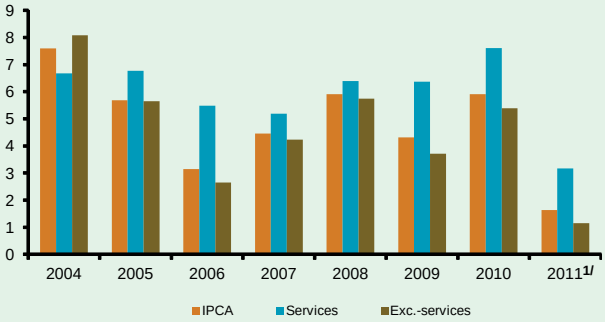
Service Prices Dynamics: an analysis of the current experience

Services prices have been registering variations higher than those of the National Wide Consumer Price Index (IPCA) in the last years, in all the metropolitan regions researched, causing changes in the relative prices between the contents of the consumption basket. This box explores the services prices dynamics in national and regional scope, emphasizing the behavior of relative prices and the main contents of this segment.

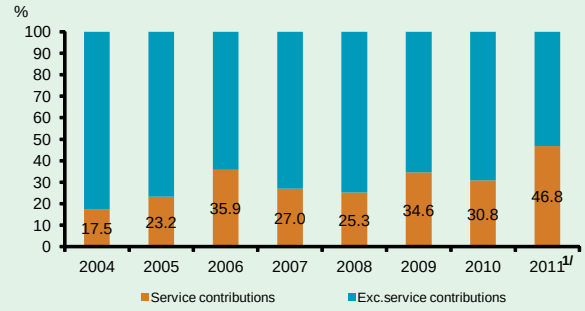
Figure 1 – IPCA services and excluding-services
Annual growth %



Source: IBGE, made by Central Bank.
1/ Until february.

The services inflation[1] overcame IPCA's variation in the last six years, according to Figure 1. From March 2004 to February 2011, the services prices mean annual variation reached 6.45% while the ones related to IPCA and to "IPCA excluding services" were 5.32% and 5.0%, respectively. Within the period considered, the services relative prices[2] increased 9.63% in relation to other IPCA segments.

Figure 2 – Relative contributions (estimates) of service prices at IPCA



Source: IBGE, made by Central Bank.
1/ Until february.

The service prices contributions for the aggregate index variation significantly overcame the weight[3] of the group in the IPCA basket, according to Figure 2, pointing out the results of 2006, 2009 and 2010, when services were responsible for, in this order, 35.9%, 34.6% and 30.8% of the annual IPCA variation. The retreat in 2010 is partly explained by the sharp rise of food prices, since the services inflation rose comparatively to the one registered in 2009. In the first two months of 2011, the services contribution reached 46.8%, mostly due to the

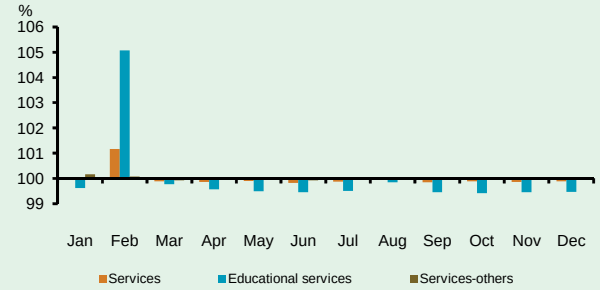
1/ For this work's objectives, until June 2006, 58 subitems were considered in the services prices composition, with approximate weight of 20%; since July 2006, when it was initiated the IPCA series with the current methodology, referenced in the Family Budget Research (POF) 2002-2003, 64 subitems were considered in the composition of services prices group, corresponding to around 24% in the general index weighing for Brazil.

2/ It was considered the ratio between the geometric factor corresponding to the variation of services prices group and the one corresponding to the variation of other prices group, components of IPCA, for the period between March 2004 and February 2011.

3/ The seasonal factor average was calculated as, where the percentage variation in the "t" month of year "a"; and it is the percentage variation accumulated of year "a". Results lower than 100 represent negative seasonality and results higher than 100 represent positive seasonality for the month.

period's seasonality, which reflects the readjustments with respect to education.

