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Should the Regions and the Global Office use Weighted GEKS?

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Background

TAG discussions have often focused on the wide economic differences between countries and regions and how best to put together countries within regions and the world. In the discussions it is often suggested that regions are more homogeneous than the world. This note examines one method that has been mentioned for dealing with this issue, namely weighing the various Fisher indexes that go into the GEKS estimation depending on how disparate are the two components, the Paasche and Laspeyres price indexes. At this point we need to distinguish different types of GEKS weighting. This paper deals with weighting with measures of the economic similarity between countries, *SIM-weights*. Another criteria for introducing country weights into aggregation estimates is by economic importance of a country, for example by person using population, or by economic size using total GDP as in the usual Geary application. Or each country may receive equal weight as in the way EKS is used in the European Union. However, EKS can also be estimated assigning each country total GDP weight.[1]

Using the researchers data set for the 2005 ICP we look at SIM-weights estimation of GEKS both within regions and for the ICP world as a whole. We also examine SIM-weighting in the context of the method of putting together the world as recommended by TAG, namely the CAR approach. We take the RMSE from the ordinary least squares EKS estimation as a measure of the variability that one would like to reduce. However, the RMSE declines the more spread there is to the weighting system and in the limit, as one gives more weight to some Fishers and less to others, one moves towards chaining through single links as in Hill's spanning tree approach. We propose a balance that employs modest weighting in the GEKS estimation both within and across regions. The illustrations of this paper employ

[1] This is further illustrated in Aten, Heston and Refayet (2012b). The term *PEI-weights* is used in that paper to stand for Political-Economic-Importance size measure of economic size assigned to each country.

only one similarity measure: the ratio of the Paasche to the Laspeyres price indexes. There are other symmetrical similarity measures that might be preferable that are discussed in Diewert (2009).

Least Squares Estimation of EKS (GEKS)

For convenience we build up EKS estimates from the price side using the price level form, namely the PPP/Exchange Rate as a ratio, with the US as the reference country. In estimating the GEKS we follow an approach of an earlier paper (Aten and Heston, 2009) where the GEKS estimation used a regression approach along the lines originally put forward by Gini (1931). This approach has also been used by Rao, Shankar, and Hajarghast (2010). The least squares estimation of EKS is convenient in that it allows for the addition of other variables and also provides a measure of the variance of the estimates. The only similarity or distance variable between countries that is reported here is the Paasche-Laspeyres ratio, and if the approach seems promising other similarity measures should be examined.[2]

The form of the estimating equation is in (1) where the indexing now refers to individual Fishers between each pair of countries..

$$(1)\ F_{IJ} = \sum_{j=1}^{n} \delta_{ij} \ln PL_j^{GEKS} + \varepsilon_{ij}$$

As noted F_{ij}, the Fisher price index between country *i and j*, is expressed in price level form (PL) where the expenditures and PPPs have been divided by the exchange rate to the reference country or the geo-mean of exchange rates of all countries. ε_{ij} is the error term assumed log normally distributed; δ_{ij} =1 if *i = j, 0* otherwise. Essentially the GEKS estimate for the PL_j is the geometric mean of the direct and indirect Fisher price indexes of each country.

A. The Linking Schema

[2] Cuthbert (2003) examined an approximation to a GLS solution of the variance-covariance matrix structure of Fishers that he judged to support GEKS as used for the 32 relatively homogeneous OECD countries in 1996.

It will be convenient for the discussion below to summarize the 2005 ICP Fisher matrix of 146 countries as in ***Table 1***, grouped by the 6 ICP regions. Each cell represents a set of Fishers with the principal diagonal being Fishers among countries in their own region. The off-diagonal elements are Fishers between countries outside their region.

