(A,I,t) = \left(\frac{CPI(A,I,t)}{CPI(A,I,t-j)} - 1\right) * 100$$

Every index has a weight $W(A,I)$associated with it, which is used to combine the index with other indexes to produce indexes for larger geographic areas and larger item categories. For example, the weights are used to combine all 6 basic-level indexes into higher-level(governorate) indexes such as the KR average all items index. The product of an index and its weight is called

a cost weight$CW(A,I,t)$, it is computed as: $CW(A,I,t) = CPI(A,I,t) * W(A,I)$.

Finally, variances of percentprice changes for the CPI are computed using a hybrid methodology combining random group variance estimation for cost weight variances with linearization for percentprice change variances, where

$$V[PC(A,I,t,t-k)] = \sum_{i\in I}\sum_{a\in A}\frac{1}{R-1}(PC(a,i,t,t-k) - PC(A,I,t,t-k))^2$$

$\mathbb{R}$ refers to the number of geographical areas.

Hence, the standard error of the percent change is computed by taking the square root of its variance:

$$SE[PC(A,I,t,t-k)] = \sqrt{V[PC(A,I,t,t-k)}$$

Table 1 presents the calculated median price change and standard errors for 1- 2- 6-, and 12–month intervals for January- December, 2009 for KR.

Table 1. Median PC, Median SD for 1,2,6 and 12 Months for KR

	1- month		2- month		6-Month		12-Month	
Group	**Median PC**	**Median SD(PC)**	**Median PC**	**Median SD(PC)**	**Median PC**	**Median ST(PC)**	**Median PC**	**Median ST(PC)**
1	0.3853	7.0825	0.4738	8.1379	0.3755	5.0474	3.8478	5.7444
2	0.6855	12.7042	1.4126	11.8988	-2.0983	9.6337	3.7172	22.0120
3	0.2297	4.2942	0.7882	5.7621	3.1086	7.2241	-1.9964	4.6067
4	-1.1354	11.2379	-0.4495	15.2718	8.0956	26.7924	-1.2092	9.4832
5	-0.2009	9.2152	0.8718	14.1013	1.3580	15.0110	-7.2585	18.0193
6	0.5867	7.6285	1.2978	8.9862	-1.2085	6.6817	0.0608	5.8549
7	1.8108	7.4800	2.0924	7.9522	6.0289	15.7503	8.8623	20.0195
8	-0.2224	10.7869	4.2906	15.5909	11.5953	14.8137	6.4952	11.0856
9	-2.0189	10.6124	-3.6075	13.1128	9.3342	19.6581	-3.6224	13.8893
10	-0.4346	12.5566	-1.8276	24.7975	5.2797	21.4521	0.5979	19.3598
11	0.2923	4.9793	0.1911	7.3308	2.4354	8.3353	-0.4089	12.0191
12	1.1356	5.5710	-0.2779	5.2214	2.1313	7.7152	4.5998	18.8176
All Items	-0.1387	4.1157	0.0193	4.0051	1.9109	4.8738	1.8174	5.7492

The following tables, Table 2-4, presents the calculated median price change and standard errors for 1- 2- 6-, and 12– month intervals for January- December, 2009 for Erbil, Sulaymania and Duhok respectively.

Table 2. Median PC, Median SD for 1,2,6 and 12 Months for Erbil

	1-Month		2-Month		6-Month		12-Month	
Group	Median SD	Median PC	Median SD	Median PC	Median SD	Median PC	Median SD	Median PC
1	9.718808	0.159275	11.48419	-0.28043	7.735164	0.572272	3.540451	0.874958
2	0.976812	-0.04076	1.017797	-0.04882	1.345981	-0.47901	0.040985	0.094711
3	1.308511	-0.2667	3.502175	-2.03242	4.714597	3.966474	2.151661	-6.08294
4	3.135226	-1.80444	16.10048	-2.14055	18.56272	9.285274	2.790606	-2.48216
5	12.56528	-0.4295	8.679907	-0.23569	9.620972	-0.64696	21.70932	-2.78489
6	8.100828	-0.12202	12.29219	0.078668	14.64503	-0.0384	2.435964	-0.58231
7	3.633639	1.839972	1.055331	0.735657	11.89524	-7.15785	0.269073	2.83927
8	13.12719	0.150465	12.11698	-0.53149	6.233838	-0.26254	2.401001	1.201704
9	2.464766	-0.51827	14.60377	-4.93628	20.20128	27.43531	13.45923	5.667741
10	2.716752	0.000339	2.382082	-1.06728	25.27586	21.85718	16.341	30.72122
11	0.936161	0	6.373524	2.061499	12.86074	3.88043	25.4608	-2.44854
12	3.691863	-0.32805	5.382375	-0.01838	5.502861	-3.80326	29.44758	-5.17845
All Item	2.199476	0.146769	4.715286	0.537567	1.654138	2.932079	1.054456	0.233651