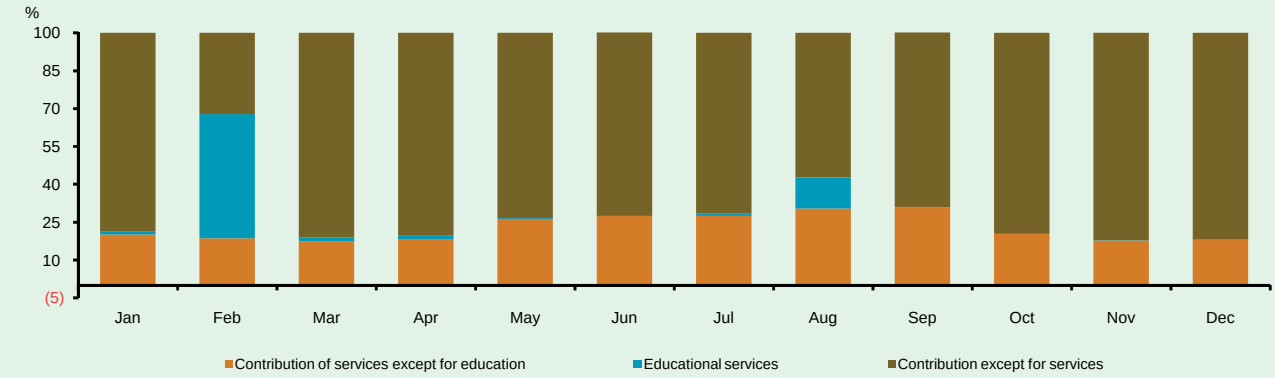
Figure 3 – IPCA Services and componentes – Seasonal[1/]



Source: IBGE, made by Central Bank.
1/ Data lower than 100 mean a negative seasonality and data above 100 mean a positive seasonality in the month.

Given the generic nature of the services, it is appropriate to divide[4] it into subgroups according to the type of service to which they refer and, particularly, to isolate the services related to education. A preliminary analysis suggests that education follows seasonal pattern different from the other series, according to Figure 3. For the service prices group, the seasonal factor[5] regarding February represented, in average, 101.2% of each year's monthly mean variation. It showed to be more significant for educational services, to which it represented, in average, 105.1% of each year's monthly mean variation. Still regarding educational services, the seasonal factors related to August and March, despite lower than 100% in the period average, overcame this level in three and in two of the seven years analyzed, respectively. For services prices not related to education, the seasonal pattern seems less defined, with January and February being the months most distant from each year's mean variation.

Figure 4 – Monthly average of relative contributions (estimated) of service prices, except for education and education-services for the IPCA[1/]



Source: IBGE, made by Central Bank.
1/ With the aim to avoid that outliers biased the averages, they have been estimated excluding those months in which the sum of payment contributions were within -0,1 and 0,1 (Jun/2005; Aug/2006; Jun/2010; Jul/2010; Aug/2010).

4/ Similar proceeding was carried out in the study "The evolution of goods and services prices in economic crises", presented in the Inflation Report published on June 2009.

5/ The seasonal factor average was calculated as, $\left\{ \sum_{a=2004}^{2010} \left[\left(\frac{\pi_{t,a}}{100} + 1 \right) \Big/ \left(\frac{\pi_a}{100} + 1 \right)^{1/12} \right] \right\} \frac{100}{7}$ where $\pi_{t,a}$ the percentage variation in the "t" month of year "a"; and π_a it is the percentage variation accumulated of year "a". Results lower than 100 represent negative seasonality and results higher than 100 represent positive seasonality for the month.

The services contribution for the IPCA present themselves relatively higher in February and August, due to readjustments related to education, according to Figure 4, while the highest contributions related to the other services are used to fall upon May to September.

