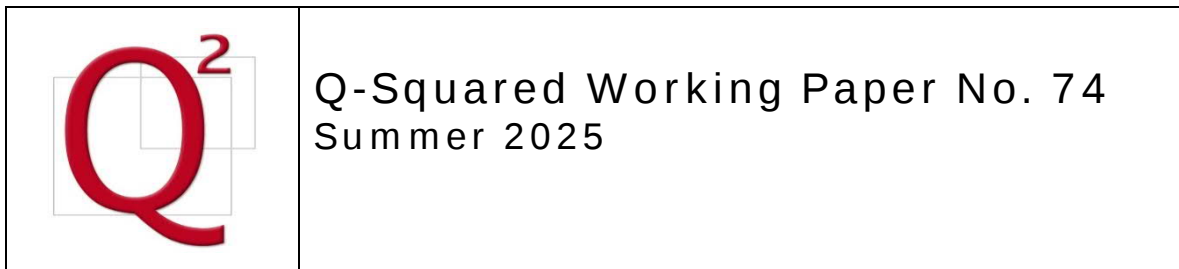


Inclusive Service Sector-led Growth (ISSG): Country-Spell Case Study Selection

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Abstract

The Inclusive Service Sector-led Growth (ISSG) research program has been motivated by the twin facts that: i) the main absorber of labour in low and middle income countries in the Global South is the service sector and ii) most services sector jobs have relatively low productivity. It aims to identify and explain successful and unsuccessful experiences in achieving ISSG defined in terms of the creation of productivity-augmenting, labour-absorbing and poverty reducing service sector jobs. The research program follows a comparative case study design contrasting better and worse performing country-specific time periods or 'country-spells'. The initial stage in the research process, outlined in this paper, is the selection of such country-spells which are subsequently used to populate a typology developed from the literature on structural transformation.



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1. Introduction

As detailed in the companion *Q-Squared Working Paper 73* (Shaffer 2024–25), the Inclusive Service Sector-led Growth (ISSG) research program has been motivated by the twin fact that the main absorber of labour in low and middle income countries in the Global South is the service sector, and most service sector jobs have low value-added. Accordingly, the possibility of inclusive growth in such countries will depend on the provision of productivity-augmenting, labour-absorbing and poverty-reducing service sector jobs. Otherwise stated, it will depend on the realisation of Inclusive Service Sector-led Growth (ISSG).

The objective of the ISSG research program is to examine why some countries have fared better than others in achieving ISSG. It will rely primarily on a comparative country-spell case study design to do so. A country-spell is a country-specific time period, typically spanning three or five years. The focus of this paper is on the selection of country-spells for the case studies drawing on cross-country regressions and proceeding to the population of a country typology.

The format is as follows: Section 2 presents the econometric framework which is based on the logic of a sectoral decomposition of growth. The objective is to identify country-spells which have been more and less successful at translating service sector growth into poverty reduction (based on a wide range of model specifications). Section 3 presents the populated typology and discusses illustrative pathways of ISSG for different country categories within the typology.

One preliminary point is relevant to note. It was originally foreseen that cluster analysis would be used in the selection of cases (as detailed in Section 4.1 of Shaffer (2024–25)). Ultimately, it was decided not to proceed in this way and instead to development a typology of country-spells. The rationale for this change is explained in Section 3.1.

2. Econometric Analysis

2.1 Model Specification

The model to be estimated for purposes of country-spell selection regresses poverty reduction on service and non-service sector value-added per capita. This basic framework can be expanded to decompose growth into ‘within’ and ‘between’ sector components as presented in the companion *Q-Squared Working Paper 73* (Shaffer 2024–25).¹ The approach used here is a modified version of Benfica and Henderson (2021) which itself follows in the tradition of Ravallion and Datt (1996) and Christensen et al. (2011).

The conceptual building block of the B/F approach is a growth (semi) elasticity of poverty of the form:

$$\Delta P_{it} = \alpha_i + \beta_{it} \Delta Y_{it} + \varepsilon_{it} \quad (1)$$

where Δ is a change operator, P and Y represent (the annualized change in) poverty and GDP per capita respectively for country i at time t , α is the country-specific intercept, and ε is a country and time-specific error term. The coefficient β is either the growth elasticity of poverty (GEP) – the percentage change in poverty associated with a one percent change in GDP per capita – or the growth semi-elasticity of poverty – the percentage *point* change in poverty associated with a one percent change in GDP per capita.

The decomposition exercise requires decomposing GDP per capita growth into its sectoral components, and regrouping them into the service and non-service sectors:

¹ Recent examples applied to poverty include Benfica and Henderson (2021) and Erumban and de Vries (2024).

$$Y = \sum_{j \in \{s, ns\}} Y_j \quad (2)$$

where Y represents value-added *per capita* and the subscripts ‘s’ and ‘ns’ represent the service and non-service sectors, respectively. Differencing equation (7) yields:

$$\Delta Y = \theta_s \Delta Y_s + \theta_{ns} \Delta Y_{ns} \quad (3)$$

where θ_s and θ_{ns} are weighting parameters which reflect the shares of services and non-services in total value-added respectively. Substituting (3) into equation (1) and adding subscripts leads to:

$$\Delta P_{it} = \alpha_i + \beta_{sit} \cdot \theta_{sit-1} \Delta Y_{sit} + \beta_{nsit} \cdot \theta_{nsit-1} \Delta Y_{nsit} + \varepsilon_{it} \quad (4)$$

Equation (4) is the core model used for country-spell selection. The objective is to find country-spells with very different values of the β_{sit} coefficients which may serve as comparator case studies. The core challenge in attempting to estimate individual country-spell coefficients is sample size. In the poverty dataset, there are relatively few spells per country. Accordingly, even with only two independent variables, we will not be able to estimate coefficients for countries that do not meet $k+2$ (OLS) or $k+N+1$ (fixed effects) rules.

Consequently, as an approximation, we will rely on a variant of the Leave-One-Out (LOO) approach used in cross-validation (James et al. 2013, ch. 5), heretofore referred to as the Leave-One-Country-Spell-Out (LOCSO) approach. LOCSO provides an estimate of the influence of individual country-spells by comparing coefficient estimates from the full sample with subsequent iterations which drop one country-spell in turn. More formally, it estimates:

$$\Delta P_{it}^{full} = \alpha_i^{full} + \beta_{sit}^{full} \cdot \theta_{sit-1} \Delta Y_{sit} + \beta_{nsit}^{full} \cdot \theta_{nsit-1} \Delta Y_{nsit} + \varepsilon_{it}^{full} \quad (5)$$

along with n iterations of :

$$\Delta P_{it}^{(-j)} = \alpha_i^{(-j)} + \beta_{sit}^{(-j)} \cdot \theta_{sit-1} \Delta Y_{sit} + \beta_{nsit}^{(-j)} \cdot \theta_{nsit-1} \Delta Y_{nsit} + \varepsilon_{it}^{(-j)}, j = 1, \dots, n \quad (6)$$

where the superscript *full* denotes the full-sample model and the superscript $(-j)$ represents the full model with country-spell j omitted, for $j=1, \dots, n$. By subtracting equation (6) from (5), we can back-out an estimated value for the service sector coefficient, $\hat{\beta}_{sit}^{(j)}$, for country-spell j as follows:

$$\hat{\beta}_{sit}^{(j)} = \beta_{sit}^{(full)} - \beta_{sit}^{(-j)}, j = 1, \dots, n \quad (7)$$

It should be emphasised that though $\hat{\beta}_{sit}^{(j)}$ is only an estimate of $\beta_{sit}^{(j)}$, it meets our purposes of selecting country-spells whose influence patterns are very different.

2.2 Estimation and Country-spell Selection

The core estimating equation (4) is a reduced form model of the relationship between poverty reduction and sectoral growth. There are several potential sources of bias in this model related, for example, to missing variables and endogeneity. In the broader literature, attempts have been made to supplement similar models with additional regressors and/or deal with the potential endogeneity of sectoral growth itself.²

For the present purposes, equation (4) is retained in its reduced form for two core reasons. The primary objective is not to address all potential sources of bias in the model but to extract estimates of spell-specific coefficients to allow for identification of cases with very different values of $\beta_{sit}^{(j)}$, (even in an imperfectly specified model). Second, at this stage, establishing a causal link between service sector growth and poverty reduction is less important than establishing degrees of association. Greater importance will be placed on the case study analyses to infer causality.

Equation (4) is estimated using both pooled OLS, random and fixed effects with robust standard errors clustered by country. The left-hand side variable, ΔP_{it} , is specified as either the (percentage point) change in poverty incidence or the (percentage) change in consumption expenditure/income of the bottom 20 and 40 percent. For poverty incidence, poverty lines of \$3.00/day, \$4.20/day and \$8.30/day in 2021 Purchasing Power Parity (PPP) terms are used (Foster et al., 2025), which arguably represent appropriate (updated) extreme poverty thresholds in low, lower-middle and upper-middle income countries, respectively (Jolliffe and Prydz, 2016). A fourth hybrid poverty line also appears which assigns these poverty lines to a country's corresponding income status. Three-year, five-year and long poverty spells (of at least 10 years duration) were used for all variants of these poverty definitions. The random and fixed effects models dropped the long spells, as they were limited to one per country. Table 1 shows the breakdown of models by estimation approach, spell duration and poverty measure.

Table 1 Estimating Models for Country-spell Selection

	OLS			RE			FE		
	3yr	5yr	Long	3yr	5yr	Long	3yr	5yr	Long
Poverty Incidence									
p0									
\$3.00/day	✓	✓	✓	✓	✓	X	✓	✓	X
\$4.20/day	✓	✓	✓	✓	✓	X	✓	✓	X
\$8.30/day	✓	✓	✓	✓	✓	X	✓	✓	X
p1									
\$3.00/day	✓	✓	✓	✓	✓	X	✓	✓	X
\$4.20/day	✓	✓	✓	✓	✓	X	✓	✓	X
\$8.30/day	✓	✓	✓	✓	✓	X	✓	✓	X
p2									
\$3.00/day	✓	✓	✓	✓	✓	X	✓	✓	X
\$4.20/day	✓	✓	✓	✓	✓	X	✓	✓	X
\$8.30/day	✓	✓	✓	✓	✓	X	✓	✓	X
p0 Hybrid	✓	✓	✓	✓	✓	X	✓	✓	X
p1 Hybrid	✓	✓	✓	✓	✓	X	✓	✓	X
p2 Hybrid	✓	✓	✓	✓	✓	X	✓	✓	X
Cons./Inc. Growth									
Bottom 20%	✓	✓	✓	✓	✓	X	✓	✓	X
Bottom 40%	✓	✓	✓	✓	✓	X	✓	✓	X

² For example, Benfica and Henderson (2021), Christiaensen et al. (2011), Christiaensen and Todo (2013), Christiaensen and Martin (2018), Ligon and Sadoulet (2018) and Erumban and de Vries (2024).

In total, 98 separate models were run using the approach described in the preceding paragraph. Table 2 provides the numerical breakdown.

Table 2 Number of Country-Spell Selection Models Estimated

	OLS	RE	FE	All
p0/2	27	18	18	63
p0/2hybrids	9	6	6	21
q2/4	6	4	4	14
<i>Total</i>	42	28	28	98

The process of country-spell selection proceeded through six steps, namely:

First, as per the LOCSO approach discussed in the preceding section, for each of the 98 model specifications, a full sample version was run followed by n iterations with one observation removed in turn. The total number of runs of the 98 models was 10740.³

Second, the spell-specific coefficient values for the service sector variable, $\hat{\beta}_{sit}^{(j)}$, were estimated ('backed-out') for all spells following equation (7) along with the difference between the $\hat{\beta}_{sit}^{(j)}$ and the service sector variables in the full models, $\beta_{sit}^{(full)}$, to arrive at the diff_ser variables. To recall, the diff_ser variable measures the relative responsiveness of service sector growth to poverty reduction.

Third, country-spells were identified whose diff_ser values fell above or below one standard deviation of the mean diff_ser value. The signs of the diff_ser variables in the poverty incidence models were reversed so that 'top' performers were positively signed, consistent with the income/consumption growth models.

Fourth, a visual check of the power of the one standard deviation rule to identify outliers was conducted. The test criterion was based on: i) whether the distributions were broadly unimodal and ii) the peaks well-bracketed by the one standard deviation rule. Kernel densities were estimated for all models with standard deviation intervals superimposed. A number of models which did not pass the visual check were removed (see Appendix Figure 1).

Fifth, a ranking of top and bottom country-spells was compiled across 84 retained models. To be classified as a top or bottom performer, at least 90% of observations had to fall in one of those categories⁴ with a minimum of at least three observations. The list of top and bottom performers appears in Table 7.

Sixth, a Pearson chi-square test was applied to all pairs of country-spells assigned to the top and bottom of the ranking to determine the statistical significance of differences in their categorical distributions (top, middle, bottom). The full list of results across all combinations of country-spells is presented in Appendix Table 12.

Last, the preliminary list of top and bottom performers, with statistically significant differences, were situated within a typology developed from the literature on structural transformation.

³ The 'N' column in Appendix Table 10 provides the number of runs for each of the 98 models. To arrive at 10740, we add 98 'full' models to the 10642 sum total of model runs, each missing one observation (-j).

⁴ More specifically, 90% of observations from the top or bottom categories. The middle category was excluded from this calculation because around 86 percent of all observations across all model runs fell into that grouping (see discussion in section 2.4.2c).

2.3 Data

The poverty data, the left-hand side of equation (4), are from the World Bank's Poverty and Inequality Platform database (<https://pip.worldbank.org/home>). The data reflect the recent adjustments to the income and consumption measures, and poverty lines, based on 2021 Purchasing Power Parity (PPP) conversion rates (Foster et al. 2025). The sample was restricted to poverty spells in low and middle income countries of the Global South between 1990 and 2018. Country-spells were excluded if poverty incidence fell below 1%. Accordingly, the sample size increases from the lowest to highest poverty lines used. Table 3 presents the number of observations at the poverty lines of \$3.00/day, \$4.20/day and \$8.30/day for the three-year, five-year and long poverty spells (of at least 10 years duration).⁵ Appendix Tables 1-6 present the complete listing of all country poverty spells for all poverty measures along with descriptive statistics on poverty.

Table 3 Country-spell Counts

Country-Spell	N
3 Year	
\$3.00/day	143
\$4.20/day	148
\$8.30/day	151
5 Year	
\$3.00/day	92
\$4.20/day	96
\$8.30/day	98
Long	
\$3.00/day	24
\$4.20/day	25
\$8.30/day	26

The data on sectoral value-added, the right-hand side of equation (4), are from the Groningen Growth and Development Centre/World Institute for Development Economics Research (GGDC/WIDER) Economic Transformation Database (ETD). As of August 2025, data coverage was from 1990 to 2018 corresponding to the time period of our sample. Additional information on the database is provided by de Vries et al. (2021) and related discussion is in the companion *Q-Squared Working Paper 73* (Shaffer 2024-25). Data on population required for the per capita information were sourced from the World Bank's World Development Indicators database (<https://databank.worldbank.org/source/world-development-indicators>).

2.4 Results

2.4.1 Full Model

To recall from the discussion in sections 2.1 and 2.2., the main model of relevance for country-selection is the Leave-One-Country-Spell-Out (LOCSO) presented in section 2.4.2. Nevertheless, this section presents basic information on the full model to provide context for the LOCSO results. Specifically, section 2.4.1a provides model specification diagnostics and section 2.4.1b presents empirical results in summary form.

⁵ The income/consumption growth of the bottom 20% and 40% (q2/4) used the sample corresponding to the \$8.30/day poverty line.

2.4.1a Diagnostics

As discussed in section 2.2, the estimating approach relied on pooled OLS, random and fixed effects models. The rationale was that each would provide relevant information on the comparative performance of individual country-spells even if the underlying models themselves were mis-specified. Here, we examine the extent of potential misspecification.

Table 4 presents p-values for the Breusch-Pagan Lagrange Multiplier (BP-LM), F and Arellano-Wooldridge tests across the 28 three and five-year spell models (the long spell models were dropped as they included only one country observation). A formal treatment of the first two tests can be found in many econometrics textbooks (for example, Baltagi 2005, ch.4). Intuitively, the BP-LM and F tests assess the validity of the pooled OLS models by testing whether the variance or coefficient values, respectively, of the unit variables are jointly 0. The Arellano-Wooldridge procedure assesses the consistency of the random effects models by testing for zero correlation between the unit-specific error terms and the model regressors. It is a version of the standard Hausman test which is robust to heteroskedasticity and appropriate in our case given the clustering of standard errors by country.⁶

Table 4 Full Model Diagnostics

Model	BP-LM (p)	F (p)	Arellano-Wooldridge (p)	Model	BP-LM (p)	F (p)	Arellano-Wooldridge (p)
1 Dlnp0spl3yr30	0.027	0.026	0.030	15 Dlnp2splfyr42	0.014	0.017	0.004
2 Dlnp1spl3yr30	1.000	0.133		16 Dlnp0splfyr83	0.000	0.001	0.156
3 Dlnp2spl3yr30	1.000	0.255		17 Dlnp1splfyr83	0.000	0.002	0.036
4 Dlnp0spl3yr42	0.000	0.000	0.077	18 Dlnp2splfyr83	0.000	0.004	0.014
5 Dlnp1spl3yr42	0.000	0.000	0.006	19 Dlnp0hybspl3yr	0.000	0.000	0.273
6 Dlnp2spl3yr42	0.000	0.003	0.001	20 Dlnp1hybspl3yr	0.000	0.001	0.111
7 Dlnp0spl3yr83	0.000	0.000	0.293	21 Dlnp2hybspl3yr	0.003	0.003	0.083
8 Dlnp1spl3yr83	0.000	0.000	0.124	22 Dlnp0hybsplfyr	0.000	0.004	0.030
9 Dlnp2spl3yr83	0.000	0.000	0.056	23 Dlnp1hybsplfyr	0.005	0.014	0.006
10 Dlnp0splfyr30	0.029	0.012	0.519	24 Dlnp2hybsplfyr	0.016	0.027	0.004
11 Dlnp1splfyr30	0.109	0.063	0.570	25 Dlnq2spl3yr83	0.326	0.230	0.218
12 Dlnp2splfyr30	0.171	0.110	0.624	26 Dlnq4spl3yr83	0.175	0.100	0.092
13 Dlnp0splfyr42	0.000	0.001	0.053	27 Dlnq2splfyr83	0.420	0.442	0.098
14 Dlnp1splfyr42	0.003	0.007	0.008	28 Dlnq4splfyr83	0.386	0.260	0.069
Bolded values= $p < 0.05$ Dln=Log Difference; P0/1/2= Poverty/Incidence/ Intensity/Severity; q2/4=Income/ Consumption Change of Bottom 20%/40%; spl3yr/fyr/long = Country-Spell Duration; 30/42/83= \$3.00/\$4.20/\$8.30/day Poverty Lines							

There are two main findings to note from Table 4. First, there is evidence of country-level effects as one would expect in a multi-country regression with only two variables, as shown by the statistically significant p-values for the BP-LM and F tests in 22 of 28 models. Second, the Arellano-Wooldridge results are statistically significant in only 10 of 26 models, which suggests that the random effects models are consistent in most cases.

2.4.1b Results

Table 5 presents summary results of the number of poverty-reducing coefficients for the service (Ser) and non-service (Non-Ser) sector variables across the 98 models (additional results are presented in Appendix

⁶ The Arellano-Wooldridge approach tests for a correlation between the regressors in the random effects models and the unit-specific error term. It uses an artificial regression procedure which supplements the regressors in the original random effects model with the same regressors expressed in deviations-from-mean form. It estimates a Wald test of the joint significance of these added regressors. An intuitive explanation is provided in Schaffer et al. (2010).

Tables 7-9). The model categories are the same as in Tables 1 and 2. The ‘Sig’ column refers to the number of poverty-reducing coefficients which are also statistically significant ($p \leq 0.05$).

Table 5 Full Model: Number of Poverty-Reducing Coefficients

Models	OLS				RE				FE				Totals			
	Ser	Non		Sig	Ser	Non		Sig	Ser	Non		Sig	N	N	N	All
		Sig	-Ser			Sig	-Ser			Sig	-Ser					
P0/2	27	14	11	0	18	13	6	0	18	12	2	8	27	18	18	63
p0/2 Hybrids	9	6	1	0	6	6	0	0	6	5	0	6	9	6	6	21
q2/4	6	0	5	0	4	1	2	0	4	1	0	0	6	4	4	14
	42	20	17	0	28	20	8	0	28	18	2	14	42	28	28	98
Ser and Non-ser = Service and Non-Service sector coefficients, signed as poverty-reducing; Sig = $p \leq 0.05$ Refer also to tables 1 and 2.																

Bearing in mind caveats about misspecification, two findings are relevant to note. First, the sign on the service sector is poverty-reducing across all 98 models and statistically significant in around 60 per cent of cases. It is interesting that the sign of the Ser coefficient, but not its statistical significance, remains the same for the pooled OLS q2/4 models, whose specification was not rejected by the BP-LM and F tests (see Table 4). Second, the corresponding figures fall dramatically for the non-Service sector which is poverty-reducing in only 27 cases and statistically significant only 15 per cent of the time.⁷

2.4.2 Leave-One-Country-Spell-Out (LOCSO) Model

As discussed in Section 2.2, the process of identify country-spells followed six steps, namely:

1. Estimation of LOCSO individual models corresponding to the 98 different model specifications;
2. Estimation (‘backing out’) of the country-spell specific $\hat{\beta}_{sit}^{(j)}$, coefficients and calculation of the difference between the service sector variables in the full models, $\beta_{sit}^{(full)}$, to arrive at country-spell specific diff_ser variables;
3. Identification of country-spell diff_ser values above or below one standard deviation of the mean
4. Visual assessment of the discriminatory power of the $\pm 1SD$ rule using kernel density estimates;
5. Selection of top and bottom performers based on the retained models;
6. Conducting statistical tests of difference between pairs of top and bottom performers.

Empirical results from these six steps will be reviewed in turn.

2.4.2a Steps 1-2: Estimating the diff_ser Variables

Table 6 provides summary descriptive statistics of the diff_ser variable across the classes of models distinguished in terms of the poverty measures used (see section 2.2). The mean and standard deviations (SD) are weighted by the number of model runs (see Appendix Table 10 for descriptive statistics for the 98 models). The ‘N’ column denotes the number of LOCSO model runs (corresponding to the number of

⁷ There do not appear to be examples in the literature of models specified in terms of the service/non-service breakdown. Generally, studies which have examined the sectoral correlates of poverty reduction have arrived at mixed results concerning the role of the service sector. Studies which have found service sector growth to be poverty-reducing include Warr (2006) for South-East Asia and Suryahadi et al. (2009) for Indonesia. Interestingly, Erumban and de Vries (2024) found a positive and statistically significant effect of business and financial services for countries in Global South from the GGDC/WIDER ETD database. This somewhat surprising finding is consistent with data from the World bank’s Job Indicators Database which suggest that the greatest employment share increase for low education workers between 2000 and 2018 occurred in this sector (Shaffer 2024-24: 12, table 12).

country-spells per model). As mentioned in section 2.2, 10740 models were runs including the LOCSO and full models (see note 3). The table also presents the weighted mean value of the service sector coefficients (b_ser) from the full model regressions (see Appendix Tables 7-9).

Table 6 diff_ser Variable Descriptive Statistics (Summary)

	diff_ser					b_Ser (Mean)
	Mean	SD	Min	Max	N	
Models						
p0/2	-0.001	0.114	-1.776	1.553	6777	-1.531
p0/2hybrids	0.000	0.081	-0.750	0.681	2319	-1.627
q2/4	0.000	0.054	-0.479	0.342	1546	0.672

There are two relevant findings to note about Table 6 (and Appendix Table 10). First, the mean values of the diff_ser variables approximate zero by design, given that they average (positive and negative) deviations between the service sector beta coefficients in the full model and the LOCSO runs. So, the zero mean is to be expected.

Second, the size of the measures of dispersion are important to examine as they are integral to the strategy of selecting outliers. In this context, an appropriate frame of comparison is between the size of the range and standard deviation and that of the service sector coefficients (b_Ser) in the full model. To recall, the b_Ser coefficient is a (semi) elasticity, measuring the percentage (point) change in poverty associated with the percentage change in service sector growth (the variables are specified as log differences). The range is relatively large compared to the b_Ser mean, exceeding its absolute value by a factor of around 1-2. The standard deviation, however, is more modest. It increases or decreases the percentage change in poverty by between 0.05 and 0.11 percent, depending on the model in question. Accordingly, the absolute value of the difference between some observations in the upper and lower tails of the distributions is relatively small.