Table 3. Median PC, Median SDfor 1,2,6 and 12 Months for Sulaimanyah

	1-Month		2-month		6-Month		12-Month	
Group	Median PC	Median SD	Median PC	Median SD	Median PC	Median SD	Median PC	Median SD
1	0.428325	3.847859	1.246049	4.699871	7.003176	7.487864	0.874958	3.540451
2	2.323793	29.79476	3.134584	17.41817	-6.34292	19.9584	0.094711	0.040985
3	1.258739	6.577901	3.188099	2.721718	2.234055	3.066634	-6.08294	2.151661
4	-0.57246	10.4883	0.648857	15.04342	-3.20405	38.91862	-2.48216	2.790606
5	0.489956	4.151312	-0.62334	7.381138	5.670148	27.46582	-2.78489	21.70932
6	1.605736	10.63268	1.609814	10.70311	-0.76034	10.38473	-0.58231	2.435964
7	6.003588	7.845837	5.671297	9.303338	20.53937	17.7247	2.83927	0.269073
8	0	1.738473	-0.00798	1.65225	1.952912	2.981552	1.201704	2.401001
9	-1.13676	7.821171	0.459002	10.94282	-0.40135	9.204965	5.667741	13.45923
10	-1.0939	7.285469	-1.20261	9.221218	-11.5807	8.526739	30.72122	16.341
11	1.861964	5.635073	-0.03754	7.915077	1.855243	9.393004	-2.44854	25.4608
12	-1.32653	0.42843	0.718268	0.731877	3.809186	9.541118	-5.17845	29.44758
All Item	0.181927	3.577244	1.498811	4.052233	5.273538	10.0027	0.233651	1.054456

Table 4. Median PC, Median SDfor 1,2,6 and 12 Months for Dohuk

	1-Month		2-month		6-Month		12-Month	
Group	Median PC	Median SD	Median PC	Median SD	Median PC	Median SD	Median PC	Median SD
1	-0.28809	7.883043	-0.38371	7.251633	-0.49036	5.138014	-0.66445	1.481181
2	0	0	0	0.006324	0.137763	0.262686	0.438952	0.528248
3	0	0.951635	-0.16852	2.381221	0.406927	5.564117	-4.54178	4.951812
4	-0.61012	6.453058	-0.86172	4.279799	3.216391	8.832758	-7.85746	0.891485
5	-0.08934	4.426443	0.192716	5.611011	-2.79325	4.718655	-11.21	0.493914
6	0.165943	3.134151	0.26717	1.052564	2.433418	2.559392	-0.8641	5.656699
7	-0.26613	1.391302	-0.36898	2.273559	-2.98869	2.699742	-10.848	11.73612
8	0.176524	9.026035	1.428722	12.2663	23.55666	14.17144	20.08061	14.30479
9	-0.27351	4.598956	-4.48779	3.037158	-10.4657	4.988202	-11.3028	3.596012
10	-0.19726	4.419009	-1.02124	3.831704	-1.58391	6.035598	-8.03923	13.20295
11	0	0.78468	-0.34648	1.457429	0.937103	2.528832	-2.90101	9.523863
12	0.112335	0.573179	0.067542	0.806125	1.340456	1.78561	10.29491	3.162182
All Item	-0.16639	2.865027	0.044856	2.564597	0.599738	1.801247	-3.35426	2.084866

The following figures, Figure 2-5,displays the standard error of 1-month price change for all items and the first group, Food and Non-Alcoholic Beverage, which is the most important major group that affects the behaviour of the price changes; it represents over 25% of consumer expenditures for KR, and then each Governorate, Erbil, Sulaimanya, and Dohuk;it is plotted as a function of time for the months January-December 2009. The result for 12-month interval may not be a precise estimate since the study uses only one 12-month price change for each group, which is the change in the December price relative to its January price.