Table 1 Summary of Matrix of Fishers, F

Region 146	Africa 48	Asia/Pacific 23	CIS 10	OECD 45	South America 10	Western Asia 10
AFR	**F11**	F12	F13	F14	F15	F16
ASP	F21	**F22**	F23	F24	F25	F26
CIS	F31	F32	**F33**	F34	F35	F36
OECD	F41	F42	F43	**F44**	F45	F46
LAC	F51	F52	F53	F54	**F55**	F56
WAS	F61	F62	F63	F64	F56	**F66**

For example, the cell **F11** would contain the 2304 Fishers between the 48 countries in Africa, while cell **F16** would contain the 480 Fishers between African and West Asian countries. Underlying the 21,316 (146 x 146) elements represented in ***Table 1*** are the corresponding Paasche and Laspeyres indexes. For convenience the Fishers are from the price side and are expressed in price level form, namely the PPP/Exchange Rate as a ratio, with the US as the reference country.

B. (1) The 2011 ICP

The method adopted by the Technical Advisory Group on the 2011 ICP is the CAR method, standing for Country Aggregation and Redistribution. The CAR approach may be described as follows:

1. Run one GEKS on the full matrix F above, estimating PPPs and Domestic Absorption (DA) for each country
2. Calculate the DA for each of the 6 Regions
3. Run 6 separate GEKS on F11, F22, F33, F44, F55 and F66, estimating PPPs and DA for each country
4. Calculate the shares of each country within region from c)
5. Apply the shares from d) to the regional totals in b) for each region

The CAR approach maintains the regional shares from a global GEKS but controls the distribution of that total according to the regional GEKS. This leads to the first question: whether there is much difference between taking the country DA estimates from a) or e)?

We begin by looking at the Equation (1) statistics for the full matrix and the separate regional matrices, shown in ***Table 2***. The first row includes all countries at once. We call this the global GEKS. Rows 2-7 provides the regional estimates. Row 8 is labeled Off Diagonal and is estimated over all countries but excluding the Fishers within regions.[3] Row 9 is the weighted regression discussed in more detail shortly.

The number of observations is given by n. The RMSE provides the extent to which price levels vary after taking account of country effects with each group.[4] Clearly the RMSE within regions is smaller than across all countries in the ICP 2005 benchmark, with the important exception of the weighted regression.

Table 2. Inputs into Equation (1)

	GROUP	N	Variance	RMSE
1	**F: All Countries**	**21316**	8712	0.455
2	**F11: Africa**	**2304**	372	0.288
3	**F22: Asia**	**529**	116	0.339
4	**F33: CIS**	**100**	6.3	0.188
5	**F44: OECD**	**2025**	596	0.388
6	**F55: S.America**	**100**	12	0.258
7	**F66: W. Asia**	**100**	16	0.302

[3] In an evolving paper, Robert Hill has proposed linking regions in a way that finds a chain of all countries the meets his minimum spanning tree criteria using only the Fishers and underlying Paasche and Laspeyere indexes in the off diagonals of Table 1. The advantage of this approach is that the linking will not be inconsistent with the results in each region using the diagonal elements of Table 1, whereas CAR will be inconsistent. Our experiment with making the off-diagonal elements of Table in the estimated GEKs underlying Table 2 derives from Hill's idea.

[4] Because the Fisher matrix is symmetrical with essentially 2 observations per country pair, equation statistics are somewhat messy to interpret. However, the average unexplained variance when you use all 146 countries compared to say the same measure for each of the 6 regions, it is possible to make meaningful inferences. This is a measure that Cuthbert (2003) also used. And as we discuss below a comparison of the unexplained variance between all 146 in the weighted and un-weighted versions of equation (1) should be a guide to the importance of weighting.

8	**Fi≠j: Off Diagonal**	**16158**	7592	0.441
9	**F: Weighted**	**21316**	6044	0.380

At first glance, the low RMSE for CIS compared to the OECD is surprising. It might be thought this was due to the way in which the CIS was linked to the other regions, namely Russia was included in OECD, and then binary links were made to the other CIS countries. However, the Fishers are built up from basic heading PPPs of the individual CIS countries so the special linking of CIS should not really affect the results reported here.