This relatively small absolute different is a limitation of the LOCSO approach whereby the diff_ser variable is often quite small (in particular for logged variables), given that the influence of any one observation on model results is often relatively minor. **It should be emphasised, however, that the justification of the LOCSO approach to identify outliers rests on different grounds, namely:** 1) the approach allows for the differentiation of central tendencies from tails in the distribution of the diff_ser variables (see section 2.4.2b) and 2) there are statistically significant differences in the categorical distributions (top, middle, bottom) of top and bottom country spells across many different model specifications (see section 2.4.2d).

2.4.2b Steps 3-4: Preliminary Application of the ± 1 SD rule and Visual Check

As mentioned in section 2.2, the initial approach to identify positive and negative outliers was to select observations above and below one standard deviation from the mean. This ± 1 SD rule has power if the distributions are broadly unimodal and the peaks fall within one standard deviation of the mean. In order to assess these assumptions a visual check was performed for all 98 models. Kernel densities were estimated, using the Epanechnikov kernel, and standard deviations superimposed on the ensuing graphics. Appendix Figure 1 presents the full results.

Visual inspection of Appendix Figure 1 reveals that in the vast majority of cases, the distributions are unimodal and centred on mean zero. Further, the peaks are well-bracketed by the ± 1 SD rule. The exceptions concerned the long spell models for poverty (p0/2) and, to a lesser extent, income or consumption growth of the bottom 20/40 per cent (q2/4). These distributions tended to be much flatter and not well-bracketed.

To recall these models had considerably fewer observations than the others (see Appendix Table 7). Accordingly, the 14 long spell models⁸ were removed and 84 models retained.

2.4.2c Steps 5-6: Selection of Top and Bottom Performers & Statistical Tests

Step #5 entailed selection of the top and bottom performers based on the $\pm 1SD$ rule across the 84 retained models. It imposed the additional requirements that at least 90% of observations fell in either the top or bottom categories with a minimum of at least three observations (see note 4). Table 7 presents the results (Appendix Table 11 provides the complete listing of country-spells). To be clear, Table 7 presents the number of times country-spells are ranked into the top or bottom categories across all models runs (which varies from 24 to 84 depending on the spells in question).⁹

There are three preliminary points about Table 7 which are relevant to note. First, in almost cases (excepting Tunisia 2005-2010) the rankings are unambiguous in the sense that there are no observations of top (bottom) performers in the bottom (top) category. Second, there are a number of cases where the same country appears in both categories across country-spells (Brazil, China, Colombia, Costa Rica, Malaysia and Thailand). Some of these cases (Brazil, China, Malaysia and perhaps Thailand), appear consistent with a wide-reported finding in the literature that the *non*-agricultural sector (of which services is the largest component) is more effective at converting growth into poverty reduction as national income rises (see discussion in Section 3.2). The opposite pattern appears to apply in Costa Rica and Thailand though the evidence is weaker. Third, very few country-spells from sub-Saharan Africa appear in either top or bottom categories.

The final step in the process entailed conducting chi-square tests of independence for all pairs of top and bottom performers in Table 7. The nul hypothesis in the test is that the pairs belong to the same distribution. The number of observations in the top and bottom categories was 37 and 27 respectively, which makes for 999 pairs. As shown in Appendix Table 12, the p-values across all 999 pairs are very low, in all cases below the 0.05 threshold. Accordingly, we can reject the hypothesis that any pair belongs to the same distribution.

⁸ As discussed in section 2.2, this affected only the OLS models as no long spell models were estimated for the random or fixed effects models (see also Table 1).

⁹ The number of model runs per country-spell depends upon: i) the poverty line, given that country-spells were excluded if poverty fell below 1%; 2) the spell length, given that in some cases the three and five year country-spells overlapped (see section 2.2).

Table 7 Top and Bottom Country-Spells (Counts)

Top				Bottom			
Country	Spell	Top	Bottom	Country	Spell	Top	Bottom
Brazil	BRA_2005-2008	25	0	Bolivia	BOL_2005-2008	0	40
Brazil	BRA_2006-2011	10	0	Bolivia	BOL_2005-2011	0	26
Brazil	BRA_2012-2017	10	0	Bolivia	BOL_2011-2016	0	24
Brazil	BRA_2015-2018	29	0	Bolivia	BOL_2014-2017	0	27
China	CHN_1990-1993	13	0	Botswana	BWA_2009-2015	0	51
China	CHN_1990-1996	4	0	Brazil	BRA_1990-1993	1	15
China	CHN_2013-2016	42	0	Brazil	BRA_1990-1995	0	42
China	CHN_2013-2018	31	0	Brazil	BRA_1993-1996	0	39
Colombia	COL_1992-1999	8	0	China	CHN_1996-1999	0	25
Colombia	COL_1996-1999	36	0	China	CHN_2002-2005	0	7
Colombia	COL_2008-2013	4	0	Colombia	COL_1992-1996	0	42
Costa Rica	CRI_1993-1996	3	0	Costa Rica	CRI_1990-1995	0	11
Costa Rica	CRI_2004-2007	40	0	Costa Rica	CRI_2010-2013	0	36
Ecuador	ECU_2013-2016	10	0	Costa Rica	CRI_2010-2015	0	36
Indonesia	IDN_1993-1998	15	0	Egypt	EGY_1990-1995	0	43
Indonesia	IDN_2005-2010	5	0	Ethiopia	ETH_1999-2004	0	12
Indonesia	IDN_2015-2018	5	0	Malaysia	MYS_1992-1995	0	9
Lao PDR	LAO_1992-1997	79	0	Mozambique	MOZ_2008-2014	0	17
Lao PDR	LAO_1997-2002	4	0	Pakistan	PAK_1990-1996	0	18
Malawi	MWI_2004-2010	7	0	Pakistan	PAK_2013-2018	0	6
Malaysia	MYS_2003-2008	4	0	Philippines	PHL_2003-2006	0	20
Malaysia	MYS_2006-2011	16	0	Rwanda	RWA_2005-2010	0	22
Malaysia	MYS_2008-2013	22	0	Sri Lanka	LKA_2009-2012	0	30
Malaysia	MYS_2015-2018	5	0	Thailand	THA_1990-1994	0	3
Mexico	MEX_1992-1996	41	0	Thailand	THA_1990-1996	0	6
Mexico	MEX_1992-1998	11	0	Thailand	THA_2007-2010	0	7
Morocco	MAR_1990-1998	25	0	Thailand	THA_2006-2011	0	5
Peru	PER_2007-2010	12	0				
South Africa	ZAF_2005-2008	9	0				
South Africa	ZAF_2008-2014	6	0				
Thailand	THA_2010-2013	25	0				
Tunisia	TUN_1995-2000	12	0				
Tunisia	TUN_2005-2010	13	1				
Tunisia	TUN_2010-2015	46	0				
Uganda	UGA_1992-1999	4	0				
Zambia	ZMB_1998-2004	5	0				
Zambia	ZMB_2002-2006	20	0				

3. Typology Development

3.1 To Cluster or Not to Cluster?

The original methodological intent as specified in the companion *Q-Squared Working Paper 73* (Shaffer 2024-25), was to supplement the econometric work in section 2 with cluster analysis. The idea was to use the econometric analysis to select top and bottom performers (section 2) and the cluster analysis to match countries similar in terms of a number of ‘weakly exogenous’ variables. Weakly endogenous was defined to mean variables which are not determined primarily by policy over the (relatively short) span of the spells such as variables relating to geography, demography, size as so on. In this way, measures would be taken to facilitate the comparison of ‘like with like’ in the case studies.

It was decided, however, not to proceed with the cluster analysis for three core reasons:

- First, unlike the growth literature, the literature on ‘weakly endogenous’ variables affecting ISSG is much thinner. Accordingly, selection of such variables would have been much more arbitrary;
- Second, the causal work will be based on the case studies themselves and not on the matching of ‘like with like’ in the country selection process. The explanatory significance of some potentially relevant ‘weakly endogenous’ variables should become clear from the case studies themselves.
- Third, there are practical concerns about having a sufficient number of relevant comparators. Even if the number of clusters is (arbitrarily) restricted to two, we halve the number of relevant comparator cases. The problem becomes more acute if the comparators are situated within a typology further limiting the pool of comparator cases (see section 3.3).

For all of these reasons, it was decided not to proceed with cluster analysis, and instead to move directly to developing and populating a typology.

3.2 The Sen/Baymul Typology

There are a number of potentially relevant country typologies in the literature addressing sectoral dimensions of growth. Many focus on manufacturing or industry seeking to distinguish variants of industrialization (for example, Haverkamp and Clara, 2019 and Kim and Sumner, 2019). Others are concerned with characteristics of a particular sector. For example, Nayyar et al. (2021) differentiate service sector activities based on skill level, tradability and so forth. For the purposes of the ISSG project, a typology developed by Baymul and Sen (2020) and Sen (2023) is the most relevant.

The Sen/Baymul typology is based on a three-fold categorization of countries at different stages of the process of structural transformation. It focuses on the relative contribution of agriculture, services and industry to total employment. The authors distinguish countries where: i) agriculture comprises the largest share of employment (‘structurally underdeveloped’); ii) the employment share of services exceeds agriculture (‘structurally developing’) and iii) the employment share of manufacturing is greater than agriculture, (‘structurally developed’). I slightly modify the last category to substitute industry for manufacturing and refer to these categories as ‘1’, ‘2’ and ‘3’.¹⁰

This typology maps well onto ISSG for two main reasons. First, evidence suggests that agriculture becomes less effective, and the non-service sector more effective, at converting growth into poverty reduction as national income rises.¹¹ There is a high correlation between the three-fold amended Sen/Baymul classification and the World Bank’s lower, lower-middle and upper-middle income categories for all three

¹⁰ Industry includes manufacturing, minerals, utilities and construction.

¹¹ See Christiaensen et al. (2011), Christiaensen and Martin (2018) and Ligon and Sadoulet (2018).

and five year country-spells (Spearman's rho is 0.79, $p < 0.000$) and there is absolute agreement in around two thirds of cases (see Appendix Table 13 for the cross tabulation).¹² Accordingly, the typology captures this important stylized fact.

Second, and more importantly, the typology points to causal pathways of relevance for ISSG which are likely to differ according to the typology category in question. Specifically, I refer to intersectoral spillovers and spatial patterns of growth with implications for sectoral labour productivity, employment and poverty reduction (see section 3.3, Table 10).

Table 8 populates the typology with the top and bottom performing spells identified in Table 7.

Table 8 Typology of Top and Bottom Country-Spells

Category 1 (Agriculture is Dominant)							
Country	Spell	Top	Bottom	Country	Spell	Top	Bottom
China	CHN_1990-1993	13	0	China	CHN_1996-1999	0	25
China	CHN_1990-1996	4	0	China	CHN_2002-2005	0	7
Indonesia	IDN_1993-1998	15	0	Ethiopia	ETH_1999-2004	0	12
Indonesia	IDN_2005-2010	5	0	Mozambique	MOZ_2008-2014	0	17
Lao PDR	LAO_1992-1997	79	0	Pakistan	PAK_1990-1996	0	18
Lao PDR	LAO_1997-2002	4	0	Pakistan	PAK_2013-2018	0	6
Malawi	MWI_2004-2010	7	0	Rwanda	RWA_2005-2010	0	22
Morocco	MAR_1990-1998	25	0	Thailand	THA_1990-1996	0	6
Uganda	UGA_1992-1999	4	0	Thailand	THA_1990-1994	0	3
Zambia	ZMB_1998-2004	5	0	Thailand	THA_2006-2011	0	5
Zambia	ZMB_2002-2006	20	0	Thailand	THA_2007-2010	0	7
Category 2 (Services followed by Agriculture)							
Country	Spell	Top	Bottom	Country	Spell	Top	Bottom
Colombia	COL_1992-1999	8	0	Bolivia	BOL_2005-2008	0	40
Colombia	COL_1996-1999	36	0	Bolivia	BOL_2005-2011	0	26
Colombia	COL_2008-2013	4	0	Bolivia	BOL_2011-2016	0	24
Ecuador	ECU_2013-2016	10	0	Bolivia	BOL_2014-2017	0	27
Indonesia	IDN_2015-2018	5	0	Botswana	BWA_2009-2015	0	51
Peru	PER_2007-2010	12	0	Brazil	BRA_1993-1996	0	39
Thailand	THA_2010-2013	25	0	Colombia	COL_1992-1996	0	42
				Costa Rica	CRI_1990-1995	0	11
				Egypt, Arab Rep.	EGY_1990-1995	0	43
				Philippines	PHL_2003-2006	0	20
				Sri Lanka	LKA_2009-2012	0	30
Category 3 (Services followed by Industry)							
Country	Spell	Top	Bottom	Country	Spell	Top	Bottom
Brazil	BRA_2005-2008	25	0	Brazil	BRA_1990-1993	1	15
Brazil	BRA_2006-2011	10	0	Brazil	BRA_1990-1995	0	42
Brazil	BRA_2012-2017	10	0	Costa Rica	CRI_2010-2015	0	36
Brazil	BRA_2015-2018	29	0	Costa Rica	CRI_2010-2013	0	36
China	CHN_2013-2018	31	0	Malaysia	MYS_1992-1995	0	9
China	CHN_2013-2016	42	0				
Costa Rica	CRI_1993-1996	3	0				
Costa Rica	CRI_2004-2007	40	0				
Malaysia	MYS_2003-2008	4	0				
Malaysia	MYS_2006-2011	16	0				
Malaysia	MYS_2008-2013	22	0				
Malaysia	MYS_2015-2018	5	0				
Mexico	MEX_1992-1996	41	0				

¹² The World Bank historical income classification data and corresponding thresholds are available at: <https://ddh-openapi.worldbank.org/resources/DR0095334/download>. The analysis was based on the first year of each country-spell.

Mexico	MEX_1992-1998	11	0
South Africa	ZAF_2005-2008	9	0
South Africa	ZAF_2008-2014	6	0
Tunisia	TUN_1995-2000	12	0
Tunisia	TUN_2005-2010	13	1
Tunisia	TUN_2010-2015	46	0

Note: Country classification is based on the first year of the country-spell.

3.3 Potential Pathways of ISSG

As discussed in the previous section, the (amended) Sen/Baymul (S/B) typology is useful in that it points to different potential pathways of ISSG for countries at different stages of the structural transformation process. In order to illustrate this, Table 10 combines the typology with the three core characteristics of the ISSG Holy Grail, namely productivity growth, labour absorption and poverty reduction. First, Table 9 presents descriptive statistics on value-added and employment shares across the typology categories.

There are two relevant points to note about Table 9. First, for the service sector, the largest (non-govt.) employment shares are in trade, business and transport, the former two increasing monotonically with the S/B categories. In all three sectors, employment shares increase faster than value-added shares. The second point with implications for intersectoral spillovers concerns the relatively high and increasing levels of employment shares in manufacturing (and construction) across the country categories.

Table 9 Value-Added and Employment Shares & the Sen/Baymul Typology

	Sen/Baymul Typology Categories					
	Value-Added Shares ^b			Employment Shares		
	#1	#2	#3	#1	#2	#3
Agriculture	23.8	9.4	6.4	56.6	26.6	16.1
Industry	27.8	32.0	31.4	15.1	20.0	24.9
Minerals	4.0	6.7	4.7	0.6	0.9	0.6
Manufact.	15.3	16.3	18.0	10.0	11.5	15.6
Utilities	2.5	2.3	2.6	0.4	0.6	1.0
Constr.	6.0	6.7	6.1	4.1	7.0	7.7
Services	48.5	58.6	62.2	28.3	53.5	59.0
Trade	15.6	15.2	15.9	13.6	20.7	21.8
Transport	5.3	6.5	5.5	2.8	5.8	4.6
Business	5.0	6.9	9.1	1.3	4.8	7.2
Finance	3.9	4.8	4.9	0.5	1.4	1.5
Real Estate	5.3	5.9	7.3	0.2	0.2	0.5
Govt	10.7	15.5	16.0	6.2	12.6	14.0
Other	2.8	3.8	3.5	3.7	7.9	9.4

Source: Groningen Growth and Development Centre/World Institute for Development Economics Research (GGDC/WIDER) Economic Transformation Database (ETF)

^b Real Value-Added per Worker (Constant \$2017)

Table 10 presents illustrative pathways of ISSG for the three typology categories. There are three caveats to bear in mind. First, the objective is to illustrate cells in the table and not to provide an exhaustive account of potential ISSG pathways. Second, in reality, the pathways exist across all typology categories though with varying degrees of importance. Accordingly, the table is best viewed as a continuum rather than a mapping of discrete categories. Third, the level of the poverty line will affect conclusions about the poverty

reducing effects of the ISSG pathways. For example, labour reallocation from agriculture to low value-added services may be poverty-reducing only if the poverty line is set at low levels.

Table 10 Illustrative ISSG Pathways & the Sen/Baymul Typology

	Sen-Baymul Typology Categories		
	#1 (Ag)	#2 (Services then Ag)	#3 (Services then Ind)
Productivity Growth	• Agriculture Value Chain, Non-Farm Rural Sector (AVC-NFRS) upgrading, spill-over effects on, or labour reallocation from, agriculture	• Non-Ag Value Chain, Non-Farm Rural Sector (non-AVC-NFRS), e.g. Taobao villages, upgrading spillover effects on rural manufacturing.	• Urban service sector upgrading, e.g. digital taxi platforms &/or spillover effects on manufacturing, e.g. India.
Labour Absorption	• Within AVC-NFRS &/or labour reallocation from agriculture	• Within non-AVC-NFRS &/or labour reallocation from agriculture	• Within urban service sector &/or labour reallocation from Ag.
Poverty Reduction	• Within AVC-NFRS &/or via spill-over effects on agriculture	• Within non-AVC-NFRS (esp. in secondary cities) &/or via spillover effects on rural manufacturing.	• Within urban service sector &/or via spillover effects on manufacturing &/or via remittances to rural households.

Re Typology Category #1 (Agriculture-based)

In category #1 countries, the agriculture sector is dominant. In this context, an illustrative pathway of ISSG concerns the non-farm rural sector (NFRS) which comprises ‘mining, manufacturing, utilities, construction, commerce, transport and a full gamut of financial, personal and government services’ (Haggblade et al. 2010). The focus is on service activities connected to the Agriculture-Value Chain (AVC). Two preliminary points are relevant to note. First, the NFRS is typically quite large in the Global South, accounting for around 60 percent of rural (full-time equivalent) employment (Hazel et al. 2024: 285) and around half of rural off-farm income (Davies et al. 2010: 51). Second, the service sector component of the NFRS is also very large ranging from between half to three-quarters of non-farm income (Davies et al. 2010: 51; Hazel et al. 2024: 289).¹³

There are three broad ways that the service component of the AVC-NFRS could increase productivity. First, they may be upgrading within the sector itself relating to input supply, logistics, warehousing, storage, transportation, distribution, marketing and wholesaling for farming and aquaculture (Hazel et al., 2024). Second, there could be spillover effects on agricultural productivity as argued in the large rural growth linkage literature (Haggblade et al. 2010), including potential productivity-enhancing effects of digital technologies. Evidence for the latter comes from small-scale farmers and fisherfolk in sub-Saharan Africa and South Asia who apparently benefited from mobile phone access to lower search costs, reduce product waste and increase producer prices (Jensen 2007, Aker 2010, Aker and Mbiti 2010). Third, they could be reallocation of labour to the sector from lower-productivity agriculture. In terms of employment, labour utilization could increase for workers already in the AVC-related NFRS as it expands or, as mentioned, employment within the sector may rise due to labour reallocation from agriculture.

¹³ Although not strictly comparable, it is relevant to note that over half of rural household enterprises in sub-Saharan Africa are in wholesale and retail trade. Such enterprises comprise over 90 percent of total enterprises in the non-farm sector (Fox and Sohnesen 2012: 12-13).

The evidence is mixed on whether productivity and employment growth in the NFRS is poverty-reducing. The sector is divided into high and low productivity segments, with limited poverty reduction potential in the former and barriers to entry in the latter. Accordingly, there are conflicting findings on the relationship between NFRS participation and poverty reduction (or income/expenditure growth).¹⁴ There is some general evidence, however, of poverty reduction gains as labour moves from lower productivity agriculture to *higher* productivity services, even if the latter are characterized by relatively low productivity (Benfica and Henderson 2021).¹⁵ In terms of spillover effects, gains could accrue to poor, rural dwellers if they benefit from rising productivity in agriculture, aquaculture or related sectors as owner-operators, employees or casual labourers.

Re Typology Category #2 (Services dominate followed by Agriculture)

In category #2 countries, the service sector is the largest employer followed by agriculture. A second illustrative ISSG pathway concerns the ***non-Agricultural Value Chain*** (non-AVC) NFRS.¹⁶ Typically, the sector accounts for around *double* the employment share of the AVC NFRS (in terms of full-time equivalents) and is closely linked to activities in peri-urban areas (Dolislager et al. 2020: 576; Hazel et al. 2024: 287). The sector consists of manufacturing and construction activities along with services responding to the demands of governments, businesses and households in rural or peri-urban areas (Hazel et al. 2024).¹⁷ Table 9, which does not distinguish between the AVC and the non-AVC, suggests that the biggest non-governmental service sectors in Category #2 countries are trade, transportation and business services.

One illustrative example concerns the emergence over the past fifteen year of so-called ‘Taobao’ villages in rural areas in China whose economies are increasingly based on Alibaba’s digital e-commerce platforms. In this case, the main sources of productivity gains are within sector upgrading and intersectoral spillovers. Apparently, such villages have transformed retail trade in rural areas with productivity gains reflected in higher household incomes (Luo and Niu 2019). Further, evidence suggests that networks within and between villages have intensified over time to form e-commerce ecosystems with multiple linkages to local economies (Leong et al. 2016). Case studies have found spillover effects on rural handicraft production of a wide range of products including clothing, ceramics, fishing nets and string lamps (Alibaba and World Bank 2019: 8). Employment gains have been realized for owner-operators and employees of newly formed e-shops and in associated sectors such as petty manufacturing (handicrafts) and logistics (including transportation, warehousing, storage, packaging, delivery, and so on) (Alibaba and World Bank 2019: 14).

In terms of poverty reduction, the same general considerations apply as with Category #1. Typically, sectors which are labour-absorbing with low barriers to entry in terms of skill or capital are more likely to be poverty-reducing. In terms of the Taobao villages, while there is some evidence of poverty reduction (Luo

¹⁴Surveys of this large literature, which examines both poverty and inequality, are provided in Ellis (2000), Barrett et al. (2001), Davis et al. (2010), Haggblade et al. (2010) and Hazell et al. (2024).

¹⁵ In Benfica and Henderson’s (2024: 264-69) model, which regresses poverty reduction on variables from a sectoral decomposition of growth framework, the labour reallocation variable (‘transformation’) is initially significant and poverty-reducing. It becomes insignificant, however, when interacted with a term inversely correlated with GDP/capita (the ratio of the poverty line to daily GDP/capita). This latter term itself becomes significant and negative. The implication is that the poverty effect of labour reallocation from agriculture to non-agriculture *weakens* as national income levels increase, consistent with the increasing difficulty of reducing poverty as the early stage of labour reallocation to low-end services (or manufacturing) exhausts itself.

¹⁶ It is noteworthy that despite its importance, there is a dearth of detailed research on the non-AVC rural service sector. According to Hazel et al. (2024, 289): ‘The current paucity of empirical work on rural service sector activities, combined with the dominance of services in overall rural nonfarm earnings, suggests that filling this gap could prove vital to understanding future growth dynamics in the RNFE’.

¹⁷ In this context, it is relevant to note that most rural dwellers live in peri-urban areas across all country income categories (Hazel et al. 2024: 283, Table 2).

and Niu 2019), most villages are located in better off coastal areas of China raising questions about their broader poverty-reducing potential. There are also ‘losers’ who cannot compete with the new technologies and/or the newly-available products (Alibaba and World Bank 2019: 4, 14). More generally, micro-economic evidence suggests that NFRS activities in proximity to towns or secondary cities may be more poverty-reducing. Apparently, greater physical access to, and lower inequality within, secondary cities tend to offset higher returns and faster growth in larger metropolitan areas.¹⁸

Re. Typology Category #3 (Services dominate followed by Industry)

As noted in the preceding section (and in Appendix Table 13), category #3 countries are typically higher income. They are also more urban-based with increasing concentrations of poverty in urban areas (Lenhardt 2024). Much of the literature on the holy grail of ISSG has implicitly focused on pathways of ISSG in such contexts. To quote from the companion *Q-Squared Working Paper 73* (Shaffer 2024-25: 24-25):

Which service subsectors are most likely to combine the [ISSG holy grail] goals of higher productivity (growth), higher employment (growth) and poverty reduction? ... A range of ... possibilities have been floated. Enache et al. (2016, 18) express optimism for wholesale and retail trade. Gollin (2018, 13) mentions food services. Newfarmer et al. (2019) direct attention to tourism and business and trade services. Nayaar et al. (2021, 26) highlight the potential of low-skilled tradeable services such as transportation and warehousing, accommodation and food services and wholesale trade. Nevertheless, Nayaar et al. (2021, 42) concluded their comprehensive review of the evidence on a somewhat pessimistic note emphasising the elusiveness of the holy grail: the ‘twin gains [of high productivity and large-scale job creation] have not been realized jointly in any given services subsector’.