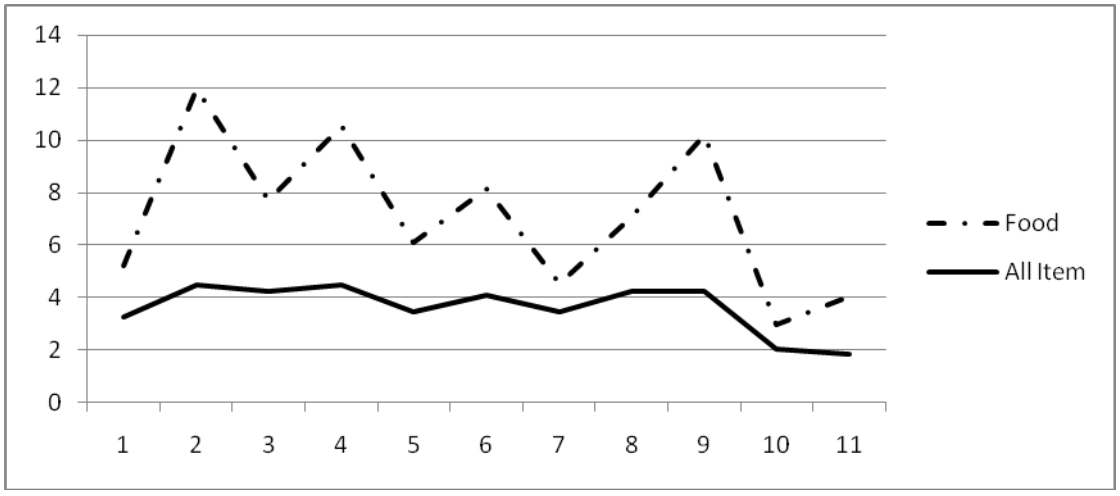

Figure 2. 1-Month Price Change Standard Error for all items vs. Food for KR

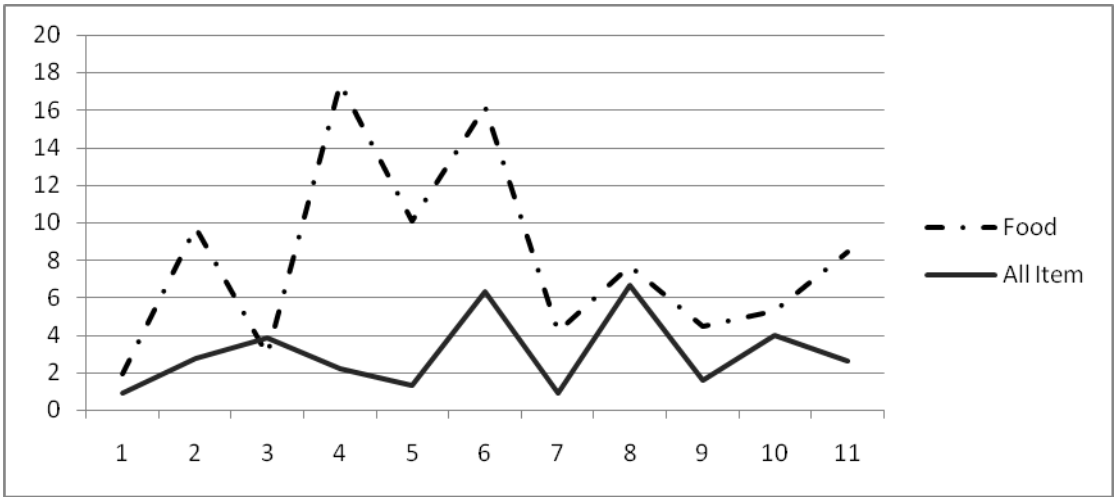

Figure 3. 1-Month Price Change Standard Error for all items vs. Food for Erbil

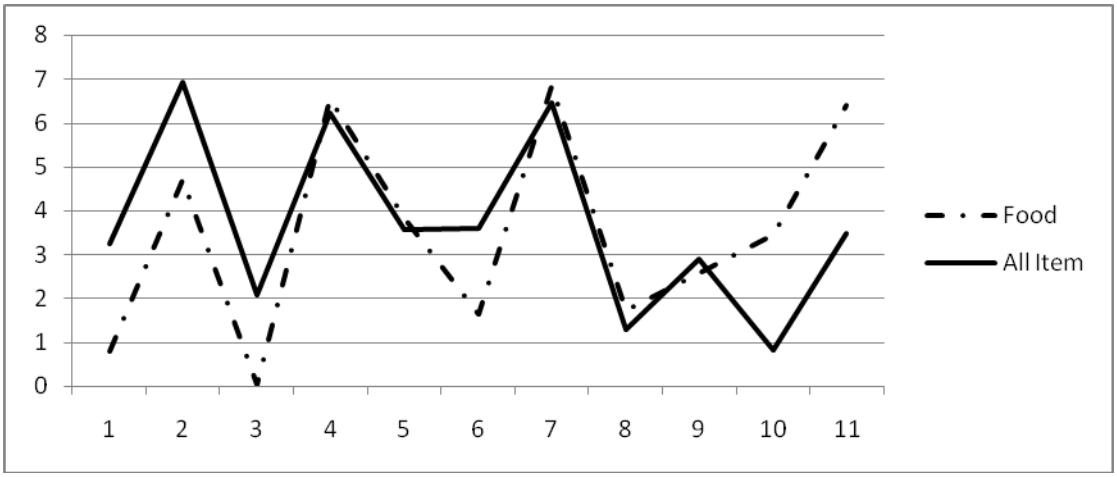

Figure 4.1-month Price Change Standard Error for all items vs. Food for Sulaimanya