However, if we look at the ratio of the Laspeyres to Paasche indexes (L/P ratio), we see a reason for the difference. There are 42 unique country pairings with L/P ratios greater than five, and Tajikistan belongs to 35 of them. The only other CIS country in the 35 pairings is Kyrgyzstan and only one other CIS country is among the 42 pairings, namely Armenia, paired with Portugal. Tajikistan is noisy across regions but without great effect within the CIS. On the other hand, in the remaining 7 pairings, there are four OECD countries: Portugal, Lithuania, Montenegro and Korea, and 3 of the 7 are within OECD pairings (Korea-Lithuania, Korea-Portugal and Montenegro-Portugal). The other four non-Tajikistan pairings of very high L/P ratios are: Korea-Venezuela, Ghana-Lithuania, Cote D'Ivoire-Lithuania, Armenia-Portugal.

B. (2) Empirical Results for all 2005 Benchmark Countries

The CAR Estimates

In ***Table A1*** we present the country estimates derived from the GEKS and other linking approaches, where the countries are ordered alphabetically within each Region by their 3 digit ISO-code. Column A is the DA (domestic absorption with US reference) of each country obtained by converting the exchange rate

converted total by the estimated price level from the global GEKS.[5] The country DAs in column A are summed to obtain a total for each region[6].

Column B expresses the CAR country estimates as a ratio to the total DA for the country in Column A. To obtain B, the share of the DA of each country within its region is derived from the 6 separate regional GEKS. The country share of say, Gambia in Africa, is then applied to the regional total of Africa from column A (fn6) to obtain the CAR DA of Gambia. Column B is the ratio of the CAR DA to the global DA for Gambia from Column A. The OD estimate of total DA for each country is expressed as a ratio to column A in column C.[7]

Weighted GEKS Based on Paasche-Laspeyres Ratios

In ***Table 2*** row 9, the ratio of the Paasche to Laspeyres indexes (P/L) was used as the weight in the GEKS regression (equation 1). The expectation is that a Laspeyres price index will tend to be larger the more different the two countries are in structure, and the opposite for a Paasche price index. So the P/L will be smaller when there is more uncertainty around the estimated Fisher, and less weight will be given to those Fishers. The results in ***Table 2*** support such an interpretation. The

[5] Domestic Absorption is GDP-exports + imports, or C + G + Domestic Investment.

[6] The regional DA totals from the global GEKS are:

	Global GEKS	
	DA (US$)	%
Africa	2,073,832	3.6%
Asia Pacific	12,839,757	22.6%
CIS	2,360,105	4.1%
OECD	36,176,864	63.6%
South America	2,637,734	4.6%
Western Asia	828,583	1.5%
All	56,916,875	100.0%

[7] The sum of the global GEKS is provided in footnote 5, and is equal to the total that would be obtained summing all CAR country DAs. Because the total of the DA of all countries underlying columns C and D can differ from the column A total, the country estimates have been normalized to the common total.

weighted regression has the lowest variance of the three regressions involving all countries, and even a lower RMSE than the OECD. In column D of ***Table A1*** the GEKS estimates of country DAs from the weighted regression are expressed as a ratio to column A.

Comparing the Volumes

A summary set of data by regions and all countries is provided in ***Table 3***. The geo means and standard deviations of the ratios (CAR, OD, P/L wgt) are presented in columns B-G. The standard deviations of columns E-G respectively derived from ***Table A1*** are all expressed as percentages. A strong regional pattern is clear for the OD approach, suggesting that the off-diagonal approach is the least attractive option. The weighted version appears to vary the least and the OD approach the most when the base is a global GEKS, so the focus will be on the CAR and weighted GEKS results.

Table 3. Regional Differences and Variation from global GEKS

Regions	Geo		Means	Stand	Ard Dev	iations
	CAR	OD	P/L Wgt	CAR	OD	P/L Wgt
A	B	C	D	E	F	G
Africa	1.003	1.200	0.993	0.036	0.043	0.011
Asia Pacific	1.008	1.177	0.994	0.019	0.023	0.006
CIS	0.949	1.092	0.983	0.068	0.078	0.013
OECD	0.991	0.900	0.998	0.015	0.014	0.010
South America	0.999	1.117	0.998	0.009	0.010	0.010
Western Asia	0.996	1.064	0.995	0.027	0.030	0.008
All Regions	0.996	1.077	0.995	0.327	0.133	0.010

The fact that the weighted GEKS is close to the un-weighted version is not surprising. Averaging over 146 direct and indirect Fishers that include many similar countries reduces the influence of outliers like Tajikistan, even without weighting. So weighting is not going to show large departures from un-weighted results. The geo-means in ***Table 3*** however, do suggest that the CAR method can have significant regional results, over 5% for CIS, and near to 1% for Asia and the OECD. The variation as measured by the standard deviation generally follows the pattern the same pattern

in the regions as for all countries, namely the weighted is less than the CAR or the off-diagonal.