Despite this somewhat pessimistic conclusion, there are potential illustrative examples of ISSG combining productivity and employment gains in the literature. Rodrik (2023) and Rodrik and Sandhu (2024), for example, have produced suggestive evidence from a public-private partnership involving employment creation in Haryana, India. Digital transportation operators (Ola and UBER) have committed to increase employment and expand services in exchange for access to a public database on unemployed youth and a public commitment to streamline the licensing process. Second, even in relatively high skill services with limited direct poverty reducing potential, there may be spillover effects on manufacturing. For example, Arnold et al. (2014) have argued that the post 1991 growth in manufacturing in India was due, in large part, to liberalization of the service sector. Specially, they found positive and statistically significant effects of liberalization in the banking, telecoms and transport sectors on total factor productivity and output in manufacturing when controlling for confounding variables. They attribute these effects to improved utilization of capital, the reduced cost of communications and transport and new ways of organizing the production process induced by such changes.

Once again, the poverty-reducing potential of such initiatives will depend on labour-absorption and barriers to entry. In the case of digital transportation services, barriers to entry likely relate to access to mobile phones, vehicles and credit rather than skill per se (Brailovskaya 2023). More generally, another potential channel of poverty reduction for Category # 3 countries involves remittances to rural areas, which may account for the positive and statistically significant contribution of urban services growth to *rural* poverty reduction in Indonesia (Suryahadi et al. 2009).

¹⁸ Cross-county and country-specific (Tanzania) evidence in support are found in Christiaensen and Todo (2013) and Christiaensen et al. (2013) respectively. Christiaensen and Kanbur (2017) review key findings in this literature.

4. Conclusion

The Inclusive Service Sector Growth (ISSG) aims to identify and explain relatively successful and unsuccessful experiences in generating productivity-augmenting, labour-absorbing and poverty-reducing service sector jobs. It will rely primarily on a comparative country-spell case study design to do so. A first step in the research process outlined in this paper has been the selection of country-spells which are fared better and worse at converting service sector growth into poverty reduction. Subsequently, the chosen country-spells have been situated within a country typology developed from the literature on structural transformation.

Country-spell selection entailed estimating econometric models which regressed poverty reduction on growth in the service and non-service sectors. In order to identify better and worse performing spell a Leave One Country-spell Out (LOCSO) strategy was adopted. The LOCSO approach entailed estimating models with all-but-one country-spell observation, $j \dots n$, and subsequently subtracting the coefficient value of the service sector variable from the full model service sector variable ($\beta_{sit}^{(full)}$) to back-out country-spell-specific estimates ($\hat{\beta}_{sit}^{(j)}$).

The core model was specified in 98 different ways to take into account different poverty lines and measures and different estimation techniques (see Tables 1 and 2). As per the LOCSO approach, a total of 10740 models were run (specifically, each of the 98 models were estimated separately with one country-spell observation removed). Four additional steps were undertaken, namely: i) country-spells were identified whose ($\hat{\beta}_{sit}^{(j)}$) values fell above or below one standard deviation of the mean ($\hat{\beta}_{sit}^{(j)}$) values; ii) a visual inspection was conducted based on kernel density estimates to assess the validity of the one standard deviation rule to identify outliers which led to the removal of 14 ‘long’ spell models; iii) a ranking of top and bottom country-spells was compiled across 84 retained models if at least 90% of observations fell in one these categories¹⁹ with a minimum of at least three observations; iv) a Pearson chi-square test was applied to all pairs of country-spells assigned to the top and bottom categories to determine the statistical significance of differences in their categorical distributions (top, middle, bottom). The process led to the selection of 37 top performing and 27 bottom performing country-spells presented in Table 7.

The selected country-spells were then used to populate a slightly modified version of a typology based on stages of the process of structural transformation (Table 8). This amended Sen/Baymul typology was chosen because it differentiates causal pathways of relevance for ISSG related to intersectoral spillovers and spatial patterns of growth. The paper concludes with a discussion of illustrative pathways of ISSG for the different country categories within the typology.

The preceding analysis lays the groundwork for the next stage in the ISSG research project. Specifically, a number of top and bottom country-spells from Table 8 will be selected for case study analysis. The objective will be to explain the differential performance of countries, over different time periods, of converting service sector growth into poverty reduction.

¹⁹ See note 4.

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Appendix Tables

Appendix Table 1 Three-Year Poverty Spells (Pov. Incidence, \$3.00/\$4.20/\$8.30/day Poverty Lines)

	Country	Spell(3yr)	p030(t0)	p030(t1)	PPTΔ	p042(t0)	p042(t1)	PPTΔ	p083(t0)	p083(t1)	PPTΔ
1	Bangladesh	1991-1995	51.2	43.4	-2.0	77.8	69.6	-2.0	97.2	93.4	-0.9
2	Bangladesh	2000-2005	41.4	32.3	-1.8	66.5	59.0	-1.5	92.3	90.0	-0.5
3	Bangladesh	2005-2010	32.3	25.1	-1.4	59.0	52.1	-1.4	90.0	88.6	-0.3
4	Bangladesh	2010-2016	25.1	19.5	-0.9	52.1	44.7	-1.2	88.6	85.7	-0.5
5	Bolivia	2005-2008	18.7	10.6	-2.7	26.1	15.4	-3.6	49.5	36.6	-4.3
6	Bolivia	2008-2011	10.6	6.9	-1.2	15.4	10.6	-1.6	36.6	25.3	-3.8
7	Bolivia	2011-2014	6.9	5.6	-0.4	10.6	9.2	-0.5	25.3	22.6	-0.9
8	Bolivia	2014-2017	5.6	6.4	0.3	9.2	9.3	0.1	22.6	23.1	0.2
9	Botswana	2002-2009	34.8	21.1	-2.0	49.2	33.9	-2.2	70.6	62.7	-1.1
10	Botswana	2009-2015	21.1	21.4	0.0	33.9	35.8	0.3	62.7	63.2	0.1
11	Brazil	1990-1993	30.3	28.2	-0.7	41.8	39.9	-0.6	65.8	66.0	0.1
12	Brazil	1993-1996	28.2	20.7	-2.5	39.9	30.2	-3.3	66.0	54.9	-3.7
13	Brazil	1996-1999	20.7	20.0	-0.2	30.2	30.4	0.1	54.9	55.8	0.3
14	Brazil	1999-2002	20.0	16.2	-1.3	30.4	25.5	-1.6	55.8	49.8	-2.0
15	Brazil	2002-2005	16.2	13.7	-0.8	25.5	22.7	-0.9	49.8	47.5	-0.8
16	Brazil	2005-2008	13.7	9.1	-1.5	22.7	15.9	-2.3	47.5	38.2	-3.1
17	Brazil	2008-2011	9.1	7.1	-0.7	15.9	12.2	-1.2	38.2	32.2	-2.0
18	Brazil	2012-2015	6.4	5.4	-0.3	10.7	9.4	-0.4	30.3	27.3	-1.0
19	Brazil	2015-2018	5.4	6.9	0.5	9.4	11.0	0.5	27.3	28.6	0.4
20	Burkina Faso	1998-2003	86.4	69.6	-3.4	91.6	81.1	-2.1	97.1	95.1	-0.4
21	Cameroon	2001-2007	30.8	36.0	0.9	49.8	53.4	0.6	82.3	82.6	0.1
22	Cameroon	2007-2014	36.0	29.0	-1.0	53.4	42.4	-1.6	82.6	72.7	-1.4
23	China	1990-1993	83.0	76.8	-2.1	93.3	89.0	-1.4	99.2	98.5	-0.2
24	China	1993-1996	76.8	62.0	-4.9	89.0	79.5	-3.2	98.5	96.4	-0.7
25	China	1996-1999	62.0	58.4	-1.2	79.5	74.6	-1.6	96.4	94.5	-0.7
26	China	1999-2002	58.4	48.1	-3.4	74.6	64.0	-3.5	94.5	89.3	-1.7
27	China	2002-2005	48.1	33.1	-5.0	64.0	50.7	-4.4	89.3	81.8	-2.5
28	China	2005-2008	33.1	26.2	-2.3	50.7	41.6	-3.1	81.8	73.0	-2.9
29	China	2008-2011	26.2	15.7	-3.5	41.6	29.7	-4.0	73.0	62.7	-3.4
30	China	2013-2016	6.2	2.2	-1.3	17.0	8.7	-2.8	51.7	38.7	-4.3
31	Colombia	1992-1996	16.0	24.8	2.2	27.7	37.1	2.3	60.3	66.7	1.6
32	Colombia	1996-1999	24.8	28.2	1.1	37.1	41.1	1.3	66.7	69.2	0.8
33	Colombia	2002-2005	21.2	16.8	-1.5	34.0	28.5	-1.8	62.5	59.1	-1.1
34	Colombia	2008-2011	16.6	11.2	-1.8	26.8	20.0	-2.2	53.7	47.2	-2.1
35	Colombia	2011-2014	11.2	9.0	-0.7	20.0	16.1	-1.3	47.2	40.8	-2.1
36	Colombia	2014-2017	9.0	7.3	-0.6	16.1	14.0	-0.7	40.8	39.6	-0.4
37	Costa Rica	1990-1993	13.9	11.8	-0.7	22.1	18.4	-1.2	51.2	45.9	-1.8
38	Costa Rica	1993-1996	11.8	11.7	0.0	18.4	18.6	0.1	45.9	45.9	0.0
39	Costa Rica	1996-1999	11.7	9.3	-0.8	18.6	15.5	-1.0	45.9	41.3	-1.5
40	Costa Rica	2001-2004	7.6	6.6	-0.3	12.5	10.6	-0.6	32.1	32.2	0.0
41	Costa Rica	2004-2007	6.6	3.1	-1.2	10.6	6.6	-1.3	32.2	24.3	-2.6
42	Costa Rica	2010-2013	2.2	2.6	0.1	4.5	4.7	0.1	18.8	18.4	-0.1
43	Costa Rica	2013-2016	2.6	2.4	-0.1	4.7	4.4	-0.1	18.4	17.0	-0.5
44	Ecuador	2003-2006	18.9	10.9	-2.7	29.9	19.4	-3.5	58.7	46.8	-4.0
45	Ecuador	2007-2010	10.9	7.8	-1.1	18.7	14.4	-1.4	45.9	39.7	-2.1
46	Ecuador	2010-2013	7.8	4.5	-1.1	14.4	9.7	-1.6	39.7	32.5	-2.4
47	Ecuador	2013-2016	4.5	5.0	0.2	9.7	9.1	-0.2	32.5	29.3	-1.1
48	Egypt	1990-1995	7.1	4.1	-0.6	24.2	22.9	-0.3	73.9	77.1	0.6
49	Egypt	2004-2008	4.1	3.7	-0.1	18.2	16.1	-0.5	72.4	71.8	-0.1
50	Egypt	2010-2015	1.5	1.2	-0.1	10.0	7.1	-0.6	63.5	56.8	-1.3
51	Ethiopia	1995-1999	73.5	65.9	-1.9	86.0	85.9	0.0	96.5	97.7	0.3
52	Ethiopia	1999-2004	65.9	41.3	-4.9	85.9	69.9	-3.2	97.7	95.7	-0.4
53	Ethiopia	2004-2010	41.3	37.4	-0.7	69.9	64.4	-0.9	95.7	93.2	-0.4
54	Ethiopia	2010-2015	37.4	33.0	-0.9	64.4	56.1	-1.7	93.2	89.9	-0.7
55	Ghana	1991-1998	80.4	65.3	-2.1	90.3	79.8	-1.5	98.3	96.1	-0.3
56	Ghana	1998-2005	65.3	60.9	-0.6	79.8	76.7	-0.4	96.1	94.1	-0.3
57	Ghana	2005-2012	60.9	41.8	-2.7	76.7	59.8	-2.4	94.1	86.3	-1.1

	Country	Spell(3yr)	p030(t0)	p030(t1)	PPTΔ	p042(t0)	p042(t1)	PPTΔ	p083(t0)	p083(t1)	PPTΔ
58	Ghana	2012-2016	41.8	39.0	-0.7	59.8	56.3	-0.9	86.3	85.4	-0.2
59	India	1993-2004	47.5	46.4	-0.1	76.2	74.5	-0.2	97.3	96.3	-0.1
60	India	2004-2009	46.4	34.6	-2.4	74.5	66.1	-1.7	96.3	95.0	-0.3
61	Indonesia	1993-1996	78.0	68.1	-3.3	90.1	84.1	-2.0	98.3	96.9	-0.5
62	Indonesia	1996-1999	68.1	66.2	-0.6	84.1	85.1	0.3	96.9	97.9	0.3
63	Indonesia	2005-2008	41.1	38.0	-1.0	68.6	63.4	-1.7	94.6	92.4	-0.7
64	Indonesia	2011-2014	31.2	25.7	-1.8	53.6	47.7	-1.9	85.8	82.0	-1.3
65	Indonesia	2015-2018	21.6	12.5	-3.0	43.4	30.3	-4.4	81.9	71.2	-3.6
66	Kenya	2005-2015	44.6	37.7	-0.7	61.9	56.8	-0.5	87.5	85.8	-0.2
67	Lao PDR	1992-1997	42.1	62.0	4.0	65.2	80.1	3.0	91.8	95.6	0.8
68	Lao PDR	1997-2002	62.0	43.1	-3.8	80.1	68.5	-2.3	95.6	93.6	-0.4
69	Lao PDR	2002-2007	43.1	36.0	-1.4	68.5	61.1	-1.5	93.6	90.2	-0.7
70	Lao PDR	2012-2018	21.7	15.7	-1.0	43.2	35.0	-1.4	82.5	75.3	-1.2
71	Malawi	2004-2010	74.4	72.9	-0.3	86.7	85.2	-0.3	96.9	96.1	-0.1
72	Malawi	2010-2016	72.9	71.7	-0.2	85.2	85.1	0.0	96.1	96.5	0.1
73	Malaysia	1992-1995	5.0	5.2	0.1	13.7	13.5	-0.1	39.7	38.6	-0.4
74	Malaysia	2003-2006	3.2	1.7	-0.5	8.4	5.0	-1.1	30.4	24.7	-1.9
75	Malaysia	2006-2011	.	0.4	.	5.0	1.9	-0.6	24.7	14.7	-2.0
76	Malaysia	2011-2015	.	0.1	.	.	0.4	.	14.7	5.7	-2.2
77	Malaysia	2015-2018	.	0.0	.	.	0.2	.	5.7	4.2	-0.5
78	Mexico	1992-1996	13.3	21.7	2.1	23.5	35.1	2.9	54.5	65.6	2.8
79	Mexico	1996-2000	21.7	16.3	-1.3	35.1	26.2	-2.2	65.6	55.1	-2.6
80	Mexico	2000-2004	16.3	11.0	-1.3	26.2	19.7	-1.6	55.1	50.4	-1.2
81	Mexico	2004-2008	11.0	10.1	-0.2	19.7	18.7	-0.2	50.4	46.0	-1.1
82	Mexico	2008-2012	10.1	7.3	-0.7	18.7	15.3	-0.9	46.0	44.1	-0.5
83	Morocco	1990-1998	11.2	17.5	0.8	26.9	34.7	1.0	65.5	73.4	1.0
84	Morocco	2000-2006	16.8	9.4	-1.2	35.5	23.2	-2.1	73.2	65.1	-1.4
85	Morocco	2006-2013	9.4	3.7	-0.8	23.2	11.6	-1.7	65.1	49.0	-2.3
86	Mozambique	1996-2002	87.7	87.6	0.0	92.4	93.3	0.1	97.7	97.9	0.0
87	Mozambique	2002-2008	87.6	81.1	-1.1	93.3	90.4	-0.5	97.9	97.5	-0.1
88	Mozambique	2008-2014	81.1	74.4	-1.1	90.4	84.3	-1.0	97.5	94.6	-0.5
89	Namibia	2003-2009	47.6	38.6	-1.5	61.7	53.9	-1.3	80.4	76.3	-0.7
90	Namibia	2009-2015	38.6	22.9	-2.6	53.9	35.0	-3.1	76.3	61.1	-2.5
91	Nepal	1995-2003	70.7	55.7	-1.9	85.5	73.9	-1.5	97.1	91.7	-0.7
92	Nigeria	2010-2015	38.5	35.8	-0.5	58.7	55.8	-0.6	88.7	87.2	-0.3
93	Pakistan	1990-1996	79.5	45.3	-5.7	90.9	73.6	-2.9	98.3	96.0	-0.4
94	Pakistan	2001-2004	56.2	40.9	-5.1	80.0	68.5	-3.8	96.9	94.1	-0.9
95	Pakistan	2004-2007	40.9	34.9	-2.0	68.5	64.7	-1.3	94.1	93.6	-0.2
96	Pakistan	2007-2010	34.9	26.7	-2.7	64.7	57.2	-2.5	93.6	92.7	-0.3
97	Pakistan	2010-2013	26.7	21.2	-1.8	57.2	49.3	-2.6	92.7	90.0	-0.9
98	Pakistan	2013-2018	21.2	16.5	-0.9	49.3	44.7	-0.9	90.0	88.4	-0.3
99	Peru	2000-2003	25.5	22.5	-1.0	37.2	34.6	-0.9	67.6	64.0	-1.2
100	Peru	2004-2007	23.5	18.9	-1.6	34.8	28.0	-2.3	64.3	55.2	-3.0
101	Peru	2007-2010	18.9	11.2	-2.6	28.0	19.4	-2.8	55.2	45.7	-3.2
102	Peru	2010-2013	11.2	8.6	-0.9	19.4	15.4	-1.4	45.7	39.3	-2.1
103	Peru	2013-2016	8.6	7.5	-0.4	15.4	13.7	-0.6	39.3	36.4	-1.0
104	Philippines	1991-1994	40.6	38.8	-0.6	58.4	56.6	-0.6	85.4	84.7	-0.2
105	Philippines	2003-2006	26.3	27.9	0.5	45.5	46.5	0.3	78.5	77.3	-0.4
106	Philippines	2006-2009	27.9	23.4	-1.5	46.5	42.4	-1.4	77.3	76.0	-0.4
107	Philippines	2009-2012	23.4	24.9	0.5	42.4	43.8	0.5	76.0	76.5	0.2
108	Philippines	2012-2015	24.9	18.9	-2.0	43.8	37.7	-2.0	76.5	73.5	-1.0
109	Philippines	2015-2018	18.9	13.4	-1.8	37.7	31.2	-2.2	73.5	71.5	-0.7
110	Rwanda	2000-2005	82.3	74.2	-1.6	89.7	84.2	-1.1	96.3	94.4	-0.4
111	Rwanda	2005-2010	74.2	70.2	-0.8	84.2	82.7	-0.3	94.4	94.1	0.0
112	Rwanda	2010-2013	70.2	65.2	-1.6	82.7	80.1	-0.9	94.1	93.6	-0.2
113	Rwanda	2013-2016	65.2	63.8	-0.5	80.1	78.6	-0.5	93.6	93.2	-0.1
114	Senegal	2005-2011	53.6	53.3	0.0	71.3	71.7	0.1	93.4	92.0	-0.2
115	South Africa	2005-2008	42.1	30.3	-3.9	56.2	44.0	-4.1	75.5	67.1	-2.8
116	South Africa	2008-2014	30.3	31.2	0.2	44.0	44.5	0.1	67.1	66.2	-0.1
117	Sri Lanka	2002-2006	20.7	12.2	-2.1	42.5	30.2	-3.1	78.9	72.2	-1.7
118	Sri Lanka	2006-2009	12.2	7.8	-1.5	30.2	24.2	-2.0	72.2	70.9	-0.4

	Country	Spell(3yr)	p030(t0)	p030(t1)	PPTΔ	p042(t0)	p042(t1)	PPTΔ	p083(t0)	p083(t1)	PPTΔ
119	Sri Lanka	2009-2012	7.8	6.4	-0.5	24.2	20.1	-1.4	70.9	64.9	-2.0
120	Sri Lanka	2012-2016	6.4	3.8	-0.6	20.1	14.1	-1.5	64.9	56.6	-2.1
121	Tanzania	2000-2007	86.9	61.9	-3.6	94.0	77.9	-2.3	99.4	94.7	-0.7
122	Tanzania	2007-2011	61.9	51.5	-2.6	77.9	72.0	-1.5	94.7	92.9	-0.5
123	Tanzania	2011-2018	51.5	51.3	0.0	72.0	70.0	-0.3	92.9	91.5	-0.2
124	Thailand	1990-1994	21.1	9.3	-3.0	40.8	24.4	-4.1	74.0	62.5	-2.9
125	Thailand	1994-1998	9.2	5.7	-0.9	24.4	18.8	-1.4	62.5	56.3	-1.5
126	Thailand	2000-2004	8.4	3.1	-1.3	23.1	11.9	-2.8	61.2	46.7	-3.6
127	Thailand	2004-2007	3.1	1.3	-0.6	11.9	6.5	-1.8	46.7	37.4	-3.1
128	Thailand	2007-2010	.	0.7	.	6.5	3.8	-0.9	37.4	30.0	-2.5
129	Thailand	2010-2013	.	0.2	.	3.8	1.7	-0.7	30.0	21.8	-2.7
130	Thailand	2014-2017	.	0.1	.	.	0.8	.	20.9	17.2	-1.2
131	Tunisia	1995-2000	17.4	10.5	-1.4	30.9	22.1	-1.8	66.3	57.3	-1.8
132	Tunisia	2005-2010	5.9	3.1	-0.6	14.5	8.2	-1.3	49.0	34.6	-2.9
133	Tunisia	2010-2015	.	0.7	.	8.2	2.8	-1.1	34.6	23.7	-2.2
134	Turkiye	2002-2005	7.6	6.5	-0.4	17.7	13.2	-1.5	50.5	38.9	-3.9
135	Turkiye	2005-2008	6.5	3.3	-1.1	13.2	8.2	-1.7	38.9	26.9	-4.0
136	Turkiye	2008-2011	3.3	2.0	-0.4	8.2	5.7	-0.8	26.9	23.8	-1.0
137	Turkiye	2011-2014	2.0	1.0	-0.3	5.7	4.0	-0.6	23.8	20.3	-1.2
138	Turkiye	2014-2017	.	0.7	.	4.0	2.8	-0.4	20.3	17.6	-0.9
139	Uganda	1992-1996	79.9	78.5	-0.3	90.3	89.3	-0.3	97.6	97.6	0.0
140	Uganda	1996-1999	78.5	80.6	0.7	89.3	90.1	0.3	97.6	97.2	-0.1
141	Uganda	2002-2005	78.6	72.4	-2.1	88.0	84.2	-1.3	96.4	95.8	-0.2
142	Uganda	2005-2009	72.4	63.5	-2.2	84.2	78.7	-1.4	95.8	93.2	-0.7
143	Uganda	2009-2012	63.5	56.2	-2.5	78.7	73.6	-1.7	93.2	92.4	-0.3
144	Uganda	2012-2016	56.2	60.1	1.0	73.6	75.6	0.5	92.4	92.9	0.1
145	Viet Nam	1992-1997	57.5	38.1	-3.9	75.5	62.7	-2.6	94.8	89.9	-1.0
146	Viet Nam	2002-2006	43.3	23.7	-4.9	65.0	43.9	-5.3	89.6	81.8	-2.0
147	Viet Nam	2010-2014	5.2	3.4	-0.5	13.7	8.6	-1.3	49.6	37.9	-2.9
148	Viet Nam	2014-2018	3.4	2.2	-0.3	8.6	5.2	-0.8	37.9	24.2	-3.4
149	Zambia	1998-2002	56.6	68.0	2.8	71.1	81.9	2.7	90.6	95.7	1.3
150	Zambia	2002-2006	68.0	72.0	1.0	81.9	81.5	-0.1	95.7	93.3	-0.6
151	Zambia	2010-2015	71.4	67.9	-0.7	81.4	78.4	-0.6	93.5	92.0	-0.3

Appendix Table 2 Five-Year Country-Spells (Poverty Incidence, \$3.00/\$4.20/\$8.30/day Poverty Lines)