Table 1 presents the services prices annual mean variations per subgroup, for each one of the metropolitan regions considered in IPCA's building. In Brazil, the expenses with education services and with the other services registered annual mean rises of 6.65% and 6.41%, respectively, from March 2004 to February 2011, while the annual mean variation of "IPCA exclusive services" reached 5.06%. The expenses with domestic servant registered the highest annual mean growth, 10%, exerting, in average, contribution of 21% to the services prices variation. In addition, important average rises occurred in the items vehicles maintenance, 6.89%; personal care, 6.88%; condominium, 6.27%; and health, 6.08%.

Table 1 – Subgroups of IPCA services by region

Annual average change – Mar/2004 to Feb/2011 (% a.y.)

Region[1/]	Brasil	BRA	GOI	RMB	RMBH	RMC	RMF	RMPA	RMR	RMRJ	RMS	RMSP
IPCA – Services	**6.45**	7.10	6.85	6.69	7.71	7.28	6.92	6.59	6.71	5.94	7.04	5.80
Subgroup refering to education	**6.65**	7.04	6.43	6.43	6.41	6.97	7.77	6.66	7.90	6.79	7.27	6.26
Formal education	**6.57**	6.64	6.06	6.33	6.46	6.99	8.04	6.55	8.01	6.68	7.23	6.14
Education others	**6.93**	8.86	9.25	6.33	6.21	6.88	4.78	7.17	7.20	6.37	7.25	6.78
Subgroup services-others	**6.41**	7.14	7.02	6.77	8.09	7.39	6.62	6.57	6.31	5.76	6.94	5.72
Rent	**5.03**	6.71	4.51	5.57	7.34	6.64	6.06	3.73	4.22	3.62	4.65	5.03
Condominium fee	**6.27**	8.38	6.91	7.09	7.77	7.34	5.41	7.15	8.20	8.41	8.13	3.67
House constrution and maintainance	**3.22**	3.31	4.11	4.98	3.35	3.77	2.48	3.06	4.02	2.81	1.10	3.36
Personal care	**6.88**	8.17	8.62	8.59	8.33	7.09	7.40	6.81	7.11	5.64	8.26	5.88
Domestic help	**10.00**	9.88	9.88	9.88	11.37	9.88	9.89	9.86	9.75	9.02	10.99	9.96
Leisure	**6.22**	5.70	5.63	4.59	9.00	7.14	4.57	6.32	8.00	4.50	5.35	5.73
Auto sevice	**6.89**	5.48	7.76	2.23	6.88	8.64	6.87	8.04	2.52	6.50	5.75	7.47
Labor[2/]	**7.87**	7.56	7.56	7.56	10.89	7.56	7.56	7.46	5.07	6.57	8.33	7.86
Health	**6.08**	6.72	7.19	6.42	6.37	6.36	6.00	5.20	4.88	6.34	6.48	6.03
Banking services	**2.06**	1.42	1.06	0.82	2.08	1.17	1.43	1.48	2.06	2.41	2.17	1.14
Transportation	**5.05**	4.20	7.32	10.63	7.34	7.44	0.54	6.93	4.77	2.29	10.59	4.09
Others	**3.63**	4.76	5.72	4.60	2.42	5.46	3.26	3.90	1.09	2.32	4.20	3.28

Source: IBGE, made by the Central Bank.

1/ BRA (Brasília), GOI (Goiânia), RMB (RM Belém), RMBH (RM Belo Horizonte), RMC (RM Curitiba), RMF (RM Fortaleza), RMPA (RM Porto Alegre), RMR (RM Recife), RMRJ (RM Rio de Janeiro), RMS (RM Salvador), RMSP (RM São Paulo).

2/ Statistics for labor have been calculated considering the initial July/2006 period, when the subgroup came into being.

The service inflation was higher than the respective general indices in all the regions researched, according to Table 2. The prices behavior was

Table 2 – Regional IPCA, services and ex-services

Annual average variation – Mar/2004 to Feb/2011 (% p.y.)