We have referred several times to the RMSE as a good indicator of whether weighting is an improvement in comparison to treating all Fishers the same. We interpret a lower RMSE as meaning that the estimated PLs for countries have less associated error than otherwise. However, given the very special character of the matrix of Fishers used in the weighted GEKS, our claim is limited. Returning to a general point in the introduction, if we use weights with more dispersion like the $(P/L)^2$, the RMSE will continue to fall. In ***Table 2***, the global GEKS had a RMSE of .455, and the weighted version, using the P/L has a RMSE of .380. If we use $(P/L)^2$, the RMSE drops to .327.

If the principle of using weighted GEKS is accepted, it is not clear how much dispersion should be sought. For example, raising (P/L) to higher and higher powers is analogous to the binary linking in the chaining of Hill. Our view is that a reasonable compromise would be to use a weight or its square, the main argument being that some weighting on the Fishers should be on the table for discussion in most applications.

C. A Closer Look at the Regional GEKS

All Regions

Following up the findings in Part B, we discuss in this Part application of the SIM-weighted GEKS within the regions with special emphasis on the OECD. Weighting in the regions produces similar effects to that for all countries. The results are given in ***Table 4*** for no weights, a (P/L) weight and $(P/L)^2$ weight. If it makes sense to look at the relative reduction in RMSE, then the largest effect is in the CIS, and the smallest effect is in South America when moving from no weighting to $(P/L)^2$.

Table 4. Root Mean Square Errors All Countries and Regions

	P/L raised to power		
	0	1	2
All	0.455	0.380	0.327
Africa	0.288	0.236	0.199
Asia Pacific	0.339	0.285	0.245
CIS	0.188	0.144	0.118
OECD	0.388	0.336	0.296
South America	0.258	0.229	0.205
Western Asia	0.302	0.256	0.219

We have also addressed the question of what would happen if you used CAR with SIM-weights, where we have used the simple SIM-weight. Six Sim-weighted GEKS were estimated, one for each region. Then CAR was applied using the both the un-weighted and weighted GEKS over all countries to obtain the regional GDPs. The standard deviation using the un-weighted GEKS over all countries was 3.8%, higher than without weighting the regions. When CAR was applied using SIM-weights for regions and all countries the standard deviation was 2.2%, a modest reduction. Our conclusion is if weighting is to be applied then the CAR method would be moderately better weighting both the global and regional GEKS.

The OECD and EU

Let us look more closely at the OECD where subgroups have been linked internally since the first participation of the OECD in the 1980 benchmark. The EU distinguishes a core group of 15 countries that became members prior to May 2004 and the 10 countries that joined post May 2004. In addition there are the EFTA (European Free Trade Association) countries, Iceland, Norway and Switzerland, and the 3 candidate and 6 other European countries that are all combined into one group, other European countries. Finally, there are 7 other OECD members and

Israel. The groupings are given in ***Table A2***. ***Table 5*** provides a parallel weighting scheme to ***Table 4*** for these OECD countries.

In interpreting ***Table 5*** it is worth noting that operationally the countries are divided in geographically homogenous areas, for example, a Northern Group including Norway and Iceland. The geographical groups hold workshops that focus on choice of specifications, each with a group leader from the core members. So whatever heterogeneity is observed in ***Table 5***, it is not due to different methods of obtaining basic heading parities. Also, it should be made clear that the measure of heterogeneity we have been using between regions can arise because of data quality and because countries have very heterogeneous economic structures. Either of these effects can contribute to high P/L spreads. This paper would be sharpened if we knew the relative contribution of each of these factors to heterogeneity within and between regions.