	Country	Spell(fyr)	p030(t0)	p030(t1)	PPTΔ	p042(t0)	p042(t1)	PPTΔ	p083(t0)	p083(t1)	PPTΔ
1	Bangladesh	2000-2005	41.4	32.3	-1.8	66.5	59.0	-1.5	92.3	90.0	-0.5
2	Bangladesh	2005-2010	32.3	25.1	-1.4	59.0	52.1	-1.4	90.0	88.6	-0.3
3	Bangladesh	2010-2016	25.1	19.5	-0.9	52.1	44.7	-1.2	88.6	85.7	-0.5
4	Bolivia	2005-2011	18.7	6.9	-2.0	26.1	10.6	-2.6	49.5	25.3	-4.0
5	Bolivia	2011-2016	6.9	7.2	0.0	10.6	10.2	-0.1	25.3	23.7	-0.3
6	Botswana	2002-2009	34.8	21.1	-2.0	49.2	33.9	-2.2	70.6	62.7	-1.1
7	Botswana	2009-2015	21.1	21.4	0.0	33.9	35.8	0.3	62.7	63.2	0.1
8	Brazil	1990-1995	30.3	19.5	-2.2	41.8	29.8	-2.4	65.8	54.8	-2.2
9	Brazil	1995-2001	19.5	17.5	-0.3	29.8	26.5	-0.6	54.8	50.3	-0.8
10	Brazil	2001-2006	17.5	11.4	-1.2	26.5	19.6	-1.4	50.3	43.7	-1.3
11	Brazil	2006-2011	11.4	7.1	-0.9	19.6	12.2	-1.5	43.7	32.2	-2.3
12	Brazil	2012-2017	6.4	6.9	0.1	10.7	11.1	0.1	30.3	29.2	-0.2
	Burkina Faso										
13	Faso	1998-2003	86.4	69.6	-3.4	91.6	81.1	-2.1	97.1	95.1	-0.4
14	Cameroon	2001-2007	30.8	36.0	0.9	49.8	53.4	0.6	82.3	82.6	0.1
15	Cameroon	2007-2014	36.0	29.0	-1.0	53.4	42.4	-1.6	82.6	72.7	-1.4
16	China	1990-1996	83.0	62.0	-3.5	93.3	79.5	-2.3	99.2	96.4	-0.5
17	China	1996-2002	62.0	48.1	-2.3	79.5	64.0	-2.6	96.4	89.3	-1.2
18	China	2002-2008	48.1	26.2	-3.7	64.0	41.6	-3.7	89.3	73.0	-2.7
19	China	2013-2018		0.8		17.0	5.7	-2.3	51.7	32.2	-3.9
20	Colombia	1992-1999	16.0	28.2	1.7	27.7	41.1	1.9	60.3	69.2	1.3
21	Colombia	2008-2013	16.6	9.9	-1.3	26.8	17.3	-1.9	53.7	43.0	-2.1
22	Colombia	2013-2018	9.9	7.4	-0.5	17.3	14.1	-0.6	43.0	39.6	-0.7
23	Costa Rica	1990-1995	13.9	10.6	-0.7	22.1	16.5	-1.1	51.2	41.9	-1.9
24	Costa Rica	1995-2000	10.6	9.8	-0.2	16.5	15.8	-0.1	41.9	41.4	-0.1
25	Costa Rica	2001-2006	7.6	5.2	-0.5	12.5	9.1	-0.7	32.1	29.4	-0.5
26	Costa Rica	2010-2015	2.2	2.4	0.0	4.5	4.7	0.0	18.8	17.5	-0.3
27	Ecuador	2007-2012	10.9	6.0	-1.0	18.7	11.0	-1.6	45.9	32.6	-2.7
28	Ecuador	2012-2017	6.0	4.3	-0.3	11.0	8.4	-0.5	32.6	28.3	-0.9
29	Egypt	1990-1995	7.1	4.1	-0.6	24.2	22.9	-0.3	73.9	77.1	0.6
30	Egypt	2010-2015	1.5	1.2	-0.1	10.0	7.1	-0.6	63.5	56.8	-1.3
31	Ethiopia	1995-2004	73.5	41.3	-3.6	86.0	69.9	-1.8	96.5	95.7	-0.1
32	Ethiopia	2004-2010	41.3	37.4	-0.7	69.9	64.4	-0.9	95.7	93.2	-0.4
33	Ethiopia	2010-2015	37.4	33.0	-0.9	64.4	56.1	-1.7	93.2	89.9	-0.7
34	Ghana	1991-1998	80.4	65.3	-2.1	90.3	79.8	-1.5	98.3	96.1	-0.3
35	Ghana	1998-2005	65.3	60.9	-0.6	79.8	76.7	-0.4	96.1	94.1	-0.3
36	Ghana	2005-2012	60.9	41.8	-2.7	76.7	59.8	-2.4	94.1	86.3	-1.1
37	India	1993-2004	47.5	46.4	-0.1	76.2	74.5	-0.2	97.3	96.3	-0.1
38	India	2004-2009	46.4	34.6	-2.4	74.5	66.1	-1.7	96.3	95.0	-0.3
39	Indonesia	1993-1998	78.0	82.8	1.0	90.1	92.8	0.5	98.3	99.1	0.2
40	Indonesia	2005-2010	41.1	34.1	-1.4	68.6	56.7	-2.4	94.6	88.9	-1.1
41	Kenya	2005-2015	44.6	37.7	-0.7	61.9	56.8	-0.5	87.5	85.8	-0.2
42	Lao PDR	1992-1997	42.1	62.0	4.0	65.2	80.1	3.0	91.8	95.6	0.8
43	Lao PDR	1997-2002	62.0	43.1	-3.8	80.1	68.5	-2.3	95.6	93.6	-0.4
44	Lao PDR	2002-2007	43.1	36.0	-1.4	68.5	61.1	-1.5	93.6	90.2	-0.7
45	Lao PDR	2012-2018	21.7	15.7	-1.0	43.2	35.0	-1.4	82.5	75.3	-1.2
46	Malawi	2004-2010	74.4	72.9	-0.3	86.7	85.2	-0.3	96.9	96.1	-0.1
47	Malawi	2010-2016	72.9	71.7	-0.2	85.2	85.1	0.0	96.1	96.5	0.1
48	Malaysia	1992-1997	5.0	1.7	-0.7	13.7	8.5	-1.0	39.7	29.9	-2.0
49	Malaysia	2003-2008	3.2	1.5	-0.3	8.4	5.4	-0.6	30.4	24.2	-1.2
50	Malaysia	2008-2013		0.1			0.6		24.2	7.7	-3.3
51	Malaysia	2013-2018		0.0			0.2		7.7	4.2	-0.7
52	Mexico	1992-1998	13.3	21.9	1.4	23.5	32.7	1.5	54.5	62.2	1.3
53	Mexico	1998-2004	21.9	11.0	-1.8	32.7	19.7	-2.2	62.2	50.4	-2.0
54	Mexico	2004-2010	11.0	8.4	-0.4	19.7	16.3	-0.6	50.4	46.3	-0.7
55	Morocco	1990-1998	11.2	17.5	0.8	26.9	34.7	1.0	65.5	73.4	1.0
56	Morocco	2000-2006	16.8	9.4	-1.2	35.5	23.2	-2.1	73.2	65.1	-1.4
57	Morocco	2006-2013	9.4	3.7	-0.8	23.2	11.6	-1.7	65.1	49.0	-2.3
58	Mozambique	1996-2002	87.7	87.6	0.0	92.4	93.3	0.1	97.7	97.9	0.0
59	Mozambique	2002-2008	87.6	81.1	-1.1	93.3	90.4	-0.5	97.9	97.5	-0.1

	Country	Spell(fyr)	p030(t0)	p030(t1)	PPTΔ	p042(t0)	p042(t1)	PPTΔ	p083(t0)	p083(t1)	PPTΔ
60	Mozambique	2008-2014	81.1	74.4	-1.1	90.4	84.3	-1.0	97.5	94.6	-0.5
61	Namibia	2003-2009	47.6	38.6	-1.5	61.7	53.9	-1.3	80.4	76.3	-0.7
62	Namibia	2009-2015	38.6	22.9	-2.6	53.9	35.0	-3.1	76.3	61.1	-2.5
63	Nepal	1995-2003	70.7	55.7	-1.9	85.5	73.9	-1.5	97.1	91.7	-0.7
64	Nigeria	2010-2015	38.5	35.8	-0.5	58.7	55.8	-0.6	88.7	87.2	-0.3
65	Pakistan	1990-1996	79.5	45.3	-5.7	90.9	73.6	-2.9	98.3	96.0	-0.4
66	Pakistan	2001-2007	56.2	34.9	-3.6	80.0	64.7	-2.6	96.9	93.6	-0.6
67	Pakistan	2007-2013	34.9	21.2	-2.3	64.7	49.3	-2.6	93.6	90.0	-0.6
68	Pakistan	2013-2018	21.2	16.5	-0.9	49.3	44.7	-0.9	90.0	88.4	-0.3
69	Peru	2004-2009	23.5	13.7	-2.0	34.8	22.1	-2.5	64.3	49.1	-3.0
70	Peru	2009-2014	13.7	8.0	-1.1	22.1	14.4	-1.5	49.1	38.0	-2.2
71	Philippines	2003-2009	26.3	23.4	-0.5	45.5	42.4	-0.5	78.5	76.0	-0.4
72	Philippines	2009-2015	23.4	18.9	-0.7	42.4	37.7	-0.8	76.0	73.5	-0.4
73	Rwanda	2000-2005	82.3	74.2	-1.6	89.7	84.2	-1.1	96.3	94.4	-0.4
74	Rwanda	2005-2010	74.2	70.2	-0.8	84.2	82.7	-0.3	94.4	94.1	0.0
75	Rwanda	2010-2016	70.2	63.8	-1.1	82.7	78.6	-0.7	94.1	93.2	-0.2
76	Senegal	2005-2011	53.6	53.3	0.0	71.3	71.7	0.1	93.4	92.0	-0.2
77	South Africa	2005-2010	42.1	29.5	-2.5	56.2	42.8	-2.7	75.5	65.8	-1.9
78	Sri Lanka	2002-2009	20.7	7.8	-1.8	42.5	24.2	-2.6	78.9	70.9	-1.1
79	Sri Lanka	2009-2016	7.8	3.8	-0.6	24.2	14.1	-1.4	70.9	56.6	-2.0
80	Tanzania	2000-2007	86.9	61.9	-3.6	94.0	77.9	-2.3	99.4	94.7	-0.7
81	Tanzania	2007-2018	61.9	51.3	-1.0	77.9	70.0	-0.7	94.7	91.5	-0.3
82	Thailand	1990-1996	21.1	6.4	-2.4	40.8	19.4	-3.6	74.0	58.6	-2.6
83	Thailand	2000-2006	8.4	2.2	-1.0	23.1	8.4	-2.4	61.2	39.5	-3.6
84	Thailand	2006-2011	.	0.3	.	8.4	2.0	-1.3	39.5	25.5	-2.8
85	Tunisia	1995-2000	17.4	10.5	-1.4	30.9	22.1	-1.8	66.3	57.3	-1.8
86	Tunisia	2005-2010	5.9	3.1	-0.6	14.5	8.2	-1.3	49.0	34.6	-2.9
87	Tunisia	2010-2015	.	0.7	.	8.2	2.8	-1.1	34.6	23.7	-2.2
88	Türkiye	2002-2007	7.6	4.0	-0.7	17.7	9.5	-1.7	50.5	31.5	-3.8
89	Türkiye	2007-2012	4.0	1.7	-0.5	9.5	5.0	-0.9	31.5	22.3	-1.9
90	Türkiye	2012-2017	.	0.7	.	5.0	2.8	-0.4	22.3	17.6	-0.9
91	Uganda	1992-1999	79.9	80.6	0.1	90.3	90.1	0.0	97.6	97.2	-0.1
92	Uganda	2002-2009	78.6	63.5	-2.1	88.0	78.7	-1.3	96.4	93.2	-0.5
93	Uganda	2009-2016	63.5	60.1	-0.5	78.7	75.6	-0.4	93.2	92.9	0.0
94	Viet Nam	1992-1997	57.5	38.1	-3.9	75.5	62.7	-2.6	94.8	89.9	-1.0
95	Viet Nam	2002-2008	43.3	17.6	-4.3	65.0	38.8	-4.4	89.6	79.0	-1.8
96	Viet Nam	2010-2016	5.2	2.5	-0.5	13.7	6.2	-1.2	49.6	29.8	-3.3
97	Zambia	1998-2004	56.6	68.9	2.1	71.1	79.2	1.3	90.6	92.7	0.3
98	Zambia	2010-2015	71.4	67.9	-0.7	81.4	78.4	-0.6	93.5	92.0	-0.3

Appendix Table 3 Long Country-Spells (Poverty Incidence, \$3.00/\$4.20/\$8.30/day Poverty Lines)

	Country	Spell(long)	p030(t0)	p030(t1)	PPTΔ	p042(t0)	p042(t1)	PPTΔ	p083(t0)	p083(t1)	PPTΔ
1	Bangladesh	2000-2016	41.4	19.5	-1.4	66.5	44.7	-1.4	92.3	85.7	-0.4
2	Bolivia	2005-2018	18.7	4.7	-1.1	26.1	7.9	-1.4	49.5	21.3	-2.2
3	Botswana	2002-2015	34.8	21.4	-1.0	49.2	35.8	-1.0	70.6	63.2	-0.6
4	Brazil	1990-2011	30.3	7.1	-1.1	41.8	12.2	-1.4	65.8	32.2	-1.6
5	Cameroon	2001-2014	30.8	29.0	-0.1	49.8	42.4	-0.6	82.3	72.7	-0.7
6	China	1990-2012	83.0	13.2	-3.2	93.3	25.7	-3.1	99.2	58.0	-1.9
7	Ecuador	2007-2018	10.9	4.7	-0.6	18.7	9.2	-0.9	45.9	28.9	-1.5
8	Ethiopia	1995-2015	73.5	33.0	-2.0	86.0	56.1	-1.5	96.5	89.9	-0.3
9	Ghana	1991-2016	80.4	39.0	-1.7	90.3	56.3	-1.4	98.3	85.4	-0.5
10	India	1993-2009	47.5	34.6	-0.8	76.2	66.1	-0.6	97.3	95.0	-0.1
11	Lao PDR	1992-2007	42.1	36.0	-0.4	65.2	61.1	-0.3	91.8	90.2	-0.1
12	Malawi	2004-2016	74.4	71.7	-0.2	86.7	85.1	-0.1	96.9	96.5	0.0
13	Malaysia	2003-2018		0.0			0.2		30.4	4.2	-1.7
14	Mexico	1992-2014	13.3	7.2	-0.3	23.5	15.1	-0.4	54.5	46.6	-0.4
15	Morocco	2000-2013	16.8	3.7	-1.0	35.5	11.6	-1.8	73.2	49.0	-1.9
16	Mozambique	1996-2014	87.7	74.4	-0.7	92.4	84.3	-0.5	97.7	94.6	-0.2
17	Namibia	2003-2015	47.6	22.9	-2.1	61.7	35.0	-2.2	80.4	61.1	-1.6
18	Pakistan	2001-2018	56.2	16.5	-2.3	80.0	44.7	-2.1	96.9	88.4	-0.5
19	Peru	2004-2018	23.5	6.1	-1.2	34.8	11.8	-1.6	64.3	35.2	-2.1
20	Philippines	2003-2018	26.3	13.4	-0.9	45.5	31.2	-1.0	78.5	71.5	-0.5
21	Rwanda	2000-2016	82.3	63.8	-1.2	89.7	78.6	-0.7	96.3	93.2	-0.2
22	Sri Lanka	2002-2016	20.7	3.8	-1.2	42.5	14.1	-2.0	78.9	56.6	-1.6
23	Tanzania	2000-2018	86.9	51.3	-2.0	94.0	70.0	-1.3	99.4	91.5	-0.4
24	Thailand	2000-2013		0.2		23.1	1.7	-1.6	61.2	21.8	-3.0
25	Turkiye	2002-2015	7.6	1.3	-0.5		4.1			21.0	
26	Turkiye	2002-2018		0.6		17.7	2.5	-1.0	50.5	16.9	-2.1
27	Uganda	2002-2016	78.6	60.1	-1.3	88.0	75.6	-0.9	96.4	92.9	-0.3

Appendix Table 4 Three-Year Country-Spells (Log of Income/Cons, Bottom 20/40%)

	Country	Spell(3yr)	q2(t0)	Q2(t1)	LogDiff	q4(t0)	q4(t1)	LogDiff
1	Burkina Faso	1998-2003	-0.613	-0.132	0.096	-0.321	0.160	0.096
2	Bangladesh	1991-1995	0.500	0.603	0.026	0.689	0.792	0.026
3	Bangladesh	2010-2016	0.820	0.887	0.011	1.005	1.086	0.013
4	Bangladesh	2000-2005	0.618	0.741	0.025	0.801	0.920	0.024
5	Bangladesh	2005-2010	0.741	0.820	0.016	0.920	1.005	0.017
6	Bolivia	2011-2014	1.352	1.475	0.041	1.893	1.989	0.032
7	Bolivia	2014-2017	1.475	1.440	-0.012	1.989	1.971	-0.006
8	Bolivia	2008-2011	1.028	1.352	0.108	1.594	1.893	0.100
9	Bolivia	2005-2008	0.447	1.028	0.193	1.167	1.594	0.142
10	Brazil	2008-2011	1.105	1.250	0.048	1.586	1.735	0.050
11	Brazil	2002-2005	0.753	0.861	0.036	1.254	1.341	0.029
12	Brazil	1993-1996	0.269	0.523	0.084	0.811	1.081	0.090
13	Brazil	1990-1993	0.253	0.269	0.006	0.762	0.811	0.016
14	Brazil	2005-2008	0.861	1.105	0.081	1.341	1.586	0.082
15	Brazil	1996-1999	0.523	0.582	0.020	1.081	1.098	0.006
16	Brazil	1999-2002	0.582	0.753	0.057	1.098	1.254	0.052
17	Brazil	2015-2018	1.419	1.320	-0.033	1.879	1.829	-0.017
18	Brazil	2012-2015	1.328	1.419	0.030	1.796	1.879	0.028
19	Botswana	2009-2015	0.669	0.708	0.007	1.064	1.051	-0.002
20	Botswana	2002-2009	0.301	0.669	0.053	0.700	1.064	0.052
21	China	1999-2002	0.117	0.214	0.033	0.382	0.512	0.043
22	China	1990-1993	-0.132	-0.061	0.024	0.093	0.171	0.026
23	China	1993-1996	-0.061	0.145	0.069	0.171	0.389	0.073
24	China	2002-2005	0.214	0.518	0.101	0.512	0.813	0.101
25	China	2005-2008	0.518	0.605	0.029	0.813	0.939	0.042
26	China	2008-2011	0.605	0.865	0.087	0.939	1.197	0.086
27	China	1996-1999	0.145	0.117	-0.009	0.389	0.382	-0.002
28	China	2013-2016	1.213	1.461	0.083	1.499	1.741	0.080
29	Cameroon	2007-2014	0.497	0.505	0.001	0.770	0.868	0.014
30	Cameroon	2001-2007	0.610	0.497	-0.019	0.880	0.770	-0.018
31	Colombia	1992-1996	0.729	0.241	-0.122	1.178	0.871	-0.077
32	Colombia	1996-1999	0.241	0.044	-0.066	0.871	0.733	-0.046
33	Colombia	2002-2005	0.587	0.753	0.055	1.039	1.179	0.047
34	Colombia	2011-2014	0.979	1.108	0.043	1.418	1.554	0.045
35	Colombia	2008-2011	0.720	0.979	0.086	1.208	1.418	0.070
36	Colombia	2014-2017	1.108	1.202	0.031	1.554	1.615	0.020
37	Costa Rica	1996-1999	0.910	1.083	0.058	1.430	1.558	0.043
38	Costa Rica	1990-1993	0.761	0.904	0.048	1.317	1.423	0.035
39	Costa Rica	1993-1996	0.904	0.910	0.002	1.423	1.430	0.002
40	Costa Rica	2004-2007	1.319	1.588	0.090	1.765	1.975	0.070
41	Costa Rica	2001-2004	1.252	1.319	0.022	1.740	1.765	0.009
42	Costa Rica	2010-2013	1.730	1.734	0.001	2.107	2.142	0.012
43	Costa Rica	2013-2016	1.734	1.787	0.018	2.142	2.182	0.013
44	Ecuador	2003-2006	0.635	1.000	0.122	1.116	1.432	0.105
45	Ecuador	2010-2013	1.191	1.411	0.073	1.605	1.792	0.062
46	Ecuador	2007-2010	0.993	1.191	0.066	1.444	1.605	0.054
47	Ecuador	2013-2016	1.411	1.443	0.010	1.792	1.848	0.019
48	Egypt	1990-1995	1.163	1.221	0.012	1.359	1.387	0.006
49	Egypt	2004-2008	1.250	1.277	0.007	1.440	1.466	0.007
50	Egypt	2010-2015	1.405	1.478	0.015	1.586	1.661	0.015
51	Ethiopia	2010-2015	0.547	0.558	0.002	0.798	0.838	0.008
52	Ethiopia	1999-2004	0.306	0.623	0.063	0.509	0.801	0.058
53	Ethiopia	1995-1999	-0.040	0.306	0.086	0.207	0.509	0.075
54	Ethiopia	2004-2010	0.623	0.547	-0.013	0.801	0.798	0.000
55	Ghana	2012-2016	0.256	0.170	-0.022	0.602	0.595	-0.002
56	Ghana	2005-2012	-0.116	0.256	0.053	0.249	0.602	0.050
57	Ghana	1998-2005	-0.158	-0.116	0.006	0.174	0.249	0.011
58	Ghana	1991-1998	-0.307	-0.158	0.021	-0.026	0.174	0.029
59	Indonesia	1996-1999	0.232	0.330	0.033	0.425	0.515	0.030
60	Indonesia	1993-1996	0.112	0.232	0.040	0.295	0.425	0.044

	Country	Spell(3yr)	q2(t0)	Q2(t1)	LogDiff	q4(t0)	q4(t1)	LogDiff
61	Indonesia	2005-2008	0.609	0.625	0.005	0.804	0.825	0.007
62	Indonesia	2011-2014	0.711	0.803	0.031	0.915	1.001	0.029
63	Indonesia	2015-2018	0.839	1.005	0.055	1.056	1.241	0.062
64	India	2004-2009	0.621	0.733	0.022	0.786	0.902	0.023
65	India	1993-2004	0.598	0.621	0.002	0.770	0.786	0.001
66	Kenya	2005-2015	0.219	0.457	0.024	0.569	0.745	0.018
67	Lao PDR	2002-2007	0.565	0.624	0.012	0.764	0.842	0.016
68	Lao PDR	1992-1997	0.584	0.296	-0.058	0.783	0.514	-0.054
69	Lao PDR	1997-2002	0.296	0.565	0.054	0.514	0.764	0.050
70	Lao PDR	2012-2018	0.816	0.931	0.019	1.050	1.166	0.019
71	Sri Lanka	2012-2016	1.183	1.306	0.031	1.411	1.537	0.031
72	Sri Lanka	2009-2012	1.122	1.183	0.020	1.342	1.411	0.023
73	Sri Lanka	2006-2009	1.016	1.122	0.035	1.244	1.342	0.033
74	Sri Lanka	2002-2006	0.847	1.016	0.042	1.068	1.244	0.044
75	Morocco	1990-1998	1.034	0.865	-0.021	1.287	1.139	-0.018
76	Morocco	2006-2013	1.084	1.354	0.039	1.348	1.618	0.038
77	Morocco	2000-2006	0.882	1.084	0.034	1.141	1.348	0.035
78	Mexico	2008-2012	1.048	1.182	0.033	1.467	1.560	0.023
79	Mexico	2000-2004	0.775	0.992	0.054	1.228	1.411	0.046
80	Mexico	2004-2008	0.992	1.048	0.014	1.411	1.467	0.014
81	Mexico	1996-2000	0.622	0.775	0.038	1.030	1.228	0.049
82	Mexico	1992-1996	0.933	0.622	-0.078	1.322	1.030	-0.073
83	Mozambique	2008-2014	-0.486	-0.404	0.014	-0.153	-0.068	0.014
84	Mozambique	2002-2008	-0.632	-0.486	0.024	-0.335	-0.153	0.030
85	Mozambique	1996-2002	-0.999	-0.632	0.061	-0.677	-0.335	0.057
86	Malawi	2010-2016	-0.239	0.001	0.040	0.056	0.238	0.030
87	Malawi	2004-2010	-0.051	-0.239	-0.031	0.190	0.056	-0.022
88	Malaysia	1992-1995	1.308	1.308	0.000	1.646	1.660	0.005
89	Malaysia	2015-2018	2.278	2.376	0.033	2.592	2.694	0.034
90	Malaysia	2006-2011	1.648	1.926	0.056	1.989	2.261	0.055
91	Malaysia	2003-2006	1.481	1.648	0.056	1.846	1.989	0.047
92	Malaysia	2011-2015	1.926	2.278	0.088	2.261	2.592	0.083
93	Namibia	2009-2015	0.365	0.561	0.033	0.684	1.003	0.053
94	Namibia	2003-2009	0.171	0.365	0.032	0.496	0.684	0.031
95	Nigeria	2010-2015	0.484	0.522	0.008	0.748	0.789	0.008
96	Nepal	1995-2003	0.098	0.281	0.023	0.332	0.506	0.022
97	Pakistan	1990-1996	-0.043	0.642	0.114	0.187	0.804	0.103
98	Pakistan	2013-2018	0.886	0.959	0.015	1.062	1.128	0.013
99	Pakistan	2007-2010	0.742	0.838	0.032	0.906	1.000	0.031
100	Pakistan	2010-2013	0.838	0.886	0.016	1.000	1.062	0.021
101	Pakistan	2004-2007	0.637	0.742	0.035	0.822	0.906	0.028
102	Pakistan	2001-2004	0.501	0.637	0.045	0.673	0.822	0.050
103	Peru	2000-2003	0.397	0.610	0.071	0.903	1.028	0.042
104	Peru	2010-2013	1.010	1.154	0.048	1.456	1.598	0.047
105	Peru	2013-2016	1.154	1.227	0.024	1.598	1.661	0.021
106	Peru	2004-2007	0.541	0.662	0.041	0.995	1.164	0.056
107	Peru	2007-2010	0.662	1.010	0.116	1.164	1.456	0.097
108	Philippines	1991-1994	0.438	0.462	0.008	0.693	0.724	0.010
109	Philippines	2015-2018	0.858	0.982	0.041	1.108	1.223	0.039
110	Philippines	2006-2009	0.672	0.772	0.033	0.932	1.022	0.030
111	Philippines	2012-2015	0.735	0.858	0.041	0.990	1.108	0.039
112	Philippines	2009-2012	0.772	0.735	-0.012	1.022	0.990	-0.011
113	Philippines	2003-2006	0.703	0.672	-0.010	0.963	0.932	-0.010
114	Rwanda	2013-2016	0.049	0.054	0.002	0.318	0.328	0.003
115	Rwanda	2010-2013	-0.070	0.049	0.040	0.197	0.318	0.040
116	Rwanda	2005-2010	-0.346	-0.070	0.055	-0.014	0.197	0.042
117	Rwanda	2000-2005	-0.470	-0.346	0.025	-0.169	-0.014	0.031
118	Senegal	2005-2011	0.155	0.141	-0.002	0.458	0.443	-0.003
119	Thailand	1994-1998	1.091	1.211	0.030	1.338	1.452	0.029
120	Thailand	1990-1994	0.818	1.091	0.068	1.057	1.338	0.070
121	Thailand	2010-2013	1.663	1.816	0.051	1.918	2.061	0.048