Region	IPCA	IPCA		Relative prices[1/]
		Services	Ex-services	
RM Curitiba	5.14	7.28	4.52	2.64
Brasília	5.33	7.10	4.73	2.27
RM Fortaleza	5.05	6.92	4.69	2.13
RM Salvador	5.22	7.04	4.86	2.08
Goiânia	5.20	6.85	4.76	2.00
RM Belo Horizonte	6.06	7.71	5.69	1.91
RM Porto Alegre	5.21	6.59	4.86	1.66
RM Recife	5.40	6.71	5.21	1.43
Brasil	**5.32**	**6.45**	**5.06**	**1.32**
RM Belém	5.87	6.69	5.75	0.89
RM Rio de Janeiro	5.26	5.94	5.13	0.77
RM São Paulo	5.16	5.80	5.04	0.73

Source: IBGE, made by the Central Bank.

1/ Ratio between the geometric factor corresponding to the annual average variation of service prices altogether and that corresponding to the annual average variation of the set of the other prices forming the IPCA.

regionally heterogeneous and the relative prices change was lower in the metropolitan regions of São Paulo, Rio de Janeiro and Belem, and more relevant in Curitiba, Brasília, Fortaleza and Salvador.

The average services inflation was highest in Belo Horizonte, 7.71%, with emphasis on the rates related to the items domestic servant, 11.37%; leisure, 9%; and personal care, 8.33%. The expenses with education registered expressive annual average rises in the metropolitan regions of Recife, 7.9%; Fortaleza, 7.77%; and Salvador, 7.27%. Only São Paulo and Rio de Janeiro registered services prices average variations lower than the national average.

The divergences in the prices changes in each region may be decomposed, primarily, in price effect[6] and weight effect. The first comprehends the differences in the prices variations of the same service, due to local specificities and restrictions to mobility of factors. The weight effect corresponds to part of the differentials between the regional inflation rates due to the relative participation of several services of the index basket composition in each region.

Table 3 – Relative contribution (estimated) of the weight-effect and of the price-effect for the differential between the regional and national differences of the IPCA-services

Mar/2004 to Feb/2011

Region	Annual average variation	Difference (p.p.)	Weight-effect (%)[1/]	Price-effect (%)[1/]
Brasil	6.45			
RM Belo Horizonte	7.71	1.26	12.1	87.9
RM Curitiba	7.28	0.84	6.7	93.3
Brasília	7.10	0.66	26.4	73.6
RM Salvador	7.04	0.60	-3.4	103.4
RM Fortaleza	6.92	0.48	93.4	6.6
Goiânia	6.85	0.40	6.8	93.2
RM Recife	6.71	0.26	93.4	6.6
RM Belém	6.69	0.25	95.8	4.2
RM Porto Alegre	6.59	0.15	86.6	13.4
RM Rio de Janeiro	5.94	-0.50	-5.9	-94.1
RM São Paulo	5.80	-0.65	-34.1	-65.9

Source: IBGE, made by the Central Bank.

1/ Relative estimated contribution of the weight-effect and the price-effect to the differences between regional and national variation rates of the IPCA-services.

6/ Check the study "Differences between the Regional IPCAs in 2007", presented in the Regional Newsletter of the Central Bank of Brazil published on April 2008.

Focusing on services inflation, starting from subgroups' variations and adopting the national index[7] as reference, it was performed estimations of the differential decomposition between the services prices variations of each region and of the country in weight effect and price effect, according to Table 3. The price effect's importance replaced the weight effect one, e.g., it overcame 50% in module, in seven of the eleven regions researched, including four that registered the highest services inflations during the period (Belo Horizonte, Curitiba, Brasília and Salvador) and two with the lowest rates (São Paulo and Rio de Janeiro). These results point out to behaviors regionally different between similar services prices as the main elements of the spatial differences of services' IPCA. Only in Salvador both effects presented opposite pattern.

At last, the services mean inflation, with respect to the period from March 2004 to February 2011, overcame the IPCA variation in all the regions researched. This performance occurred heterogeneously, registering sharper variations in Belo Horizonte, Curitiba and Brasília, and lower variations in São Paulo and Rio de Janeiro. The regionally distinct behaviors between similar services prices (price effect) were responsible for the greatest part of the spatial differentials in the services' IPCA.

7/ It is observed that, since the national index consists of weighted average of regional indices, the differences between the regions' and the country's rates tend to, at first, be reduced in the regions with greater weight in the national index.