Table 5. Root Mean Square Errors for OECD and Subgroups

OECD Region	P/L raised to power			
Subgroup	0	1	2	n
All Euopean and OECD Countries	0.388	0.336	0.296	45
EU Member States	0.321	0.284	0.256	25
Pre May 2004	0.136	0.114	0.100	15
Post May 2004	0.175	0.148	0.128	10
Other European Countries*	0.505	0.435	0.382	12
Other non-European OECD Countries	0.205	0.176	0.157	8

*Combines EFTA, the 3 candidate countries and the other European Countries

What is striking is ***Table 5*** is the heterogeneity of the Other European group compared to say the Other non European OECD group. The latter is spread from Australia to Mexico including some fairly diverse countries, so this was surprising to us. It is also clear that the earlier members and later members are each fairly homogeneous, but some of this is lost when they are combined. At present, the EU imposes fixity on their core 25 countriess (the Pre and Post May, 2004 members), and the OECD fits that into a GEKS over all of the 45 countries. Given the relatively low RMSEs for the 25 core Members, this certainly seems justified. We have also

estimated not shown a weighted GEKS over the weighted GEKS estimates for each region. We have not shown these results here but they are in the right direction but suggest that there i something to be gained in precision by using SIM-weighting within the OECD.

Conclusions

We reported a number of linking results at the level of Domestic Absorption using the 2005 ICP research data-base. The linking was based upon the GEKS approach and used Fishers and associated Paasche and Laspeyres price and derived volume measures. The CAR approach that will be used in the 2011 ICP was described, along with an alternative attempt that uses only those Fishers between countries outside their own region.[8]

Use of SIM-weighted GEKS on the Fisher binaries is a transparent and operational method, and provides measurable differences for comparisons. We have worked with one commonly used weight, but there are other similarity measures that can be considered. In looking at the OECD, we have illustrated how one large region accords priority to its core countries, in this case the 25 members of the EU, while including the others within a multilateral framework. Other regions might also have core or a number of sub-regions that could be handled in a similar manner. Our findings suggest that SIM-weighting of GEKS can readily be applied within the OECD, and to other regions.

Should a SIM-weighted GEKS be used? We would argue that it moves the estimates in the right direction and in general this is a good thing. The effect of Sim-weighting is generally less than 1% on the GEKS estimate for a country compared to a base GEKS with a few countries over 2%. Since the effect of SIM-weighting is not large is it worth another to the estimation? We are suggesting yes both because it moves in the right direction but also because of the relatively large differences

[8] Weighting of the OD elements does improve the RMSE as would be expected. From a value of 0.441 for an un-weighted GEKS, the RMSE declines with simple weighting to 0.365, and to 0.311 for $(P/L)^{\wedge 2}$.

introduced in the CAR approach, in some countries more than 5% compared to a global GEKS. It is our guess that using SIM-weighted GEKS in conjunction with the CAR approach will reduce some of the larger differences associated with the CAR approach at least for 2005. At a minimum this seems like a direction that would justify further study.

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Table A1: Comparison of Linking Methods for 2005 ICP
(Volume in Millions of US $ for Total Domestic Absorption)

Region	ISOCode	Country	GEKS All	CAR	OD	P/L Wgt
			A	B	C	D
AFR	AGO	Angola	34276	0.865	1.035	0.989
AFR	BDI	Burundi	3341	0.999	1.195	0.993
AFR	BEN	Benin	11456	1.027	1.229	0.988
AFR	BFA	Burkina Faso	16749	1.022	1.222	1.013
AFR	BWA	Botswana	17664	0.965	1.154	0.98
AFR	CAF	Central A.R.	2966	1.027	1.229	0.989
AFR	CIV	Cote d`Ivoire	26237	1.044	1.249	0.976
AFR	CMR	Cameroon	35594	1.042	1.247	1.001
AFR	COM	Colombia	236887	0.974	1.166	0.997
AFR	CPG	Comoros	720	0.975	1.166	0.979
AFR	CPV	Cape Verde	1955	1.017	1.216	0.988
AFR	DJI	Djibouti	1521	0.963	1.152	1.007
AFR	EGY	Egypt	366710	0.998	1.193	0.974
AFR	ETH	Ethiopia	43352	1.033	1.235	0.988
AFR	GAB	Gabon	10597	0.98	1.172	1.013
AFR	GHA	Ghana	31171	1.015	1.214	0.982
AFR	GIN	Guinea	9457	1.008	1.206	0.987
AFR	GMB	Gambia	1476	0.929	1.111	1.022
AFR	GNB	Guinea-Bissau	974	0.973	1.164	0.994
AFR	GNQ	Equat Guinea	6353	1.016	1.216	1.002
AFR	KEN	Kenya	52915	1.025	1.226	0.997
AFR	LBR	Liberia	1394	0.984	1.177	0.992
AFR	LSO	Lesotho	4495	1.013	1.211	0.997
AFR	MAR	Morocco	112909	1.007	1.204	0.989
AFR	MDG	Madagascar	19349	1.025	1.226	0.988