	Country	Spell(3yr)	q2(t0)	Q2(t1)	LogDiff	q4(t0)	q4(t1)	LogDiff
122	Thailand	2007-2010	1.526	1.663	0.046	1.784	1.918	0.045
123	Thailand	2000-2004	1.117	1.353	0.059	1.364	1.614	0.063
124	Thailand	2004-2007	1.353	1.526	0.058	1.614	1.784	0.057
125	Thailand	2014-2017	1.840	1.921	0.027	2.083	2.157	0.025
126	Tunisia	1995-2000	0.857	1.077	0.044	1.175	1.381	0.041
127	Tunisia	2010-2015	1.476	1.765	0.058	1.793	2.020	0.045
128	Tunisia	2005-2010	1.251	1.476	0.045	1.564	1.793	0.046
129	Turkiye	2008-2011	1.533	1.647	0.038	1.911	1.993	0.027
130	Turkiye	2002-2005	1.170	1.276	0.035	1.489	1.659	0.057
131	Turkiye	2014-2017	1.765	1.837	0.024	2.090	2.158	0.023
132	Turkiye	2011-2014	1.647	1.765	0.039	1.993	2.090	0.032
133	Turkiye	2005-2008	1.276	1.533	0.086	1.659	1.911	0.084
134	Tanzania	2011-2018	0.376	0.362	-0.002	0.604	0.594	-0.001
135	Tanzania	2007-2011	0.062	0.376	0.079	0.355	0.604	0.062
136	Tanzania	2000-2007	-0.488	0.062	0.079	-0.202	0.355	0.080
137	Uganda	1996-1999	-0.205	-0.365	-0.053	0.049	-0.072	-0.040
138	Uganda	1992-1996	-0.301	-0.205	0.024	-0.008	0.049	0.014
139	Uganda	2012-2016	0.194	0.118	-0.019	0.470	0.379	-0.023
140	Uganda	2005-2009	-0.146	0.048	0.049	0.127	0.330	0.051
141	Uganda	2009-2012	0.048	0.194	0.048	0.330	0.470	0.047
142	Uganda	2002-2005	-0.283	-0.146	0.046	-0.010	0.127	0.046
143	Viet Nam	1992-1997	0.326	0.609	0.057	0.541	0.820	0.056
144	Viet Nam	2002-2006	0.518	0.746	0.057	0.737	1.009	0.068
145	Viet Nam	2010-2014	1.285	1.459	0.044	1.577	1.760	0.046
146	Viet Nam	2014-2018	1.459	1.656	0.049	1.760	1.983	0.056
147	South Africa	2008-2014	0.473	0.367	-0.018	0.832	0.781	-0.009
148	South Africa	2005-2008	0.232	0.473	0.080	0.577	0.832	0.085
149	Zambia	2002-2006	-0.055	-0.613	-0.140	0.231	-0.242	-0.118
150	Zambia	1998-2002	-0.133	-0.055	0.020	0.233	0.231	-0.001
151	Zambia	2010-2015	-0.479	-0.639	-0.032	-0.134	-0.228	-0.019

Appendix Table 5 Five-Year Country-Spells (Log of Income/Cons, Bottom 20/40%)

	Country	Spell(5yr)	q2(t0)	q2(t1)	LogDiff	q4(t0)	q4(t1)	LogDiff
1	Burkina Faso	1998-2003	-0.613	-0.132	0.096	-0.321	0.160	0.096
2	Bangladesh	2010-2016	0.820	0.887	0.011	1.005	1.086	0.013
3	Bangladesh	2000-2005	0.618	0.741	0.025	0.801	0.920	0.024
4	Bangladesh	2005-2010	0.741	0.820	0.016	0.920	1.005	0.017
5	Bolivia	2005-2011	0.447	1.352	0.151	1.167	1.893	0.121
6	Bolivia	2011-2016	1.352	1.379	0.005	1.893	1.940	0.009
7	Brazil	2006-2011	0.966	1.250	0.057	1.444	1.735	0.058
8	Brazil	1995-2001	0.593	0.677	0.014	1.113	1.212	0.016
9	Brazil	1990-1995	0.253	0.593	0.068	0.762	1.113	0.070
10	Brazil	2001-2006	0.677	0.966	0.058	1.212	1.444	0.046
11	Brazil	2012-2017	1.328	1.312	-0.003	1.796	1.816	0.004
12	Botswana	2009-2015	0.669	0.708	0.007	1.064	1.051	-0.002
13	Botswana	2002-2009	0.301	0.669	0.053	0.700	1.064	0.052
14	China	1996-2002	0.145	0.214	0.012	0.389	0.512	0.020
15	China	1990-1996	-0.132	0.145	0.046	0.093	0.389	0.049
16	China	2002-2008	0.214	0.605	0.065	0.512	0.939	0.071
17	China	2013-2018	1.213	1.579	0.073	1.499	1.858	0.072
18	Cameroon	2007-2014	0.497	0.505	0.001	0.770	0.868	0.014
19	Cameroon	2001-2007	0.610	0.497	-0.019	0.880	0.770	-0.018
20	Colombia	1992-1999	0.729	0.044	-0.098	1.178	0.733	-0.064
21	Colombia	2013-2018	1.056	1.192	0.027	1.501	1.609	0.022
22	Colombia	2008-2013	0.720	1.056	0.067	1.208	1.501	0.059
23	Costa Rica	1995-2000	1.010	1.056	0.009	1.515	1.550	0.007
24	Costa Rica	1990-1995	0.761	1.010	0.050	1.317	1.515	0.040
25	Costa Rica	2001-2006	1.252	1.430	0.036	1.740	1.844	0.021
26	Costa Rica	2010-2015	1.730	1.758	0.005	2.107	2.158	0.010
27	Ecuador	2007-2012	0.993	1.332	0.068	1.444	1.759	0.063
28	Ecuador	2012-2017	1.332	1.483	0.030	1.759	1.878	0.024
29	Egypt, Arab Rep.	1990-1995	1.163	1.221	0.012	1.359	1.387	0.006
30	Egypt, Arab Rep.	2010-2015	1.405	1.478	0.015	1.586	1.661	0.015
31	Ethiopia	2010-2015	0.547	0.558	0.002	0.798	0.838	0.008
32	Ethiopia	1995-2004	-0.040	0.623	0.074	0.207	0.801	0.066
33	Ethiopia	2004-2010	0.623	0.547	-0.013	0.801	0.798	0.000
34	Ghana	2005-2012	-0.116	0.256	0.053	0.249	0.602	0.050
35	Ghana	1998-2005	-0.158	-0.116	0.006	0.174	0.249	0.011
36	Ghana	1991-1998	-0.307	-0.158	0.021	-0.026	0.174	0.029
37	Indonesia	1993-1998	0.112	0.004	-0.022	0.295	0.196	-0.020
38	Indonesia	2005-2010	0.609	0.672	0.013	0.804	0.874	0.014
39	India	2004-2009	0.621	0.733	0.022	0.786	0.902	0.023
40	India	1993-2004	0.598	0.621	0.002	0.770	0.786	0.001
41	Kenya	2005-2015	0.219	0.457	0.024	0.569	0.745	0.018
42	Lao PDR	2002-2007	0.565	0.624	0.012	0.764	0.842	0.016
43	Lao PDR	1992-1997	0.584	0.296	-0.058	0.783	0.514	-0.054
44	Lao PDR	1997-2002	0.296	0.565	0.054	0.514	0.764	0.050
45	Lao PDR	2012-2018	0.816	0.931	0.019	1.050	1.166	0.019
46	Sri Lanka	2009-2016	1.122	1.306	0.026	1.342	1.537	0.028
47	Sri Lanka	2002-2009	0.847	1.122	0.039	1.068	1.342	0.039
48	Morocco	1990-1998	1.034	0.865	-0.021	1.287	1.139	-0.018
49	Morocco	2006-2013	1.084	1.354	0.039	1.348	1.618	0.038
50	Morocco	2000-2006	0.882	1.084	0.034	1.141	1.348	0.035
51	Mexico	1998-2004	0.569	0.992	0.071	1.039	1.411	0.062
52	Mexico	2004-2010	0.992	1.139	0.024	1.411	1.518	0.018
53	Mexico	1992-1998	0.933	0.569	-0.061	1.322	1.039	-0.047
54	Mozambique	2008-2014	-0.486	-0.404	0.014	-0.153	-0.068	0.014
55	Mozambique	2002-2008	-0.632	-0.486	0.024	-0.335	-0.153	0.030
56	Mozambique	1996-2002	-0.999	-0.632	0.061	-0.677	-0.335	0.057
57	Malawi	2010-2016	-0.239	0.001	0.040	0.056	0.238	0.030
58	Malawi	2004-2010	-0.051	-0.239	-0.031	0.190	0.056	-0.022

	Country	Spell(5yr)	q2(t0)	q2(t1)	LogDiff	q4(t0)	q4(t1)	LogDiff
59	Malaysia	1992-1997	1.308	1.502	0.039	1.646	1.860	0.043
60	Malaysia	2013-2018	2.178	2.376	0.040	2.488	2.694	0.041
61	Malaysia	2003-2008	1.481	1.638	0.031	1.846	1.996	0.030
62	Malaysia	2008-2013	1.638	2.178	0.108	1.996	2.488	0.098
63	Namibia	2009-2015	0.365	0.561	0.033	0.684	1.003	0.053
64	Namibia	2003-2009	0.171	0.365	0.032	0.496	0.684	0.031
65	Nigeria	2010-2015	0.484	0.522	0.008	0.748	0.789	0.008
66	Nepal	1995-2003	0.098	0.281	0.023	0.332	0.506	0.022
67	Pakistan	1990-1996	-0.043	0.642	0.114	0.187	0.804	0.103
68	Pakistan	2013-2018	0.886	0.959	0.015	1.062	1.128	0.013
69	Pakistan	2007-2013	0.742	0.886	0.024	0.906	1.062	0.026
70	Pakistan	2001-2007	0.501	0.742	0.040	0.673	0.906	0.039
71	Peru	2004-2009	0.541	0.897	0.071	0.995	1.355	0.072
72	Peru	2009-2014	0.897	1.194	0.059	1.355	1.628	0.055
73	Philippines	2003-2009	0.703	0.772	0.012	0.963	1.022	0.010
74	Philippines	2009-2015	0.772	0.858	0.014	1.022	1.108	0.014
75	Rwanda	2010-2016	-0.070	0.054	0.021	0.197	0.328	0.022
76	Rwanda	2005-2010	-0.346	-0.070	0.055	-0.014	0.197	0.042
77	Rwanda	2000-2005	-0.470	-0.346	0.025	-0.169	-0.014	0.031
78	Senegal	2005-2011	0.155	0.141	-0.002	0.458	0.443	-0.003
79	Thailand	1990-1996	0.818	1.182	0.061	1.057	1.435	0.063
80	Thailand	2000-2006	1.117	1.454	0.056	1.364	1.730	0.061
81	Thailand	2006-2011	1.454	1.766	0.063	1.730	2.001	0.054
82	Tunisia	1995-2000	0.857	1.077	0.044	1.175	1.381	0.041
83	Tunisia	2010-2015	1.476	1.765	0.058	1.793	2.020	0.045
84	Tunisia	2005-2010	1.251	1.476	0.045	1.564	1.793	0.046
85	Türkiye	2007-2012	1.444	1.684	0.048	1.816	2.028	0.042
86	Türkiye	2012-2017	1.684	1.837	0.031	2.028	2.158	0.026
87	Türkiye	2002-2007	1.170	1.444	0.055	1.489	1.816	0.065
88	Tanzania	2007-2018	0.062	0.362	0.027	0.355	0.594	0.022
89	Tanzania	2000-2007	-0.488	0.062	0.079	-0.202	0.355	0.080
90	Uganda	1992-1999	-0.301	-0.365	-0.009	-0.008	-0.072	-0.009
91	Uganda	2009-2016	0.048	0.118	0.010	0.330	0.379	0.007
92	Uganda	2002-2009	-0.283	0.048	0.047	-0.010	0.330	0.049
93	Viet Nam	1992-1997	0.326	0.609	0.057	0.541	0.820	0.056
94	Viet Nam	2002-2008	0.518	0.856	0.056	0.737	1.106	0.061
95	Viet Nam	2010-2016	1.285	1.580	0.049	1.577	1.888	0.052
96	South Africa	2005-2010	0.232	0.472	0.048	0.577	0.847	0.054
97	Zambia	1998-2004	-0.133	-0.532	-0.067	0.233	-0.152	-0.064
98	Zambia	2010-2015	-0.479	-0.639	-0.032	-0.134	-0.228	-0.019

Appendix Table 6 Long Country-Spells (Log of Income/Cons, Bottom 20/40%)

	Country	Spell(long)	q2(t0)	q2(t1)	LogDiff	q4(t0)	q4(t1)	LogDiff
1	Bangladesh	2000-2016	0.618	0.887	0.017	0.801	1.086	0.018
2	Bolivia	2005-2018	0.447	1.553	0.085	1.167	2.035	0.067
3	Brazil	1990-2011	0.253	1.250	0.048	0.762	1.735	0.046
4	Botswana	2002-2015	0.301	0.708	0.031	0.700	1.051	0.027
5	China	1990-2012	-0.132	0.945	0.049	0.093	1.284	0.054
6	Cameroon	2001-2014	0.610	0.505	-0.008	0.880	0.868	-0.001
7	Ecuador	2007-2018	0.993	1.447	0.041	1.444	1.854	0.037
8	Ethiopia	1995-2015	-0.040	0.558	0.030	0.207	0.838	0.032
9	Ghana	1991-2016	-0.307	0.170	0.019	-0.026	0.595	0.025
10	India	1993-2009	0.598	0.733	0.008	0.770	0.902	0.008
11	Lao PDR	1992-2007	0.584	0.624	0.003	0.783	0.842	0.004
12	Sri Lanka	2002-2016	0.847	1.306	0.033	1.068	1.537	0.034
13	Morocco	2000-2013	0.882	1.354	0.036	1.141	1.618	0.037
14	Mexico	1992-2014	0.933	1.195	0.012	1.322	1.540	0.010
15	Mozambique	1996-2014	-0.999	-0.404	0.033	-0.677	-0.068	0.034
16	Malawi	2004-2016	-0.051	0.001	0.004	0.190	0.238	0.004
17	Malaysia	2003-2018	1.481	2.376	0.060	1.846	2.694	0.057
18	Namibia	2003-2015	0.171	0.561	0.033	0.496	1.003	0.042
19	Pakistan	2001-2018	0.501	0.959	0.027	0.673	1.128	0.027
20	Peru	2004-2018	0.541	1.309	0.055	0.995	1.716	0.051
21	Philippines	2003-2018	0.703	0.982	0.019	0.963	1.223	0.017
22	Rwanda	2000-2016	-0.470	0.054	0.033	-0.169	0.328	0.031
23	Thailand	2000-2013	1.117	1.816	0.054	1.364	2.061	0.054
24	Turkiye	2002-2018	1.170	1.853	0.043	1.489	2.174	0.043
25	Tanzania	2000-2018	-0.488	0.362	0.047	-0.202	0.594	0.044
26	Uganda	2002-2016	-0.283	0.118	0.029	-0.010	0.379	0.028

Appendix Table 7 Pooled OLS Results (42 Models)

	Model	b Ser	p> t	b nonSer	p> t	R2	N
1	Dlnp0spl3yr30	-1.271	0.064	-0.454	0.492	0.081	143
2	Dlnp1spl3yr30	-1.509	0.135	-0.357	0.664	0.060	143
3	Dlnp2spl3yr30	-1.643	0.246	-0.261	0.800	0.042	143
4	Dlnp0spl3yr42	-1.433	0.004	0.181	0.700	0.078	148
5	Dlnp1spl3yr42	-1.845	0.002	0.244	0.658	0.078	148
6	Dlnp2spl3yr42	-2.139	0.003	0.369	0.565	0.071	148
7	Dlnp0spl3yr83	-0.804	0.004	0.226	0.387	0.053	151
8	Dlnp1spl3yr83	-1.156	0.002	0.192	0.564	0.073	151
9	Dlnp2spl3yr83	-1.411	0.001	0.209	0.596	0.078	151
10	Dlnp0splfyr30	-0.967	0.195	-0.627	0.316	0.080	92
11	Dlnp1splfyr30	-0.839	0.500	-1.069	0.260	0.068	92
12	Dlnp2splfyr30	-0.616	0.730	-1.407	0.269	0.051	92
13	Dlnp0splfyr42	-1.624	0.036	0.355	0.556	0.071	96
14	Dlnp1splfyr42	-2.126	0.036	0.339	0.665	0.082	96
15	Dlnp2splfyr42	-2.518	0.041	0.380	0.687	0.082	96
16	Dlnp0splfyr83	-1.001	0.040	0.457	0.242	0.053	98
17	Dlnp1splfyr83	-1.497	0.023	0.546	0.295	0.070	98
18	Dlnp2splfyr83	-1.840	0.019	0.616	0.327	0.075	98
19	Dlnp0spllong30	-2.283	0.064	0.040	0.920	0.179	24
20	Dlnp1spllong30	-2.847	0.030	-0.115	0.739	0.240	24
21	Dlnp2spllong30	-3.223	0.021	-0.225	0.553	0.274	24
22	Dlnp0spllong42	-1.349	0.184	-0.033	0.942	0.049	25
23	Dlnp1spllong42	-1.812	0.100	-0.245	0.566	0.083	25
24	Dlnp2spllong42	-2.209	0.060	-0.348	0.415	0.105	25
25	Dlnp0spllong83	-0.612	0.378	0.243	0.576	0.012	26
26	Dlnp1spllong83	-0.995	0.236	0.148	0.765	0.024	26
27	Dlnp2spllong83	-1.305	0.167	0.091	0.865	0.035	26
28	Dlnp0hybspl3yr	-1.151	0.004	0.373	0.407	0.075	151
29	Dlnp1hybspl3yr	-1.580	0.002	0.506	0.358	0.079	151
30	Dlnp2hybspl3yr	-1.880	0.002	0.646	0.330	0.072	151
31	Dlnp0hybsplfyr	-1.502	0.033	0.668	0.303	0.081	98
32	Dlnp1hybsplfyr	-1.918	0.034	0.766	0.359	0.075	98
33	Dlnp2hybsplfyr	-2.189	0.043	0.869	0.389	0.065	98
34	Dlnp0hybspllong	-1.354	0.114	0.211	0.739	0.066	26
35	Dlnp1hybspllong	-1.802	0.072	0.032	0.963	0.096	26
36	Dlnp2hybspllong	-2.177	0.052	-0.052	0.946	0.112	26
37	Dlnq2spl3yr83	0.568	0.077	0.054	0.880	0.034	151
38	Dlnq4spl3yr83	0.563	0.063	0.141	0.656	0.057	151
39	Dlnq2splfyr83	0.768	0.080	-0.055	0.881	0.045	98
40	Dlnq4splfyr83	0.751	0.088	0.052	0.878	0.067	98
41	Dlnq2spllong83	0.476	0.421	0.260	0.214	0.079	26
42	Dlnq4spllong83	0.420	0.441	0.353	0.079	0.124	26
Bolded values= p<=0.05; Dln=Log Difference; P0/1/2= PovertyIncidence/ Intensity/Severity; q2/4=Income/ Consumption Change of Bottom 20%/40%; spl3yr/fyr/long = Country-Spell Duration; 30/42/83= \$3.00/ \$4.20/\$8.30/day Poverty Lines							

Appendix Table 8 Random Effects Results (28 Models)

	Model	b_Ser	p> t	b_nonSer	p> t	R2	N
1	Dlnp0spl3yr30	-1.347	0.044	-0.333	0.623	0.081	143
2	Dlnp1spl3yr30	-1.509	0.127	-0.357	0.662	0.060	143
3	Dlnp2spl3yr30	-1.643	0.239	-0.261	0.799	0.042	143
4	Dlnp0spl3yr42	-1.664	0.000	0.519	0.267	0.075	148
5	Dlnp1spl3yr42	-1.995	0.000	0.579	0.292	0.076	148
6	Dlnp2spl3yr42	-2.223	0.001	0.661	0.306	0.070	148
7	Dlnp0spl3yr83	-0.879	0.000	0.329	0.143	0.052	151
8	Dlnp1spl3yr83	-1.236	0.000	0.357	0.234	0.072	151
9	Dlnp2spl3yr83	-1.476	0.000	0.400	0.274	0.076	151
10	Dlnp0splfyr30	-1.089	0.144	-0.493	0.439	0.080	92
11	Dlnp1splfyr30	-0.858	0.506	-0.993	0.325	0.068	92
12	Dlnp2splfyr30	-0.580	0.753	-1.365	0.314	0.051	92
13	Dlnp0splfyr42	-1.758	0.012	0.755	0.191	0.066	96
14	Dlnp1splfyr42	-2.203	0.022	0.708	0.357	0.079	96
15	Dlnp2splfyr42	-2.551	0.032	0.673	0.475	0.080	96
16	Dlnp0splfyr83	-1.007	0.011	0.583	0.109	0.051	98
17	Dlnp1splfyr83	-1.519	0.007	0.740	0.127	0.068	98
18	Dlnp2splfyr83	-1.855	0.007	0.833	0.159	0.073	98
19	Dlnp0hybspl3yr	-1.136	0.000	0.469	0.184	0.074	151
20	Dlnp1hybspl3yr	-1.572	0.000	0.668	0.179	0.077	151
21	Dlnp2hybspl3yr	-1.858	0.001	0.827	0.198	0.071	151
22	Dlnp0hybsplfyr	-1.508	0.011	0.822	0.157	0.079	98
23	Dlnp1hybsplfyr	-1.913	0.020	0.923	0.243	0.074	98
24	Dlnp2hybsplfyr	-2.170	0.033	0.998	0.307	0.065	98
25	Dlnq2spl3yr83	0.589	0.060	0.026	0.944	0.034	151
26	Dlnq4spl3yr83	0.637	0.026	0.037	0.911	0.056	151
27	Dlnq2splfyr83	0.774	0.069	-0.063	0.864	0.045	98
28	Dlnq4splfyr83	0.790	0.061	-0.012	0.973	0.067	98
Bolded values= $p \leq 0.05$; Dln=Log Difference; P0/1/2= Poverty/Incidence/Intensity/Severity; q2/4=Income/ Consumption Change of Bottom 20%/40%; spl3yr/fyr/long = Country-Spell Duration; 30/42/83= \$3.00 /\$4.20/\$8.30/day Poverty Lines							