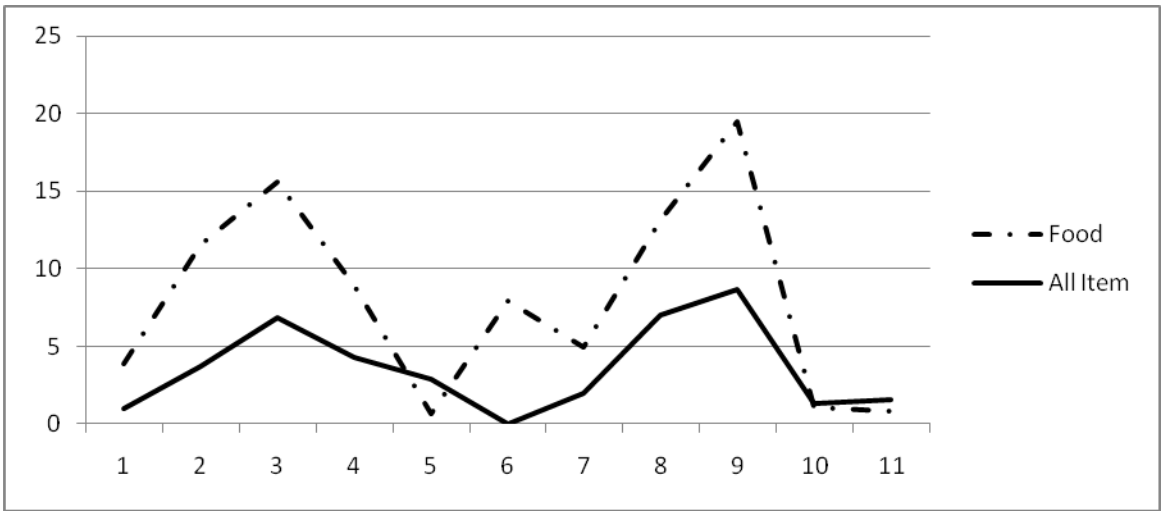

Figure 5. 1-month Price Change Standard Error for all items vs. Food for Duhok

4. Results and Discussions

Figure 1 shows the CPI for KR of Iraq for the period May, 2008 to December, 2009; it shows that in 2008 the CPI for urban consumers increased starting from August throughout September but mainly in September while in 2009 a slight raise occurred in May then declined again to start increasing in August and then in September. In Table 1,the median values of the percent changes, as well as the median values of the standard errors are displayed. The obtained data explains, as expected, that the price change standard error does not increase over time, but it exhibited varying behaviour over time; this limits the assessment of the reliability of price data to show the actual consumption pattern. Furthermore, based from Table 1, it is noted that Food and Non-Alcoholic Beverage is one of the major groups that mostly affects the behaviour of price changes. For example,the estimated 1-month median price change for all items is 0.1387, this implies that the monthly price for all items of market basket for KR is estimated to have a median monthly change of 0.14 percent during 2009. While the median price change for the first group, Food and Non-Alcoholic Beverage, is 0.39. The estimated 6-month price change for all items for 2009 is observed to be 1.91 while for the first group is 0.38. This explains that the first group is the one that highly affects the monthly price change among all commodities comprising the Kurdistan Region CPI market basket. Other estimates, due to thefluctuations in the prices of some items in their groups, which affect variation of price changes for that group across provinces/districts, resulted in large changes in commodity prices.

Similarly, Tables, Table2-4, exhibits the median of the percent changes, as well as the median of the standard errors for each governorate Erbil, Sulaimanya, and Duhok respectively. Figures, Figure 2-5,exhibits the graph for standard error of 1- month price change for the first group and for all items.

Therefore, based on the obtained results, it is difficult to draw inferences in the behaviour of the standard error estimatesof price changes for KR. The main reasons for such behaviour can be summarised:

1. missing price data for a particular area/region in some months
2. fluctuations in prices of some items that affect variations of price changes for a group across provinces/district.