Region	ISOCode	Country	GEKS All	CAR	OD	P/L Wgt
AFR	MLI	Mali	13925	0.996	1.192	0.987
AFR	MOZ	Mozambique	16120	1.033	1.236	0.982
AFR	MRT	Mauritania	7234	1.021	1.221	0.995
AFR	MUS	Mauritius	13321	0.985	1.178	0.992
AFR	MWI	Malawi	9581	1.042	1.246	0.991
AFR	NAM	Namibia	10018	0.992	1.186	1.012
AFR	NER	Niger	8617	1.043	1.248	1.008
AFR	NGA	Nigeria	227147	0.988	1.182	0.993
AFR	RWA	Rwanda	8186	1.007	1.204	0.998
AFR	SDN	Sudan	86302	1.016	1.216	0.99
AFR	SEN	Senegal	20585	1.029	1.231	0.989
AFR	SLE	Sierra Leone	5143	0.981	1.173	0.996
AFR	STP	Sao Tome	306	1.015	1.214	0.994
AFR	SWZ	Swaziland	5079	1.001	1.197	0.992
AFR	TCD	Chad	13755	0.97	1.16	1.023
AFR	TGO	Togo	6226	1.037	1.24	0.992
AFR	TUN	Tunisia	65332	0.98	1.172	1
AFR	TZA	Tanzania	36791	1.096	1.31	0.987
AFR	UGA	Uganda	30112	1.016	1.215	0.995
AFR	ZAF	South Africa	400606	1.002	1.199	0.99
AFR	ZAR	Congo, D.	16068	1.013	1.212	0.99
AFR	ZMB	Zambia	15925	1.037	1.24	0.987
AFR	ZWE	Zimbabwe	6935	0.961	1.149	0.977
		Total AFR	**2073832**	**1.003**	**1.200**	**0.993**
ASP	BGD	Bangladesh	206261	0.987	1.153	0.991
ASP	BRN	Brunei	10130	0.997	1.165	0.993
ASP	BTN	Bhutan	3070	0.971	1.134	0.987
ASP	CHN	China	5682517	0.984	1.149	0.988
ASP	FJI	Fiji	4759	1.036	1.21	0.993
ASP	HKG	Hong Kong	219327	1.028	1.201	0.983
ASP	IDN	Indonesia	739535	1.018	1.189	1.007
ASP	IND	India	2624073	1.014	1.185	0.997
ASP	IRN	Iran	788292	0.994	1.161	0.992
ASP	KHM	Cambodia	22714	0.999	1.167	0.993
ASP	LAO	Laos	12281	0.996	1.163	0.993
ASP	LKA	Sri Lanka	81441	1.007	1.176	0.999
ASP	MAC	Macao	11234	0.982	1.148	0.993
ASP	MDV	Maldives	1610	1.009	1.179	0.984
ASP	MNG	Mongolia	7591	1.017	1.188	0.987
ASP	MYS	Malaysia	248377	1.035	1.209	0.997