Appendix Table 9 Fixed Effects Results (28 Models)

Model	b_Ser	p> t	b_nonSer	p> t	R2	N	
1	Dlnp0spl3yr30	-1.737	0.027	0.601	0.493	0.055	143
2	Dlnp1spl3yr30	-1.888	0.092	1.326	0.276	0.034	143
3	Dlnp2spl3yr30	-1.970	0.210	2.031	0.227	0.030	143
4	Dlnp0spl3yr42	-1.803	0.000	0.881	0.111	0.105	148
5	Dlnp1spl3yr42	-2.169	0.000	1.292	0.046	0.081	148
6	Dlnp2spl3yr42	-2.374	0.001	1.703	0.028	0.068	148
7	Dlnp0spl3yr83	-0.920	0.000	0.465	0.062	0.075	151
8	Dlnp1spl3yr83	-1.280	0.000	0.590	0.077	0.081	151
9	Dlnp2spl3yr83	-1.512	0.000	0.731	0.071	0.075	151
10	Dlnp0splfyr30	-0.990	0.263	0.067	0.934	0.027	92
11	Dlnp1splfyr30	-0.546	0.720	-0.277	0.847	0.008	92
12	Dlnp2splfyr30	-0.102	0.962	-0.569	0.779	0.004	92
13	Dlnp0splfyr42	-1.769	0.019	1.706	0.023	0.121	96
14	Dlnp1splfyr42	-2.047	0.044	2.292	0.015	0.115	96
15	Dlnp2splfyr42	-2.195	0.089	2.802	0.018	0.109	96
16	Dlnp0splfyr83	-0.949	0.010	0.977	0.035	0.095	98
17	Dlnp1splfyr83	-1.437	0.008	1.468	0.013	0.113	98
18	Dlnp2splfyr83	-1.707	0.012	1.834	0.009	0.115	98
19	Dlnp0hybspl3yr	-1.114	0.000	0.699	0.031	0.074	151
20	Dlnp1hybspl3yr	-1.539	0.001	1.106	0.022	0.075	151
21	Dlnp2hybspl3yr	-1.788	0.002	1.451	0.031	0.068	151
22	Dlnp0hybsplfyr	-1.454	0.008	1.591	0.004	0.146	98
23	Dlnp1hybsplfyr	-1.703	0.037	2.219	0.004	0.139	98
24	Dlnp2hybsplfyr	-1.743	0.105	2.687	0.007	0.128	98
25	Dlnq2spl3yr83	0.704	0.089	-0.348	0.501	0.023	151
26	Dlnq4spl3yr83	0.746	0.029	-0.286	0.508	0.038	151
27	Dlnq2splfyr83	0.693	0.238	-0.620	0.242	0.026	98
28	Dlnq4splfyr83	0.714	0.187	-0.491	0.302	0.030	98
Bolded values= p<=0.05; Dln=Log Difference; P0/1/2= PovertyIncidence/ Intensity/Severity; q2/4=Income/ Consumption Change of Bottom 20%/40%; spl3yr/fyr/long = Country-Spell Duration; 30/42/83= \$3.00 /\$4.20/\$8.30/day Poverty Lines							

Appendix Table 10 Diff_Ser Variable Descriptive Statistics

		Mean	SD	Min	Max	N
1	diff_ser_locso_fe_p03yr30	-0.00033	0.09295	-0.38891	0.71242	143
2	diff_ser_locso_fe_p03yr42	0.00047	0.05767	-0.28630	0.36920	148
3	diff_ser_locso_fe_p03yr83	0.00010	0.02542	-0.11547	0.14793	151
4	diff_ser_locso_fe_p0fyr30	-0.00451	0.13956	-0.62666	0.58243	92
5	diff_ser_locso_fe_p0fyr42	0.00057	0.11213	-0.57454	0.45915	96
6	diff_ser_locso_fe_p0fyr83	-0.00019	0.05429	-0.26028	0.17689	98
7	diff_ser_locso_fe_p0hyb3yr	0.00029	0.03135	-0.16421	0.12585	151
8	diff_ser_locso_fe_p0hybfyr	-0.00016	0.07402	-0.35637	0.22447	98
9	diff_ser_locso_fe_p13yr30	-0.00076	0.13495	-0.57387	1.10494	143
10	diff_ser_locso_fe_p13yr42	0.00075	0.07709	-0.40009	0.50029	148
11	diff_ser_locso_fe_p13yr83	0.00041	0.03795	-0.21346	0.20892	151
12	diff_ser_locso_fe_p1fyr30	-0.00936	0.22887	-1.05289	0.98091	92
13	diff_ser_locso_fe_p1fyr42	-0.00093	0.15315	-0.76338	0.67221	96
14	diff_ser_locso_fe_p1fyr83	-0.00016	0.08053	-0.47627	0.21514	98
15	diff_ser_locso_fe_p1hyb3yr	0.00054	0.04636	-0.22051	0.17078	151
16	diff_ser_locso_fe_p1hybfyr	-0.00159	0.11330	-0.51443	0.48172	98
17	diff_ser_locso_fe_p23yr30	-0.00129	0.18137	-0.86363	1.55342	143
18	diff_ser_locso_fe_p23yr42	0.00091	0.09361	-0.46655	0.62534	148
19	diff_ser_locso_fe_p23yr83	0.00061	0.04833	-0.28333	0.26123	151
20	diff_ser_locso_fe_p2fyr30	-0.01390	0.31833	-1.63480	1.28026	92
21	diff_ser_locso_fe_p2fyr42	-0.00224	0.19395	-0.85258	0.88821	96
22	diff_ser_locso_fe_p2fyr83	-0.00039	0.10215	-0.60291	0.27462	98
23	diff_ser_locso_fe_p2hyb3yr	0.00066	0.06047	-0.29026	0.23361	151
24	diff_ser_locso_fe_p2hybfyr	-0.00300	0.15138	-0.58609	0.68134	98
25	diff_ser_locso_fe_q23yr	0.00084	0.04807	-0.30226	0.21728	151
26	diff_ser_locso_fe_q2fyr	-0.00071	0.08606	-0.44976	0.34191	98
27	diff_ser_locso_fe_q43yr	0.00079	0.03761	-0.21566	0.14614	151
28	diff_ser_locso_fe_q4fyr	-0.00009	0.07907	-0.47901	0.32379	98
29	diff_ser_locso_ols_p03yr30	-0.00001	0.06910	-0.25427	0.49540	143
30	diff_ser_locso_ols_p03yr42	0.00000	0.04740	-0.18494	0.26465	148
31	diff_ser_locso_ols_p03yr83	-0.00001	0.02243	-0.10434	0.09645	151
32	diff_ser_locso_ols_p0fyr30	-0.00092	0.09727	-0.50159	0.29330	92
33	diff_ser_locso_ols_p0fyr42	-0.00056	0.08169	-0.44384	0.34729	96
34	diff_ser_locso_ols_p0fyr83	-0.00042	0.04500	-0.25015	0.21690	98
35	diff_ser_locso_ols_p0hyb3yr	-0.00001	0.02926	-0.11222	0.17955	151
36	diff_ser_locso_ols_p0hybfyr	-0.00058	0.06199	-0.26992	0.32524	98
37	diff_ser_locso_ols_p0hyblong	-0.00331	0.20880	-0.70115	0.46787	26
38	diff_ser_locso_ols_p0long30	-0.00528	0.28042	-0.77700	0.69215	24
39	diff_ser_locso_ols_p0long42	-0.00501	0.22460	-0.53645	0.38876	25
40	diff_ser_locso_ols_p0long83	-0.00788	0.15804	-0.45779	0.22788	26
41	diff_ser_locso_ols_p13yr30	-0.00001	0.10244	-0.51190	0.80554	143
42	diff_ser_locso_ols_p13yr42	-0.00003	0.06425	-0.27220	0.38297	148
43	diff_ser_locso_ols_p13yr83	-0.00002	0.03323	-0.14488	0.15007	151
44	diff_ser_locso_ols_p1fyr30	-0.00136	0.15196	-1.10924	0.45467	92
45	diff_ser_locso_ols_p1fyr42	-0.00084	0.11137	-0.56731	0.52015	96
46	diff_ser_locso_ols_p1fyr83	-0.00060	0.06517	-0.39083	0.27493	98
47	diff_ser_locso_ols_p1hyb3yr	-0.00003	0.04223	-0.17094	0.22690	151
48	diff_ser_locso_ols_p1hybfyr	-0.00086	0.08641	-0.38118	0.41573	98
49	diff_ser_locso_ols_p1hyblong	-0.00268	0.23650	-0.72655	0.51071	26
50	diff_ser_locso_ols_p1long30	-0.00141	0.28923	-0.74471	0.77778	24
51	diff_ser_locso_ols_p1long42	-0.00251	0.23675	-0.56071	0.38801	25
52	diff_ser_locso_ols_p1long83	-0.00829	0.18627	-0.48347	0.25499	26
53	diff_ser_locso_ols_p23yr30	0.00003	0.13884	-0.80315	1.15053	143
54	diff_ser_locso_ols_p23yr42	-0.00003	0.07804	-0.32700	0.49219	148

		Mean	SD	Min	Max	N
55	diff_ser_locso_ols_p23yr83	-0.00002	0.04177	-0.19400	0.19446	151
56	diff_ser_locso_ols_p2fyr30	-0.00176	0.21240	-1.72018	0.57914	92
57	diff_ser_locso_ols_p2fyr42	-0.00104	0.13696	-0.62422	0.68452	96
58	diff_ser_locso_ols_p2fyr83	-0.00074	0.08012	-0.47388	0.31803	98
59	diff_ser_locso_ols_p2hyb3yr	-0.00004	0.05376	-0.22343	0.27150	151
60	diff_ser_locso_ols_p2hybfyr	-0.00109	0.10791	-0.43854	0.50124	98
61	diff_ser_locso_ols_p2hyblong	-0.00218	0.26008	-0.74965	0.54526	26
62	diff_ser_locso_ols_p2long30	0.00177	0.30519	-0.71127	0.85957	24
63	diff_ser_locso_ols_p2long42	-0.00029	0.24724	-0.54396	0.39365	25
64	diff_ser_locso_ols_p2long83	-0.00821	0.20612	-0.49502	0.30483	26
65	diff_ser_locso_ols_q23yr	0.00005	0.03643	-0.20648	0.15657	151
66	diff_ser_locso_ols_q2fyr	-0.00040	0.05308	-0.37050	0.17643	98
67	diff_ser_locso_ols_q2long	-0.00113	0.12990	-0.39442	0.23783	26
68	diff_ser_locso_ols_q43yr	0.00001	0.03074	-0.14680	0.13078	151
69	diff_ser_locso_ols_q4fyr	-0.00040	0.05260	-0.38724	0.16959	98
70	diff_ser_locso_ols_q4long	-0.00177	0.11965	-0.38323	0.18338	26
71	diff_ser_locso_re_p03yr30	0.00045	0.07461	-0.31083	0.48478	143
72	diff_ser_locso_re_p03yr42	0.00081	0.04979	-0.24719	0.31154	148
73	diff_ser_locso_re_p03yr83	0.00020	0.02119	-0.09664	0.12635	151
74	diff_ser_locso_re_p0fyr30	-0.00045	0.10171	-0.51118	0.37533	92
75	diff_ser_locso_re_p0fyr42	0.00052	0.08215	-0.43483	0.40950	96
76	diff_ser_locso_re_p0fyr83	-0.00039	0.03995	-0.22017	0.16169	98
77	diff_ser_locso_re_p0hyb3yr	-0.00004	0.02698	-0.13855	0.13287	151
78	diff_ser_locso_re_p0hybfyr	-0.00040	0.05620	-0.26318	0.28167	98
79	diff_ser_locso_re_p13yr30	-0.00047	0.10265	-0.51190	0.80398	143
80	diff_ser_locso_re_p13yr42	0.00086	0.06684	-0.33092	0.41347	148
81	diff_ser_locso_re_p13yr83	0.00030	0.03228	-0.17790	0.18124	151
82	diff_ser_locso_re_p1fyr30	-0.00172	0.16025	-1.14614	0.57686	92
83	diff_ser_locso_re_p1fyr42	0.00027	0.11387	-0.56200	0.59326	96
84	diff_ser_locso_re_p1fyr83	-0.00039	0.06040	-0.36853	0.21521	98
85	diff_ser_locso_re_p1hyb3yr	-0.00002	0.04077	-0.18489	0.18796	151
86	diff_ser_locso_re_p1hybfyr	-0.00105	0.08417	-0.37693	0.38956	98
87	diff_ser_locso_re_p23yr30	0.00003	0.13884	-0.80315	1.15053	143
88	diff_ser_locso_re_p23yr42	0.00071	0.08085	-0.37291	0.51653	148
89	diff_ser_locso_re_p23yr83	0.00030	0.04109	-0.23201	0.22669	151
90	diff_ser_locso_re_p2fyr30	-0.00303	0.22291	-1.77607	0.72619	92
91	diff_ser_locso_re_p2fyr42	0.00011	0.14198	-0.62066	0.77663	96
92	diff_ser_locso_re_p2fyr83	-0.00062	0.07621	-0.45593	0.26942	98
93	diff_ser_locso_re_p2hyb3yr	-0.00007	0.05290	-0.23727	0.23437	151
94	diff_ser_locso_re_p2hybfyr	-0.00167	0.10769	-0.43653	0.48042	98
95	diff_ser_locso_re_q23yr	0.00040	0.03947	-0.24511	0.15574	151
96	diff_ser_locso_re_q2fyr	-0.00070	0.05476	-0.36686	0.17602	98
97	diff_ser_locso_re_q43yr	0.00094	0.03440	-0.17746	0.16174	151
98	diff_ser_locso_re_q4fyr	0.00075	0.05387	-0.37194	0.17805	98
Sum Total						10642
fe/OLS/re = fixed effects/ Ordinary Least Squares/ random effects; p0/2 = poverty incidence/ intensity/severity; 3yr/5yr/long = spell duration; 30/42/83/hyb = \$3.00/ \$4.30/ \$8.30/hybrid poverty lines						

Appendix Table 11 Bottom, Middle and Top Country-Spell Counts

Country	Spell	Bottom	Middle	Top	Tot
Bangladesh	BGD_1991-1995	0	42	0	42
Bangladesh	BGD_2000-2005	0	84	0	84
Bangladesh	BGD_2005-2010	0	84	0	84
Bangladesh	BGD_2000-2016	0	0	0	0
Bangladesh	BGD_2010-2016	0	84	0	84
Bolivia	BOL_2005-2008	40	2	0	42
Bolivia	BOL_2005-2011	26	16	0	42
Bolivia	BOL_2008-2011	0	42	0	42
Bolivia	BOL_2011-2014	0	42	0	42
Bolivia	BOL_2011-2016	24	18	0	42
Bolivia	BOL_2014-2017	27	15	0	42
Bolivia	BOL_2005-2018	0	0	0	0
Botswana	BWA_2002-2009	12	58	14	84
Botswana	BWA_2002-2015	0	0	0	0
Botswana	BWA_2009-2015	51	33	0	84
Brazil	BRA_1990-1993	15	26	1	42
Brazil	BRA_1990-1995	42	0	0	42
Brazil	BRA_1993-1996	39	3	0	42
Brazil	BRA_1996-1999	0	42	0	42
Brazil	BRA_1995-2001	0	42	0	42
Brazil	BRA_1999-2002	0	42	0	42
Brazil	BRA_2002-2005	1	41	0	42
Brazil	BRA_2001-2006	0	42	0	42
Brazil	BRA_2005-2008	0	17	25	42
Brazil	BRA_1990-2011	0	0	0	0
Brazil	BRA_2006-2011	0	32	10	42
Brazil	BRA_2008-2011	0	40	2	42
Brazil	BRA_2012-2015	0	42	0	42
Brazil	BRA_2012-2017	0	32	10	42
Brazil	BRA_2015-2018	0	13	29	42
Burkina Faso	BFA_1998-2003	0	83	1	84
Cameroon	CMR_2001-2007	0	84	0	84
Cameroon	CMR_2001-2014	0	0	0	0
Cameroon	CMR_2007-2014	0	84	0	84
China	CHN_1990-1993	0	29	13	42
China	CHN_1990-1996	0	38	4	42
China	CHN_1993-1996	4	36	2	42
China	CHN_1996-1999	25	17	0	42
China	CHN_1996-2002	0	42	0	42
China	CHN_1999-2002	0	42	0	42
China	CHN_2002-2005	7	35	0	42
China	CHN_2002-2008	0	42	0	42
China	CHN_2005-2008	0	42	0	42
China	CHN_2008-2011	0	42	0	42
China	CHN_1990-2012	0	0	0	0
China	CHN_2013-2016	0	0	42	42
China	CHN_2013-2018	0	2	31	33
Colombia	COL_1992-1996	42	0	0	42
Colombia	COL_1992-1999	0	34	8	42
Colombia	COL_1996-1999	0	6	36	42
Colombia	COL_2002-2005	0	42	0	42
Colombia	COL_2008-2011	0	42	0	42
Colombia	COL_2008-2013	0	38	4	42
Colombia	COL_2011-2014	0	42	0	42
Colombia	COL_2014-2017	0	42	0	42
Colombia	COL_2013-2018	0	42	0	42
Costa Rica	CRI_1990-1993	0	42	0	42
Costa Rica	CRI_1990-1995	11	31	0	42
Costa Rica	CRI_1993-1996	0	39	3	42
Costa Rica	CRI_1996-1999	0	42	0	42

Country	Spell	Bottom	Middle	Top	Tot
Costa Rica	CRI_1995-2000	0	42	0	42
Costa Rica	CRI_2001-2004	0	42	0	42
Costa Rica	CRI_2001-2006	0	42	0	42
Costa Rica	CRI_2004-2007	0	2	40	42
Costa Rica	CRI_2010-2013	36	6	0	42
Costa Rica	CRI_2010-2015	36	6	0	42
Costa Rica	CRI_2013-2016	0	42	0	42
Ecuador	ECU_2003-2006	0	42	0	42
Ecuador	ECU_2007-2010	0	42	0	42
Ecuador	ECU_2007-2012	0	41	1	42
Ecuador	ECU_2010-2013	0	42	0	42
Ecuador	ECU_2013-2016	0	32	10	42
Ecuador	ECU_2012-2017	0	41	1	42
Ecuador	ECU_2007-2018	0	0	0	0
Egypt	EGY_1990-1995	43	41	0	84
Egypt	EGY_2004-2008	2	40	0	42
Egypt	EGY_2010-2015	8	75	1	84
Ethiopia	ETH_1995-1999	1	33	8	42
Ethiopia	ETH_1995-2004	7	34	1	42
Ethiopia	ETH_1999-2004	12	30	0	42
Ethiopia	ETH_2004-2010	0	84	0	84
Ethiopia	ETH_1995-2015	0	0	0	0
Ethiopia	ETH_2010-2015	0	84	0	84
Ghana	GHA_1991-1998	0	84	0	84
Ghana	GHA_1998-2005	0	84	0	84
Ghana	GHA_2005-2012	0	84	0	84
Ghana	GHA_1991-2016	0	0	0	0
Ghana	GHA_2012-2016	0	42	0	42
India	IND_1993-2004	0	84	0	84
India	IND_1993-2009	0	0	0	0
India	IND_2004-2009	0	84	0	84
Indonesia	IDN_1993-1996	0	42	0	42
Indonesia	IDN_1993-1998	0	27	15	42
Indonesia	IDN_1996-1999	1	40	1	42
Indonesia	IDN_2005-2008	1	41	0	42
Indonesia	IDN_2005-2010	0	37	5	42
Indonesia	IDN_2011-2014	0	42	0	42
Indonesia	IDN_2015-2018	0	37	5	42
Kenya	KEN_2005-2015	0	84	0	84
Lao PDR	LAO_1992-1997	0	5	79	84
Lao PDR	LAO_1997-2002	0	80	4	84
Lao PDR	LAO_1992-2007	0	0	0	0
Lao PDR	LAO_2002-2007	0	84	0	84
Lao PDR	LAO_2012-2018	0	84	0	84
Malawi	MWI_2004-2010	0	77	7	84
Malawi	MWI_2004-2016	0	0	0	0
Malawi	MWI_2010-2016	0	84	0	84
Malaysia	MYS_1992-1995	9	33	0	42
Malaysia	MYS_1992-1997	0	42	0	42
Malaysia	MYS_2003-2006	8	32	2	42
Malaysia	MYS_2003-2008	0	38	4	42
Malaysia	MYS_2006-2011	0	17	16	33
Malaysia	MYS_2008-2013	0	2	22	24
Malaysia	MYS_2011-2015	1	19	4	24
Malaysia	MYS_2003-2018	0	0	0	0
Malaysia	MYS_2013-2018	0	23	1	24
Malaysia	MYS_2015-2018	0	19	5	24
Mexico	MEX_1992-1996	0	1	41	42
Mexico	MEX_1992-1998	0	31	11	42
Mexico	MEX_1996-2000	0	42	0	42
Mexico	MEX_1998-2004	1	41	0	42

Country	Spell	Bottom	Middle	Top	Tot
Mexico	MEX_2000-2004	0	42	0	42
Mexico	MEX_2004-2008	0	42	0	42
Mexico	MEX_2004-2010	0	42	0	42
Mexico	MEX_2008-2012	0	42	0	42
Mexico	MEX_1992-2014	0	0	0	0
Morocco	MAR_1990-1998	0	59	25	84
Morocco	MAR_2000-2006	0	84	0	84
Morocco	MAR_2000-2013	0	0	0	0
Morocco	MAR_2006-2013	0	83	1	84
Mozambique	MOZ_1996-2002	2	82	0	84
Mozambique	MOZ_2002-2008	0	84	0	84
Mozambique	MOZ_1996-2014	0	0	0	0
Mozambique	MOZ_2008-2014	17	67	0	84
Namibia	NAM_2003-2009	0	84	0	84
Namibia	NAM_2003-2015	0	0	0	0
Namibia	NAM_2009-2015	0	84	0	84
Nepal	NPL_1995-2003	0	84	0	84
Nigeria	NGA_2010-2015	0	84	0	84
Pakistan	PAK_1990-1996	18	66	0	84
Pakistan	PAK_2001-2004	0	42	0	42
Pakistan	PAK_2001-2007	0	42	0	42
Pakistan	PAK_2004-2007	0	42	0	42
Pakistan	PAK_2007-2010	0	42	0	42
Pakistan	PAK_2007-2013	0	42	0	42
Pakistan	PAK_2010-2013	0	42	0	42
Pakistan	PAK_2001-2018	0	0	0	0
Pakistan	PAK_2013-2018	6	78	0	84
Peru	PER_2000-2003	2	40	0	42
Peru	PER_2004-2007	0	42	0	42
Peru	PER_2004-2009	0	42	0	42
Peru	PER_2007-2010	0	30	12	42
Peru	PER_2010-2013	0	42	0	42
Peru	PER_2009-2014	0	42	0	42
Peru	PER_2013-2016	0	42	0	42
Peru	PER_2004-2018	0	0	0	0
Philippines	PHL_1991-1994	1	41	0	42
Philippines	PHL_2003-2006	20	22	0	42
Philippines	PHL_2003-2009	0	42	0	42
Philippines	PHL_2006-2009	0	42	0	42
Philippines	PHL_2009-2012	0	42	0	42
Philippines	PHL_2009-2015	0	42	0	42
Philippines	PHL_2012-2015	0	42	0	42
Philippines	PHL_2003-2018	0	0	0	0
Philippines	PHL_2015-2018	1	36	5	42
Rwanda	RWA_2000-2005	0	84	0	84
Rwanda	RWA_2005-2010	22	62	0	84
Rwanda	RWA_2010-2013	0	42	0	42
Rwanda	RWA_2000-2016	0	0	0	0
Rwanda	RWA_2010-2016	0	42	0	42
Rwanda	RWA_2013-2016	0	42	0	42
Senegal	SEN_2005-2011	0	84	0	84
South Africa	ZAF_2005-2008	0	33	9	42
South Africa	ZAF_2005-2010	0	42	0	42
South Africa	ZAF_2008-2014	0	36	6	42
Sri Lanka	LKA_2002-2006	0	41	1	42
Sri Lanka	LKA_2002-2009	0	41	1	42
Sri Lanka	LKA_2006-2009	0	42	0	42
Sri Lanka	LKA_2009-2012	30	12	0	42
Sri Lanka	LKA_2002-2016	0	0	0	0
Sri Lanka	LKA_2009-2016	0	42	0	42
Sri Lanka	LKA_2012-2016	0	42	0	42