3. varying price changes between commodity groups due to some factors affecting price changes especially seasonal changes, for example, weather condition may have different affect on the changes in the prices of food items compared with other items.
4. differences in commodity prices between provinces/districts due to the differences in the household consumption patterns.

5. Conclusion

The study provided an empirical investigation for the first release of Consumer Price Index for Kurdistan Region of Iraq. It covered the post-war area; the base year is 2007. It computed the estimates of standard error for price change in the CPI for the main three governorates of KR. The study utilized the monthly prices of sample commodities used for the computation of CPI for KR for the period January to December 2009.The study, which analyzed only one 12-month interval price change estimate, raised important issues regarding the behaviour of the estimates over month intervals within the year, where the insufficiency of the data was principal causes for the differences in the standard error estimates between commodity groups. As prices of individual items fluctuate each month, there were real differences in item

category price behaviours caused by different selling practices, seasonal influences, and consumer demand, which resulted in large standard error for groups or even items.Finally, it is concluded that the estimates for price changes and their corresponding standard error may not be a precise estimate for the true price changes for all commodity groups. Therefore,further investigation for CPI is suggested with improving sample selection process.

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تخمين التباين لتغيرات السعر للأرقام القياسية للمستهلك في اقليم كوردستان العراق

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الخلاصة

تخمين التباين هو المقياس الاكثر استخداما لتحليل الاخطاء لمسوحا ت عينة. هذه الدراسة هي الاولى في اقليم كوردستان العراق لتعريف تخمينات التباين لتغيرات السعر للبضائع من الارقام القياسية (CPI). هذه الارقا م تعتبر مؤشرا لمستوى العام للاسعار و مؤشر الاقتصادي الاكثر اهمية و التي تدخل في القرارات التي تخص السياسة المالية لاي بلد. الدقة و الاعتمادية لهذا المؤشر (CPI) تعتمد على المقايس الدقيقة لتغيرات السعر. و في غضون ذلك , هذه الدراسة تنشر الاصدار الاول للارقام القياسية للمستهلك في اقليم كوردستان العراق و من ثم تحسب تغيرات السعر للبضائع لشهر واحد , لشهرين , 6 – اشهر و 12 – شهرا مع تخمين الاخطاء القياسية المرافقة باستخدام البيانات الشهرية الصادرة من دائرة الاحصاء في كوردستان العراق (KRSO) للفترة الزمنية كانون الثاني - كانون الاول 2009.