Region	ISOCode	Country	GEKS All	CAR	OD	P/L Wgt
ASP	NPL	Nepal	34008	1.016	1.187	0.992
ASP	PAK	Pakistan	428219	1.005	1.174	0.999
ASP	PHL	Philippines	286697	1.005	1.173	0.995
ASP	SGP	Singapore	126600	1.041	1.217	1.003
ASP	THA	Thailand	481226	1.037	1.212	0.999
ASP	TWN	Taiwan	613367	1.012	1.182	0.992
ASP	VNM	Vietnam	206428	0.989	1.155	0.997
		Total ASP	**12839757**	**1.008**	**1.177**	**0.994**
CIS	ARM	Armenia	17262	0.973	1.121	0.982
CIS	AZE	Azerbaijan	39560	1.021	1.176	0.985
CIS	BLR	Belarus	99010	0.98	1.128	0.982
CIS	GEO	Georgia	22071	0.974	1.121	0.984
CIS	KAZ	Kazakhstan	140998	0.936	1.077	0.986
CIS	KGZ	Kyrgyzstan	13188	0.911	1.049	1.002
CIS	MKD	Macedonia	24447	0.941	1.083	0.99
CIS	RUS	Russia	1674104	1.014	1.168	0.984
CIS	TJK	Tajikistan	15737	0.784	0.902	0.952
CIS	UKR	Ukraine	313728	0.978	1.126	0.987
		Total CIS	**2360105**	**0.949**	**1.092**	**0.983**
OECD	ALB	Albania	20659	0.977	0.887	0.988
OECD	AUS	Australia	719806	0.982	0.891	1.012
OECD	AUT	Austria	273738	1.001	0.909	1.012
OECD	BEL	Belgium	330449	1	0.908	0.997
OECD	BGR	Bulgaria	83596	0.984	0.893	0.991
OECD	BIH	Bosnia	33845	0.98	0.89	0.992
OECD	CAN	Canada	1124659	0.995	0.903	0.995
OECD	CHE	Switzerland	253692	0.993	0.902	1.012
OECD	CYP	Cyprus	19422	1.012	0.919	0.986
OECD	CZE	Czech R.	213120	0.983	0.893	0.995
OECD	DEU	Germany	2477522	0.989	0.898	0.996
OECD	DNK	Denmark	176837	0.993	0.902	1
OECD	ESP	Spain	1286553	0.996	0.904	0.996
OECD	EST	Estonia	24896	0.984	0.893	0.99
OECD	FIN	Finland	154743	0.992	0.901	0.995
OECD	FRA	France	1922325	1.003	0.911	0.995
OECD	GBR	United K.	2101222	0.973	0.884	1.012
OECD	GRC	Greece	310329	1.005	0.912	0.989
OECD	HRV	Croatia	65039	1.006	0.914	1.008
OECD	HUN	Hungary	182572	0.982	0.892	0.997

Region	ISOCode	Country	GEKS All	CAR	OD	P/L Wgt
OECD	IRL	Ireland	138491	0.996	0.905	1
OECD	ISL	Iceland	13242	0.97	0.881	1.009
OECD	ISR	Israel	163121	0.988	0.897	1.005
OECD	ITA	Italy	1668849	1.002	0.91	1.013
OECD	JPN	Japan	3895319	1.01	0.917	0.994
OECD	KOR	Korea	1034090	1.01	0.917	0.974
OECD	LTU	Lithuania	54735	0.975	0.885	1.017
OECD	LUX	Luxembourg	25021	1.005	0.913	1.001
OECD	LVA	Latvia	36100	0.973	0.884	0.99
OECD	MDA	Moldova	10889	0.982	0.892	0.996
OECD	MEX	Mexico	1283346	0.959	0.871	0.999
OECD	MLT	Malta	8892	1.001	0.909	0.999
OECD	MNE	Montenegro	5499	1.038	0.943	0.983
OECD	NLD	Netherlands	530045	1.003	0.91	0.988
OECD	NOR	Norway	182417	0.994	0.903	1.012
OECD	NZL	New Zealand	108461	0.978	0.888	0.997
OECD	POL	Poland	566433	0.967	0.878	1.006
OECD	PRT	Portugal	237087	0.998	0.906	0.988
OECD	ROM	Romania	227891	0.98	0.89	0.982
OECD	SRB	Serbia	77304	0.984	0.894	1.003
OECD	SVK	Slovak R.	96444	0.965	0.876	1.005
OECD	SVN	Slovenia	47948	0.996	0.905	0.996
OECD	SWE	Sweden	274087	0.989	0.898	0.999
OECD	TUR	Turkey	625429	0.979	0.889	1.002
OECD	USA	United States	13090700	1.013	0.92	1.015
-	-	**Total OECD**	**36176864**	**0.991**	**0.900**	**0.998**
S.AMER	ARG	Argentina	401165	0.988	1.105	0.997
S.AMER	BOL	Bolivia	33088	1.012	1.131	0.997
S.AMER	BRA	Brazil	1504811	1.003	1.121	0.992
S.AMER	CHL	Chile	179035	0.998	1.116	0.997
S.AMER	COL	Columbia	7559	1.002	1.12	0.993
S.AMER	ECU	Ecuador	86620	1.01	1.13	1.012
S.AMER	PER	Peru	165528	1.005	1.124	0.998
S.AMER	PRY	Paraguay	24385	0.989	1.105	0.991
S.AMER	URY	Uruguay	29884	0.987	1.103	0.985
S.AMER	VEN	Venezuela	205659	0.998	1.116	1.017
-	-	**Total S.Amer**	**2637734**	**0.999**	**1.117**	**0.998**