Country	Spell	Bottom	Middle	Top	Tot
Tanzania	TZA_2000-2007	0	84	0	84
Tanzania	TZA_2007-2011	0	42	0	42
Tanzania	TZA_2000-2018	0	0	0	0
Tanzania	TZA_2007-2018	0	42	0	42
Tanzania	TZA_2011-2018	0	42	0	42
Thailand	THA_1990-1994	3	39	0	42
Thailand	THA_1990-1996	6	36	0	42
Thailand	THA_1994-1998	12	18	12	42
Thailand	THA_2000-2004	0	42	0	42
Thailand	THA_2000-2006	0	42	0	42
Thailand	THA_2004-2007	0	42	0	42
Thailand	THA_2007-2010	7	26	0	33
Thailand	THA_2006-2011	5	28	0	33
Thailand	THA_2000-2013	0	0	0	0
Thailand	THA_2010-2013	0	8	25	33
Thailand	THA_2014-2017	1	20	3	24
Tunisia	TUN_1995-2000	0	72	12	84
Tunisia	TUN_2005-2010	1	70	13	84
Tunisia	TUN_2010-2015	0	20	46	66
Turkiye	TUR_2002-2005	1	41	0	42
Turkiye	TUR_2002-2007	0	40	2	42
Turkiye	TUR_2005-2008	2	40	0	42
Turkiye	TUR_2008-2011	3	38	1	42
Turkiye	TUR_2007-2012	0	42	0	42
Turkiye	TUR_2011-2014	1	38	3	42
Turkiye	TUR_2002-2015	0	0	0	0
Turkiye	TUR_2012-2017	0	33	0	33
Turkiye	TUR_2014-2017	0	33	0	33
Turkiye	TUR_2002-2018	0	0	0	0
Uganda	UGA_1992-1996	0	42	0	42
Uganda	UGA_1992-1999	0	38	4	42
Uganda	UGA_1996-1999	3	14	25	42
Uganda	UGA_2002-2005	0	42	0	42
Uganda	UGA_2002-2009	0	41	1	42
Uganda	UGA_2005-2009	0	41	1	42
Uganda	UGA_2009-2012	0	42	0	42
Uganda	UGA_2002-2016	0	0	0	0
Uganda	UGA_2009-2016	0	42	0	42
Uganda	UGA_2012-2016	0	42	0	42
Viet Nam	VNM_1992-1997	0	84	0	84
Viet Nam	VNM_2002-2006	0	42	0	42
Viet Nam	VNM_2002-2008	0	42	0	42
Viet Nam	VNM_2010-2014	0	42	0	42
Viet Nam	VNM_2010-2016	0	42	0	42
Viet Nam	VNM_2014-2018	2	40	0	42
Zambia	ZMB_1998-2002	2	40	0	42
Zambia	ZMB_1998-2004	0	37	5	42
Zambia	ZMB_2002-2006	0	22	20	42
Zambia	ZMB_2010-2015	0	84	0	84
<i>Total</i>		<i>700</i>	<i>8835</i>	<i>752</i>	<i>10287</i>

Appendix Table 12 Pearson's Chi-Square Test of Independence of Top & Bottom Pairs

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
BRA_2005-2008	BOL_2005-2008	76.8	0.000	BRA_2006-2011	CRI_2010-2015	63.8	0.000
BRA_2005-2008	BOL_2005-2011	51.0	0.000	BRA_2006-2011	EGY_1990-1995	45.1	0.000
BRA_2005-2008	BOL_2011-2016	49.0	0.000	BRA_2006-2011	ETH_1999-2004	22.1	0.000
BRA_2005-2008	BOL_2014-2017	52.1	0.000	BRA_2006-2011	LKA_2009-2012	49.1	0.000
BRA_2005-2008	BRA_1990-1993	39.0	0.000	BRA_2006-2011	MOZ_2008-2014	28.5	0.000
BRA_2005-2008	BRA_1990-1995	84.0	0.000	BRA_2006-2011	MYS_1992-1995	19.0	0.000
BRA_2005-2008	BRA_1993-1996	73.8	0.000	BRA_2006-2011	PAK_1990-1996	29.0	0.000
BRA_2005-2008	BWA_2009-2015	75.5	0.000	BRA_2006-2011	PAK_2013-2018	23.9	0.000
BRA_2005-2008	CHN_1996-1999	50.0	0.000	BRA_2006-2011	PHL_2003-2006	31.9	0.000
BRA_2005-2008	CHN_2002-2005	38.2	0.000	BRA_2006-2011	RWA_2005-2010	31.0	0.000
BRA_2005-2008	COL_1992-1996	84.0	0.000	BRA_2006-2011	THA_1990-1994	13.7	0.001
BRA_2005-2008	CRI_1990-1995	40.1	0.000	BRA_2006-2011	THA_1990-1996	16.2	0.000
BRA_2005-2008	CRI_2010-2013	66.3	0.000	BRA_2006-2011	THA_2006-2011	14.4	0.001
BRA_2005-2008	CRI_2010-2015	66.3	0.000	BRA_2006-2011	THA_2007-2010	16.8	0.000
BRA_2005-2008	EGY_1990-1995	71.9	0.000	BRA_2012-2017	BOL_2005-2008	76.5	0.000
BRA_2005-2008	ETH_1999-2004	40.6	0.000	BRA_2012-2017	BOL_2005-2011	41.3	0.000
BRA_2005-2008	LKA_2009-2012	55.9	0.000	BRA_2012-2017	BOL_2011-2016	37.9	0.000
BRA_2005-2008	MOZ_2008-2014	65.0	0.000	BRA_2012-2017	BOL_2014-2017	43.1	0.000
BRA_2005-2008	MYS_1992-1995	39.1	0.000	BRA_2012-2017	BRA_1990-1993	23.0	0.000
BRA_2005-2008	PAK_1990-1996	65.2	0.000	BRA_2012-2017	BRA_1990-1995	84.0	0.000
BRA_2005-2008	PAK_2013-2018	63.2	0.000	BRA_2012-2017	BRA_1993-1996	73.0	0.000
BRA_2005-2008	PHL_2003-2006	45.6	0.000	BRA_2012-2017	BWA_2009-2015	52.9	0.000
BRA_2005-2008	RWA_2005-2010	66.0	0.000	BRA_2012-2017	CHN_1996-1999	39.6	0.000
BRA_2005-2008	THA_1990-1994	36.6	0.000	BRA_2012-2017	CHN_2002-2005	17.1	0.000
BRA_2005-2008	THA_1990-1996	37.8	0.000	BRA_2012-2017	COL_1992-1996	84.0	0.000
BRA_2005-2008	THA_2006-2011	32.1	0.000	BRA_2012-2017	CRI_1990-1995	21.0	0.000
BRA_2005-2008	THA_2007-2010	33.3	0.000	BRA_2012-2017	CRI_2010-2013	63.8	0.000
BRA_2006-2011	BOL_2005-2008	76.5	0.000	BRA_2012-2017	CRI_2010-2015	63.8	0.000
BRA_2006-2011	BOL_2005-2011	41.3	0.000	BRA_2012-2017	EGY_1990-1995	45.1	0.000
BRA_2006-2011	BOL_2011-2016	37.9	0.000	BRA_2012-2017	ETH_1999-2004	22.1	0.000
BRA_2006-2011	BOL_2014-2017	43.1	0.000	BRA_2012-2017	LKA_2009-2012	49.1	0.000
BRA_2006-2011	BRA_1990-1993	23.0	0.000	BRA_2012-2017	MOZ_2008-2014	28.5	0.000
BRA_2006-2011	BRA_1990-1995	84.0	0.000	BRA_2012-2017	MYS_1992-1995	19.0	0.000
BRA_2006-2011	BRA_1993-1996	73.0	0.000	BRA_2012-2017	PAK_1990-1996	29.0	0.000
BRA_2006-2011	BWA_2009-2015	52.9	0.000	BRA_2012-2017	PAK_2013-2018	23.9	0.000
BRA_2006-2011	CHN_1996-1999	39.6	0.000	BRA_2012-2017	PHL_2003-2006	31.9	0.000
BRA_2006-2011	CHN_2002-2005	17.1	0.000	BRA_2012-2017	RWA_2005-2010	31.0	0.000
BRA_2006-2011	COL_1992-1996	84.0	0.000	BRA_2012-2017	THA_1990-1994	13.7	0.001
BRA_2006-2011	CRI_1990-1995	21.0	0.000	BRA_2012-2017	THA_1990-1996	16.2	0.000
BRA_2006-2011	CRI_2010-2013	63.8	0.000	BRA_2012-2017	THA_2006-2011	14.4	0.001

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
BRA_2012-2017	THA_2007-2010	16.8	0.000	CHN_1990-1993	CRI_2010-2013	64.1	0.000
BRA_2015-2018	BOL_2005-2008	77.1	0.000	CHN_1990-1993	CRI_2010-2015	64.1	0.000
BRA_2015-2018	BOL_2005-2011	55.3	0.000	CHN_1990-1993	EGY_1990-1995	49.6	0.000
BRA_2015-2018	BOL_2011-2016	53.8	0.000	CHN_1990-1993	ETH_1999-2004	25.0	0.000
BRA_2015-2018	BOL_2014-2017	56.1	0.000	CHN_1990-1993	LKA_2009-2012	50.0	0.000
BRA_2015-2018	BRA_1990-1993	45.5	0.000	CHN_1990-1993	MOZ_2008-2014	34.9	0.000
BRA_2015-2018	BRA_1990-1995	84.0	0.000	CHN_1990-1993	MYS_1992-1995	22.3	0.000
BRA_2015-2018	BRA_1993-1996	74.3	0.000	CHN_1990-1993	PAK_1990-1996	35.3	0.000
BRA_2015-2018	BWA_2009-2015	84.0	0.000	CHN_1990-1993	PAK_2013-2018	30.9	0.000
BRA_2015-2018	CHN_1996-1999	54.5	0.000	CHN_1990-1993	PHL_2003-2006	34.0	0.000
BRA_2015-2018	CHN_2002-2005	46.1	0.000	CHN_1990-1993	RWA_2005-2010	37.1	0.000
BRA_2015-2018	COL_1992-1996	84.0	0.000	CHN_1990-1993	THA_1990-1994	17.5	0.000
BRA_2015-2018	CRI_1990-1995	47.4	0.000	CHN_1990-1993	THA_1990-1996	19.8	0.000
BRA_2015-2018	CRI_2010-2013	67.6	0.000	CHN_1990-1993	THA_2006-2011	17.2	0.000
BRA_2015-2018	CRI_2010-2015	67.6	0.000	CHN_1990-1993	THA_2007-2010	19.4	0.000
BRA_2015-2018	EGY_1990-1995	81.6	0.000	CHN_1990-1996	BOL_2005-2008	76.4	0.000
BRA_2015-2018	ETH_1999-2004	47.7	0.000	CHN_1990-1996	BOL_2005-2011	39.0	0.000
BRA_2015-2018	LKA_2009-2012	59.0	0.000	CHN_1990-1996	BOL_2011-2016	35.1	0.000
BRA_2015-2018	MOZ_2008-2014	77.0	0.000	CHN_1990-1996	BOL_2014-2017	41.0	0.000
BRA_2015-2018	MYS_1992-1995	46.7	0.000	CHN_1990-1996	BRA_1990-1993	19.1	0.000
BRA_2015-2018	PAK_1990-1996	77.1	0.000	CHN_1990-1996	BRA_1990-1995	84.0	0.000
BRA_2015-2018	PAK_2013-2018	75.9	0.000	CHN_1990-1996	BRA_1993-1996	72.9	0.000
BRA_2015-2018	PHL_2003-2006	51.3	0.000	CHN_1990-1996	BWA_2009-2015	46.5	0.000
BRA_2015-2018	RWA_2005-2010	77.6	0.000	CHN_1990-1996	CHN_1996-1999	37.0	0.000
BRA_2015-2018	THA_1990-1994	45.0	0.000	CHN_1990-1996	CHN_2002-2005	11.1	0.004
BRA_2015-2018	THA_1990-1996	45.8	0.000	CHN_1990-1996	COL_1992-1996	84.0	0.000
BRA_2015-2018	THA_2006-2011	39.0	0.000	CHN_1990-1996	CRI_1990-1995	15.7	0.000
BRA_2015-2018	THA_2007-2010	39.8	0.000	CHN_1990-1996	CRI_2010-2013	63.3	0.000
CHN_1990-1993	BOL_2005-2008	76.5	0.000	CHN_1990-1996	CRI_2010-2015	63.3	0.000
CHN_1990-1993	BOL_2005-2011	42.8	0.000	CHN_1990-1996	EGY_1990-1995	37.3	0.000
CHN_1990-1993	BOL_2011-2016	39.6	0.000	CHN_1990-1996	ETH_1999-2004	16.9	0.000
CHN_1990-1993	BOL_2014-2017	44.5	0.000	CHN_1990-1996	LKA_2009-2012	47.5	0.000
CHN_1990-1993	BRA_1990-1993	25.4	0.000	CHN_1990-1996	MOZ_2008-2014	16.9	0.000
CHN_1990-1993	BRA_1990-1995	84.0	0.000	CHN_1990-1996	MYS_1992-1995	13.4	0.001
CHN_1990-1993	BRA_1993-1996	73.1	0.000	CHN_1990-1996	PAK_1990-1996	17.5	0.000
CHN_1990-1993	BWA_2009-2015	56.5	0.000	CHN_1990-1996	PAK_2013-2018	11.0	0.004
CHN_1990-1993	CHN_1996-1999	41.1	0.000	CHN_1990-1996	PHL_2003-2006	28.3	0.000
CHN_1990-1993	CHN_2002-2005	20.6	0.000	CHN_1990-1996	RWA_2005-2010	20.0	0.000
CHN_1990-1993	COL_1992-1996	84.0	0.000	CHN_1990-1996	THA_1990-1994	7.0	0.030
CHN_1990-1993	CRI_1990-1995	24.1	0.000	CHN_1990-1996	THA_1990-1996	10.1	0.007