Region	ISOCode	Country	GEKS All	CAR	OD	P/L Wgt
W.Asia	BHR	Bahrain	16062	1.033	1.146	0.988
W.Asia	IRQ	Iraq	96954	1.000	1.109	0.994
W.Asia	JOR	Jordan	36720	0.999	1.108	1.008
W.Asia	KWT	Kuwait	72895	0.998	1.107	0.987
W.Asia	LBN	Lebanon	52984	0.96	1.065	0.996
W.Asia	OMN	Oman	39852	0.993	1.102	0.996
W.Asia	QAT	Qatar	35501	1.056	1.172	0.991
W.Asia	SAU	Saudi Arabia	349239	0.998	1.107	0.998
W.Asia	SYR	Syria	79445	1.019	1.13	1.011
W.Asia	YEM	Yemen	48931	0.981	1.087	0.995
		Total W.Asia	828,583	1.073	1.064	0.971
		Global	56916878	0.996	1.077	1.145

***Table 2a** All European and OECD Countries*

		EU Member States	Prior or Post May ,2004				
1	BEL	Belgium	Prior	1	BGR	Bulgaria	Cand
2	DNK	Denmark	Prior	2	ROM	Romania	Cand
3	DEU	Germany	Prior	3	TUR	Turkey	Cand
						Other European	
4	ESP	Spain	Prior	4	ISL	Iceland	EFTA
5	FRA	France	Prior	5	NOR	Norway	EFTA
6	IRL	Ireland	Prior	6	CHE	Switzerland	EFTA
7	ITA	Italy	Prior	7	HRV	Croatia	OECD
8	LUX	Luxembourg	Prior	8	MKD	Macedonia, FYR	OECD
9	NLD	Netherlands	Prior	9	ALB	Albania	OECD
10	AUT	Austria	Prior	10	BIH	Bosnia and Herzegovina	OECD
11	PRT	Portugal	Prior	11	MNE	Montenegro	OECD
12	FIN	Finland	Prior	12	SRB	Serbia	OECD

13	SWE	Sweden	Prior				
14	GBR	United Kingdom	Prior				
15	GRC	Greece	Prior				
1	CYP	Cyprus	Post				
2	CZE	Czech Republic	Post				
3	EST	Estonia	Post				
4	HUN	Hungary	Post				
5	LVA	Latvia	Post				
6	LTU	Lithuania	Post				
7	MLT	Malta	Post				
8	POL	Poland	Post				
9	SVK	Slovak Republic	Post				
10	SVN	Slovenia	Post				
					Other non-European OECD Members and Israel		
1	AUS	Australia	Other				
2	NZL	New Zealand	Other				
3	JPN	Japan	Other				
4	KOR	Korea, Rep.	Other				
5	CAN	Canada	Other				
6	MEX	Mexico	Other				
7	USA	United States	Other				
8	ISR	Israel	Other				