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
CHN_1990-1996	THA_2006-2011	9.6	0.008	CHN_2013-2018	CRI_1990-1995	67.4	0.000
CHN_1990-1996	THA_2007-2010	12.3	0.002	CHN_2013-2018	CRI_2010-2013	68.9	0.000
CHN_2013-2016	BOL_2005-2008	84.0	0.000	CHN_2013-2018	CRI_2010-2015	68.9	0.000
CHN_2013-2016	BOL_2005-2011	84.0	0.000	CHN_2013-2018	EGY_1990-1995	107.6	0.000
CHN_2013-2016	BOL_2011-2016	84.0	0.000	CHN_2013-2018	ETH_1999-2004	67.4	0.000
CHN_2013-2016	BOL_2014-2017	84.0	0.000	CHN_2013-2018	LKA_2009-2012	68.0	0.000
CHN_2013-2016	BRA_1990-1993	80.1	0.000	CHN_2013-2018	MOZ_2008-2014	107.4	0.000
CHN_2013-2016	BRA_1990-1995	84.0	0.000	CHN_2013-2018	MYS_1992-1995	67.3	0.000
CHN_2013-2016	BRA_1993-1996	84.0	0.000	CHN_2013-2018	PAK_1990-1996	107.4	0.000
CHN_2013-2016	BWA_2009-2015	126.0	0.000	CHN_2013-2018	PAK_2013-2018	107.4	0.000
CHN_2013-2016	CHN_1996-1999	84.0	0.000	CHN_2013-2018	PHL_2003-2006	67.6	0.000
CHN_2013-2016	CHN_2002-2005	84.0	0.000	CHN_2013-2018	RWA_2005-2010	107.4	0.000
CHN_2013-2016	COL_1992-1996	84.0	0.000	CHN_2013-2018	THA_1990-1994	67.3	0.000
CHN_2013-2016	CRI_1990-1995	84.0	0.000	CHN_2013-2018	THA_1990-1996	67.3	0.000
CHN_2013-2016	CRI_2010-2013	84.0	0.000	CHN_2013-2018	THA_2006-2011	58.5	0.000
CHN_2013-2016	CRI_2010-2015	84.0	0.000	CHN_2013-2018	THA_2007-2010	58.6	0.000
CHN_2013-2016	EGY_1990-1995	126.0	0.000	COL_1992-1999	BOL_2005-2008	76.4	0.000
CHN_2013-2016	ETH_1999-2004	84.0	0.000	COL_1992-1999	BOL_2005-2011	40.5	0.000
CHN_2013-2016	LKA_2009-2012	84.0	0.000	COL_1992-1999	BOL_2011-2016	36.9	0.000
CHN_2013-2016	MOZ_2008-2014	126.0	0.000	COL_1992-1999	BOL_2014-2017	42.4	0.000
CHN_2013-2016	MYS_1992-1995	84.0	0.000	COL_1992-1999	BRA_1990-1993	21.5	0.000
CHN_2013-2016	PAK_1990-1996	126.0	0.000	COL_1992-1999	BRA_1990-1995	84.0	0.000
CHN_2013-2016	PAK_2013-2018	126.0	0.000	COL_1992-1999	BRA_1993-1996	73.0	0.000
CHN_2013-2016	PHL_2003-2006	84.0	0.000	COL_1992-1999	BWA_2009-2015	50.6	0.000
CHN_2013-2016	RWA_2005-2010	126.0	0.000	COL_1992-1999	CHN_1996-1999	38.7	0.000
CHN_2013-2016	THA_1990-1994	84.0	0.000	COL_1992-1999	CHN_2002-2005	15.0	0.001
CHN_2013-2016	THA_1990-1996	84.0	0.000	COL_1992-1999	COL_1992-1996	84.0	0.000
CHN_2013-2016	THA_2006-2011	75.0	0.000	COL_1992-1999	CRI_1990-1995	19.1	0.000
CHN_2013-2016	THA_2007-2010	75.0	0.000	COL_1992-1999	CRI_2010-2013	63.6	0.000
CHN_2013-2018	BOL_2005-2008	70.9	0.000	COL_1992-1999	CRI_2010-2015	63.6	0.000
CHN_2013-2018	BOL_2005-2011	67.8	0.000	COL_1992-1999	EGY_1990-1995	42.4	0.000
CHN_2013-2018	BOL_2011-2016	67.7	0.000	COL_1992-1999	ETH_1999-2004	20.3	0.000
CHN_2013-2018	BOL_2014-2017	67.8	0.000	COL_1992-1999	LKA_2009-2012	48.5	0.000
CHN_2013-2018	BRA_1990-1993	63.5	0.000	COL_1992-1999	MOZ_2008-2014	24.5	0.000
CHN_2013-2018	BRA_1990-1995	75.0	0.000	COL_1992-1999	MYS_1992-1995	17.0	0.000
CHN_2013-2018	BRA_1993-1996	70.1	0.000	COL_1992-1999	PAK_1990-1996	25.0	0.000
CHN_2013-2018	BWA_2009-2015	107.7	0.000	COL_1992-1999	PAK_2013-2018	19.4	0.000
CHN_2013-2018	CHN_1996-1999	67.7	0.000	COL_1992-1999	PHL_2003-2006	30.6	0.000
CHN_2013-2018	CHN_2002-2005	67.3	0.000	COL_1992-1999	RWA_2005-2010	27.2	0.000
CHN_2013-2018	COL_1992-1996	75.0	0.000	COL_1992-1999	THA_1990-1994	11.3	0.003
COL_1992-1999	THA_1990-1996	14.1	0.001	COL_2008-2013	COL_1992-1996	84.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
COL_1992-1999	THA_2006-2011	12.7	0.002	COL_2008-2013	CRI_1990-1995	15.7	0.000
COL_1992-1999	THA_2007-2010	15.2	0.000	COL_2008-2013	CRI_2010-2013	63.3	0.000
COL_1996-1999	BOL_2005-2008	78.0	0.000	COL_2008-2013	CRI_2010-2015	63.3	0.000
COL_1996-1999	BOL_2005-2011	66.5	0.000	COL_2008-2013	EGY_1990-1995	37.3	0.000
COL_1996-1999	BOL_2011-2016	66.0	0.000	COL_2008-2013	ETH_1999-2004	16.9	0.000
COL_1996-1999	BOL_2014-2017	66.9	0.000	COL_2008-2013	LKA_2009-2012	47.5	0.000
COL_1996-1999	BRA_1990-1993	60.6	0.000	COL_2008-2013	MOZ_2008-2014	16.9	0.000
COL_1996-1999	BRA_1990-1995	84.0	0.000	COL_2008-2013	MYS_1992-1995	13.4	0.001
COL_1996-1999	BRA_1993-1996	76.0	0.000	COL_2008-2013	PAK_1990-1996	17.5	0.000
COL_1996-1999	BWA_2009-2015	103.2	0.000	COL_2008-2013	PAK_2013-2018	11.0	0.004
COL_1996-1999	CHN_1996-1999	66.3	0.000	COL_2008-2013	PHL_2003-2006	28.3	0.000
COL_1996-1999	CHN_2002-2005	63.5	0.000	COL_2008-2013	RWA_2005-2010	20.0	0.000
COL_1996-1999	COL_1992-1996	84.0	0.000	COL_2008-2013	THA_1990-1994	7.0	0.030
COL_1996-1999	CRI_1990-1995	63.9	0.000	COL_2008-2013	THA_1990-1996	10.1	0.007
COL_1996-1999	CRI_2010-2013	72.0	0.000	COL_2008-2013	THA_2006-2011	9.6	0.008
COL_1996-1999	CRI_2010-2015	72.0	0.000	COL_2008-2013	THA_2007-2010	12.3	0.002
COL_1996-1999	EGY_1990-1995	102.4	0.000	CRI_1993-1996	BOL_2005-2008	76.4	0.000
COL_1996-1999	ETH_1999-2004	64.0	0.000	CRI_1993-1996	BOL_2005-2011	38.6	0.000
COL_1996-1999	LKA_2009-2012	68.0	0.000	CRI_1993-1996	BOL_2011-2016	34.7	0.000
COL_1996-1999	MOZ_2008-2014	101.2	0.000	CRI_1993-1996	BOL_2014-2017	40.7	0.000
COL_1996-1999	MYS_1992-1995	63.7	0.000	CRI_1993-1996	BRA_1990-1993	18.6	0.000
COL_1996-1999	PAK_1990-1996	101.3	0.000	CRI_1993-1996	BRA_1990-1995	84.0	0.000
COL_1996-1999	PAK_2013-2018	100.9	0.000	CRI_1993-1996	BRA_1993-1996	72.9	0.000
COL_1996-1999	PHL_2003-2006	65.1	0.000	CRI_1993-1996	BWA_2009-2015	45.6	0.000
COL_1996-1999	RWA_2005-2010	101.4	0.000	CRI_1993-1996	CHN_1996-1999	36.6	0.000
COL_1996-1999	THA_1990-1994	63.2	0.000	CRI_1993-1996	CHN_2002-2005	10.2	0.006
COL_1996-1999	THA_1990-1996	63.4	0.000	CRI_1993-1996	COL_1992-1996	84.0	0.000
COL_1996-1999	THA_2006-2011	54.9	0.000	CRI_1993-1996	CRI_1990-1995	14.9	0.001
COL_1996-1999	THA_2007-2010	55.2	0.000	CRI_1993-1996	CRI_2010-2013	63.2	0.000
COL_2008-2013	BOL_2005-2008	76.4	0.000	CRI_1993-1996	CRI_2010-2015	63.2	0.000
COL_2008-2013	BOL_2005-2011	39.0	0.000	CRI_1993-1996	EGY_1990-1995	36.1	0.000
COL_2008-2013	BOL_2011-2016	35.1	0.000	CRI_1993-1996	ETH_1999-2004	16.2	0.000
COL_2008-2013	BOL_2014-2017	41.0	0.000	CRI_1993-1996	LKA_2009-2012	47.3	0.000
COL_2008-2013	BRA_1990-1993	19.1	0.000	CRI_1993-1996	MOZ_2008-2014	15.1	0.001
COL_2008-2013	BRA_1990-1995	84.0	0.000	CRI_1993-1996	MYS_1992-1995	12.5	0.002
COL_2008-2013	BRA_1993-1996	72.9	0.000	CRI_1993-1996	PAK_1990-1996	15.7	0.000
COL_2008-2013	BWA_2009-2015	46.5	0.000	CRI_1993-1996	PAK_2013-2018	9.0	0.011
COL_2008-2013	CHN_1996-1999	37.0	0.000	CRI_1993-1996	PHL_2003-2006	27.7	0.000
COL_2008-2013	CHN_2002-2005	11.1	0.004	CRI_1993-1996	RWA_2005-2010	18.3	0.000
CRI_1993-1996	THA_1990-1994	6.0	0.050	ECU_2013-2016	CHN_2002-2005	17.1	0.000
CRI_1993-1996	THA_1990-1996	9.1	0.010	ECU_2013-2016	COL_1992-1996	84.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
CRI_1993-1996	THA_2006-2011	8.9	0.012	ECU_2013-2016	CRI_1990-1995	21.0	0.000
CRI_1993-1996	THA_2007-2010	11.7	0.003	ECU_2013-2016	CRI_2010-2013	63.8	0.000
CRI_2004-2007	BOL_2005-2008	80.0	0.000	ECU_2013-2016	CRI_2010-2015	63.8	0.000
CRI_2004-2007	BOL_2005-2011	76.9	0.000	ECU_2013-2016	EGY_1990-1995	45.1	0.000
CRI_2004-2007	BOL_2011-2016	76.8	0.000	ECU_2013-2016	ETH_1999-2004	22.1	0.000
CRI_2004-2007	BOL_2014-2017	76.9	0.000	ECU_2013-2016	LKA_2009-2012	49.1	0.000
CRI_2004-2007	BRA_1990-1993	72.7	0.000	ECU_2013-2016	MOZ_2008-2014	28.5	0.000
CRI_2004-2007	BRA_1990-1995	84.0	0.000	ECU_2013-2016	MYS_1992-1995	19.0	0.000
CRI_2004-2007	BRA_1993-1996	79.2	0.000	ECU_2013-2016	PAK_1990-1996	29.0	0.000
CRI_2004-2007	BWA_2009-2015	117.5	0.000	ECU_2013-2016	PAK_2013-2018	23.9	0.000
CRI_2004-2007	CHN_1996-1999	76.8	0.000	ECU_2013-2016	PHL_2003-2006	31.9	0.000
CRI_2004-2007	CHN_2002-2005	76.4	0.000	ECU_2013-2016	RWA_2005-2010	31.0	0.000
CRI_2004-2007	COL_1992-1996	84.0	0.000	ECU_2013-2016	THA_1990-1994	13.7	0.001
CRI_2004-2007	CRI_1990-1995	76.5	0.000	ECU_2013-2016	THA_1990-1996	16.2	0.000
CRI_2004-2007	CRI_2010-2013	78.0	0.000	ECU_2013-2016	THA_2006-2011	14.4	0.001
CRI_2004-2007	CRI_2010-2015	78.0	0.000	ECU_2013-2016	THA_2007-2010	16.8	0.000
CRI_2004-2007	EGY_1990-1995	117.4	0.000	IDN_1993-1998	BOL_2005-2008	76.6	0.000
CRI_2004-2007	ETH_1999-2004	76.5	0.000	IDN_1993-1998	BOL_2005-2011	43.8	0.000
CRI_2004-2007	LKA_2009-2012	77.1	0.000	IDN_1993-1998	BOL_2011-2016	40.8	0.000
CRI_2004-2007	MOZ_2008-2014	117.3	0.000	IDN_1993-1998	BOL_2014-2017	45.4	0.000
CRI_2004-2007	MYS_1992-1995	76.5	0.000	IDN_1993-1998	BRA_1990-1993	27.3	0.000
CRI_2004-2007	PAK_1990-1996	117.3	0.000	IDN_1993-1998	BRA_1990-1995	84.0	0.000
CRI_2004-2007	PAK_2013-2018	117.2	0.000	IDN_1993-1998	BRA_1993-1996	73.2	0.000
CRI_2004-2007	PHL_2003-2006	76.7	0.000	IDN_1993-1998	BWA_2009-2015	59.2	0.000
CRI_2004-2007	RWA_2005-2010	117.3	0.000	IDN_1993-1998	CHN_1996-1999	42.3	0.000
CRI_2004-2007	THA_1990-1994	76.4	0.000	IDN_1993-1998	CHN_2002-2005	23.0	0.000
CRI_2004-2007	THA_1990-1996	76.4	0.000	IDN_1993-1998	COL_1992-1996	84.0	0.000
CRI_2004-2007	THA_2006-2011	67.4	0.000	IDN_1993-1998	CRI_1990-1995	26.3	0.000
CRI_2004-2007	THA_2007-2010	67.5	0.000	IDN_1993-1998	CRI_2010-2013	64.4	0.000
ECU_2013-2016	BOL_2005-2008	76.5	0.000	IDN_1993-1998	CRI_2010-2015	64.4	0.000
ECU_2013-2016	BOL_2005-2011	41.3	0.000	IDN_1993-1998	EGY_1990-1995	52.7	0.000
ECU_2013-2016	BOL_2011-2016	37.9	0.000	IDN_1993-1998	ETH_1999-2004	27.2	0.000
ECU_2013-2016	BOL_2014-2017	43.1	0.000	IDN_1993-1998	LKA_2009-2012	50.8	0.000
ECU_2013-2016	BRA_1990-1993	23.0	0.000	IDN_1993-1998	MOZ_2008-2014	39.4	0.000
ECU_2013-2016	BRA_1990-1995	84.0	0.000	IDN_1993-1998	MYS_1992-1995	24.6	0.000
ECU_2013-2016	BRA_1993-1996	73.0	0.000	IDN_1993-1998	PAK_1990-1996	39.8	0.000
ECU_2013-2016	BWA_2009-2015	52.9	0.000	IDN_1993-1998	PAK_2013-2018	35.7	0.000
ECU_2013-2016	CHN_1996-1999	39.6	0.000	IDN_1993-1998	PHL_2003-2006	35.5	0.000
IDN_1993-1998	RWA_2005-2010	41.4	0.000	IDN_2015-2018	CHN_1996-1999	37.4	0.000
IDN_1993-1998	THA_1990-1994	20.2	0.000	IDN_2015-2018	CHN_2002-2005	12.1	0.002
IDN_1993-1998	THA_1990-1996	22.3	0.000	IDN_2015-2018	COL_1992-1996	84.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
IDN_1993-1998	THA_2006-2011	19.2	0.000	IDN_2015-2018	CRI_1990-1995	16.5	0.000
IDN_1993-1998	THA_2007-2010	21.2	0.000	IDN_2015-2018	CRI_2010-2013	63.3	0.000
IDN_2005-2010	BOL_2005-2008	76.4	0.000	IDN_2015-2018	CRI_2010-2015	63.3	0.000
IDN_2005-2010	BOL_2005-2011	39.3	0.000	IDN_2015-2018	EGY_1990-1995	38.5	0.000
IDN_2005-2010	BOL_2011-2016	35.6	0.000	IDN_2015-2018	ETH_1999-2004	17.7	0.000
IDN_2005-2010	BOL_2014-2017	41.3	0.000	IDN_2015-2018	LKA_2009-2012	47.8	0.000
IDN_2005-2010	BRA_1990-1993	19.6	0.000	IDN_2015-2018	MOZ_2008-2014	18.7	0.000
IDN_2005-2010	BRA_1990-1995	84.0	0.000	IDN_2015-2018	MYS_1992-1995	14.2	0.001
IDN_2005-2010	BRA_1993-1996	72.9	0.000	IDN_2015-2018	PAK_1990-1996	19.3	0.000
IDN_2005-2010	BWA_2009-2015	47.5	0.000	IDN_2015-2018	PAK_2013-2018	13.1	0.001
IDN_2005-2010	CHN_1996-1999	37.4	0.000	IDN_2015-2018	PHL_2003-2006	28.8	0.000
IDN_2005-2010	CHN_2002-2005	12.1	0.002	IDN_2015-2018	RWA_2005-2010	21.7	0.000
IDN_2005-2010	COL_1992-1996	84.0	0.000	IDN_2015-2018	THA_1990-1994	8.1	0.018
IDN_2005-2010	CRI_1990-1995	16.5	0.000	IDN_2015-2018	THA_1990-1996	11.0	0.004
IDN_2005-2010	CRI_2010-2013	63.3	0.000	IDN_2015-2018	THA_2006-2011	10.3	0.006
IDN_2005-2010	CRI_2010-2015	63.3	0.000	IDN_2015-2018	THA_2007-2010	13.0	0.001
IDN_2005-2010	EGY_1990-1995	38.5	0.000	LAO_1992-1997	BOL_2005-2008	119.6	0.000
IDN_2005-2010	ETH_1999-2004	17.7	0.000	LAO_1992-1997	BOL_2005-2011	108.9	0.000
IDN_2005-2010	LKA_2009-2012	47.8	0.000	LAO_1992-1997	BOL_2011-2016	108.4	0.000
IDN_2005-2010	MOZ_2008-2014	18.7	0.000	LAO_1992-1997	BOL_2014-2017	109.1	0.000
IDN_2005-2010	MYS_1992-1995	14.2	0.001	LAO_1992-1997	BRA_1990-1993	102.7	0.000
IDN_2005-2010	PAK_1990-1996	19.3	0.000	LAO_1992-1997	BRA_1990-1995	126.0	0.000
IDN_2005-2010	PAK_2013-2018	13.1	0.001	LAO_1992-1997	BRA_1993-1996	117.6	0.000
IDN_2005-2010	PHL_2003-2006	28.8	0.000	LAO_1992-1997	BWA_2009-2015	150.6	0.000
IDN_2005-2010	RWA_2005-2010	21.7	0.000	LAO_1992-1997	CHN_1996-1999	108.6	0.000
IDN_2005-2010	THA_1990-1994	8.1	0.018	LAO_1992-1997	CHN_2002-2005	106.3	0.000
IDN_2005-2010	THA_1990-1996	11.0	0.004	LAO_1992-1997	COL_1992-1996	126.0	0.000
IDN_2005-2010	THA_2006-2011	10.3	0.006	LAO_1992-1997	CRI_1990-1995	106.6	0.000
IDN_2005-2010	THA_2007-2010	13.0	0.001	LAO_1992-1997	CRI_2010-2013	113.7	0.000
IDN_2015-2018	BOL_2005-2008	76.4	0.000	LAO_1992-1997	CRI_2010-2015	113.7	0.000
IDN_2015-2018	BOL_2005-2011	39.3	0.000	LAO_1992-1997	EGY_1990-1995	150.2	0.000
IDN_2015-2018	BOL_2011-2016	35.6	0.000	LAO_1992-1997	ETH_1999-2004	106.7	0.000
IDN_2015-2018	BOL_2014-2017	41.3	0.000	LAO_1992-1997	LKA_2009-2012	110.1	0.000
IDN_2015-2018	BRA_1990-1993	19.6	0.000	LAO_1992-1997	MOZ_2008-2014	149.4	0.000
IDN_2015-2018	BRA_1990-1995	84.0	0.000	LAO_1992-1997	MYS_1992-1995	106.5	0.000
IDN_2015-2018	BRA_1993-1996	72.9	0.000	LAO_1992-1997	PAK_1990-1996	149.4	0.000
IDN_2015-2018	BWA_2009-2015	47.5	0.000	LAO_1992-1997	PAK_2013-2018	149.2	0.000
LAO_1992-1997	PHL_2003-2006	107.7	0.000	MAR_1990-1998	BWA_2009-2015	83.3	0.000
LAO_1992-1997	RWA_2005-2010	149.5	0.000	MAR_1990-1998	CHN_1996-1999	66.6	0.000
LAO_1992-1997	THA_1990-1994	106.1	0.000	MAR_1990-1998	CHN_2002-2005	27.1	0.000
LAO_1992-1997	THA_1990-1996	106.2	0.000	MAR_1990-1998	COL_1992-1996	126.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
LAO_1992-1997	THA_2006-2011	96.0	0.000	MAR_1990-1998	CRI_1990-1995	34.6	0.000
LAO_1992-1997	THA_2007-2010	96.3	0.000	MAR_1990-1998	CRI_2010-2013	101.5	0.000
LAO_1997-2002	BOL_2005-2008	117.2	0.000	MAR_1990-1998	CRI_2010-2015	101.5	0.000
LAO_1997-2002	BOL_2005-2011	66.0	0.000	MAR_1990-1998	EGY_1990-1995	71.2	0.000
LAO_1997-2002	BOL_2011-2016	59.9	0.000	MAR_1990-1998	ETH_1999-2004	36.5	0.000
LAO_1997-2002	BOL_2014-2017	69.2	0.000	MAR_1990-1998	LKA_2009-2012	81.1	0.000
LAO_1997-2002	BRA_1990-1993	34.1	0.000	MAR_1990-1998	MOZ_2008-2014	42.5	0.000
LAO_1997-2002	BRA_1990-1995	126.0	0.000	MAR_1990-1998	MYS_1992-1995	30.8	0.000
LAO_1997-2002	BRA_1993-1996	113.0	0.000	MAR_1990-1998	PAK_1990-1996	43.4	0.000
LAO_1997-2002	BWA_2009-2015	74.5	0.000	MAR_1990-1998	PAK_2013-2018	33.6	0.000
LAO_1997-2002	CHN_1996-1999	62.9	0.000	MAR_1990-1998	PHL_2003-2006	53.9	0.000
LAO_1997-2002	CHN_2002-2005	16.4	0.000	MAR_1990-1998	RWA_2005-2010	47.1	0.000
LAO_1997-2002	COL_1992-1996	126.0	0.000	MAR_1990-1998	THA_1990-1994	20.3	0.000
LAO_1997-2002	CRI_1990-1995	25.5	0.000	MAR_1990-1998	THA_1990-1996	25.4	0.000
LAO_1997-2002	CRI_2010-2013	100.9	0.000	MAR_1990-1998	THA_2006-2011	23.2	0.000
LAO_1997-2002	CRI_2010-2015	100.9	0.000	MAR_1990-1998	THA_2007-2010	27.9	0.000
LAO_1997-2002	EGY_1990-1995	59.6	0.000	MEX_1992-1996	BOL_2005-2008	81.3	0.000
LAO_1997-2002	ETH_1999-2004	27.8	0.000	MEX_1992-1996	BOL_2005-2011	80.2	0.000
LAO_1997-2002	LKA_2009-2012	79.0	0.000	MEX_1992-1996	BOL_2011-2016	80.2	0.000
LAO_1997-2002	MOZ_2008-2014	22.1	0.000	MEX_1992-1996	BOL_2014-2017	80.3	0.000
LAO_1997-2002	MYS_1992-1995	20.9	0.000	MEX_1992-1996	BRA_1990-1993	76.2	0.000
LAO_1997-2002	PAK_1990-1996	23.3	0.000	MEX_1992-1996	BRA_1990-1995	84.0	0.000
LAO_1997-2002	PAK_2013-2018	10.0	0.007	MEX_1992-1996	BRA_1993-1996	81.0	0.000
LAO_1997-2002	PHL_2003-2006	48.4	0.000	MEX_1992-1996	BWA_2009-2015	121.6	0.000
LAO_1997-2002	RWA_2005-2010	28.3	0.000	MEX_1992-1996	CHN_1996-1999	80.2	0.000
LAO_1997-2002	THA_1990-1994	8.0	0.018	MEX_1992-1996	CHN_2002-2005	80.1	0.000
LAO_1997-2002	THA_1990-1996	14.3	0.001	MEX_1992-1996	COL_1992-1996	84.0	0.000
LAO_1997-2002	THA_2006-2011	14.6	0.001	MEX_1992-1996	CRI_1990-1995	80.1	0.000
LAO_1997-2002	THA_2007-2010	20.1	0.000	MEX_1992-1996	CRI_2010-2013	80.6	0.000
MAR_1990-1998	BOL_2005-2008	117.3	0.000	MEX_1992-1996	CRI_2010-2015	80.6	0.000
MAR_1990-1998	BOL_2005-2011	69.4	0.000	MEX_1992-1996	EGY_1990-1995	121.6	0.000
MAR_1990-1998	BOL_2011-2016	63.9	0.000	MEX_1992-1996	ETH_1999-2004	80.1	0.000
MAR_1990-1998	BOL_2014-2017	72.2	0.000	MEX_1992-1996	LKA_2009-2012	80.3	0.000
MAR_1990-1998	BRA_1990-1993	40.5	0.000	MEX_1992-1996	MOZ_2008-2014	121.6	0.000
MAR_1990-1998	BRA_1990-1995	126.0	0.000	MEX_1992-1996	MYS_1992-1995	80.1	0.000
MAR_1990-1998	BRA_1993-1996	113.2	0.000	MEX_1992-1996	PAK_1990-1996	121.6	0.000
MEX_1992-1996	PAK_2013-2018	121.6	0.000	MWI_2004-2010	BRA_1993-1996	113.0	0.000
MEX_1992-1996	PHL_2003-2006	80.2	0.000	MWI_2004-2010	BWA_2009-2015	75.6	0.000
MEX_1992-1996	RWA_2005-2010	121.6	0.000	MWI_2004-2010	CHN_1996-1999	63.3	0.000
MEX_1992-1996	THA_1990-1994	80.1	0.000	MWI_2004-2010	CHN_2002-2005	17.7	0.000
MEX_1992-1996	THA_1990-1996	80.1	0.000	MWI_2004-2010	COL_1992-1996	126.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
MEX_1992-1996	THA_2006-2011	71.1	0.000	MWI_2004-2010	CRI_1990-1995	26.5	0.000
MEX_1992-1996	THA_2007-2010	71.1	0.000	MWI_2004-2010	CRI_2010-2013	101.0	0.000
MEX_1992-1998	BOL_2005-2008	76.5	0.000	MWI_2004-2010	CRI_2010-2015	101.0	0.000
MEX_1992-1998	BOL_2005-2011	41.8	0.000	MWI_2004-2010	EGY_1990-1995	61.0	0.000
MEX_1992-1998	BOL_2011-2016	38.4	0.000	MWI_2004-2010	ETH_1999-2004	28.9	0.000
MEX_1992-1998	BOL_2014-2017	43.6	0.000	MWI_2004-2010	LKA_2009-2012	79.3	0.000
MEX_1992-1998	BRA_1990-1993	23.8	0.000	MWI_2004-2010	MOZ_2008-2014	24.7	0.000
MEX_1992-1998	BRA_1990-1995	84.0	0.000	MWI_2004-2010	MYS_1992-1995	22.1	0.000
MEX_1992-1998	BRA_1993-1996	73.1	0.000	MWI_2004-2010	PAK_1990-1996	25.8	0.000
MEX_1992-1998	BWA_2009-2015	54.1	0.000	MWI_2004-2010	PAK_2013-2018	13.0	0.001
MEX_1992-1998	CHN_1996-1999	40.1	0.000	MWI_2004-2010	PHL_2003-2006	49.0	0.000
MEX_1992-1998	CHN_2002-2005	18.2	0.000	MWI_2004-2010	RWA_2005-2010	30.6	0.000
MEX_1992-1998	COL_1992-1996	84.0	0.000	MWI_2004-2010	THA_1990-1994	9.5	0.009
MEX_1992-1998	CRI_1990-1995	22.0	0.000	MWI_2004-2010	THA_1990-1996	15.6	0.000
MEX_1992-1998	CRI_2010-2013	63.9	0.000	MWI_2004-2010	THA_2006-2011	15.6	0.000
MEX_1992-1998	CRI_2010-2015	63.9	0.000	MWI_2004-2010	THA_2007-2010	21.0	0.000
MEX_1992-1998	EGY_1990-1995	46.6	0.000	MYS_2003-2008	BOL_2005-2008	76.4	0.000
MEX_1992-1998	ETH_1999-2004	23.0	0.000	MYS_2003-2008	BOL_2005-2011	39.0	0.000
MEX_1992-1998	LKA_2009-2012	49.4	0.000	MYS_2003-2008	BOL_2011-2016	35.1	0.000
MEX_1992-1998	MOZ_2008-2014	30.6	0.000	MYS_2003-2008	BOL_2014-2017	41.0	0.000
MEX_1992-1998	MYS_1992-1995	20.1	0.000	MYS_2003-2008	BRA_1990-1993	19.1	0.000
MEX_1992-1998	PAK_1990-1996	31.1	0.000	MYS_2003-2008	BRA_1990-1995	84.0	0.000
MEX_1992-1998	PAK_2013-2018	26.2	0.000	MYS_2003-2008	BRA_1993-1996	72.9	0.000
MEX_1992-1998	PHL_2003-2006	32.5	0.000	MYS_2003-2008	BWA_2009-2015	46.5	0.000
MEX_1992-1998	RWA_2005-2010	33.0	0.000	MYS_2003-2008	CHN_1996-1999	37.0	0.000
MEX_1992-1998	THA_1990-1994	14.9	0.001	MYS_2003-2008	CHN_2002-2005	11.1	0.004
MEX_1992-1998	THA_1990-1996	17.4	0.000	MYS_2003-2008	COL_1992-1996	84.0	0.000
MEX_1992-1998	THA_2006-2011	15.3	0.000	MYS_2003-2008	CRI_1990-1995	15.7	0.000
MEX_1992-1998	THA_2007-2010	17.6	0.000	MYS_2003-2008	CRI_2010-2013	63.3	0.000
MWI_2004-2010	BOL_2005-2008	117.2	0.000	MYS_2003-2008	CRI_2010-2015	63.3	0.000
MWI_2004-2010	BOL_2005-2011	66.4	0.000	MYS_2003-2008	EGY_1990-1995	37.3	0.000
MWI_2004-2010	BOL_2011-2016	60.3	0.000	MYS_2003-2008	ETH_1999-2004	16.9	0.000
MWI_2004-2010	BOL_2014-2017	69.5	0.000	MYS_2003-2008	LKA_2009-2012	47.5	0.000
MWI_2004-2010	BRA_1990-1993	34.6	0.000	MYS_2003-2008	MOZ_2008-2014	16.9	0.000
MWI_2004-2010	BRA_1990-1995	126.0	0.000	MYS_2003-2008	MYS_1992-1995	13.4	0.001
MYS_2003-2008	PAK_1990-1996	17.5	0.000	MYS_2008-2013	BRA_1990-1995	66.0	0.000
MYS_2003-2008	PAK_2013-2018	11.0	0.004	MYS_2008-2013	BRA_1993-1996	60.8	0.000
MYS_2003-2008	PHL_2003-2006	28.3	0.000	MYS_2008-2013	BWA_2009-2015	97.1	0.000
MYS_2003-2008	RWA_2005-2010	20.0	0.000	MYS_2008-2013	CHN_1996-1999	58.3	0.000
MYS_2003-2008	THA_1990-1994	7.0	0.030	MYS_2008-2013	CHN_2002-2005	57.8	0.000
MYS_2003-2008	THA_1990-1996	10.1	0.007	MYS_2008-2013	COL_1992-1996	66.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
MYS_2003-2008	THA_2006-2011	9.6	0.008	MYS_2008-2013	CRI_1990-1995	57.9	0.000
MYS_2003-2008	THA_2007-2010	12.3	0.002	MYS_2008-2013	CRI_2010-2013	59.5	0.000
MYS_2006-2011	BOL_2005-2008	67.7	0.000	MYS_2008-2013	CRI_2010-2015	59.5	0.000
MYS_2006-2011	BOL_2005-2011	41.5	0.000	MYS_2008-2013	EGY_1990-1995	97.0	0.000
MYS_2006-2011	BOL_2011-2016	39.5	0.000	MYS_2008-2013	ETH_1999-2004	57.9	0.000
MYS_2006-2011	BOL_2014-2017	42.7	0.000	MYS_2008-2013	LKA_2009-2012	58.6	0.000
MYS_2006-2011	BRA_1990-1993	29.5	0.000	MYS_2008-2013	MOZ_2008-2014	96.8	0.000
MYS_2006-2011	BRA_1990-1995	75.0	0.000	MYS_2008-2013	MYS_1992-1995	57.9	0.000
MYS_2006-2011	BRA_1993-1996	64.7	0.000	MYS_2008-2013	PAK_1990-1996	96.8	0.000
MYS_2006-2011	BWA_2009-2015	61.6	0.000	MYS_2008-2013	PAK_2013-2018	96.7	0.000
MYS_2006-2011	CHN_1996-1999	40.5	0.000	MYS_2008-2013	PHL_2003-2006	58.1	0.000
MYS_2006-2011	CHN_2002-2005	28.6	0.000	MYS_2008-2013	RWA_2005-2010	96.8	0.000
MYS_2006-2011	COL_1992-1996	75.0	0.000	MYS_2008-2013	THA_1990-1994	57.8	0.000
MYS_2006-2011	CRI_1990-1995	30.4	0.000	MYS_2008-2013	THA_1990-1996	57.8	0.000
MYS_2006-2011	CRI_2010-2013	57.0	0.000	MYS_2008-2013	THA_2006-2011	49.3	0.000
MYS_2006-2011	CRI_2010-2015	57.0	0.000	MYS_2008-2013	THA_2007-2010	49.4	0.000
MYS_2006-2011	EGY_1990-1995	57.7	0.000	MYS_2015-2018	BOL_2005-2008	58.2	0.000
MYS_2006-2011	ETH_1999-2004	31.0	0.000	MYS_2015-2018	BOL_2005-2011	28.5	0.000
MYS_2006-2011	LKA_2009-2012	46.5	0.000	MYS_2015-2018	BOL_2011-2016	26.1	0.000
MYS_2006-2011	MOZ_2008-2014	50.0	0.000	MYS_2015-2018	BOL_2014-2017	29.8	0.000
MYS_2006-2011	MYS_1992-1995	29.5	0.000	MYS_2015-2018	BRA_1990-1993	15.0	0.001
MYS_2006-2011	PAK_1990-1996	50.2	0.000	MYS_2015-2018	BRA_1990-1995	66.0	0.000
MYS_2006-2011	PAK_2013-2018	48.1	0.000	MYS_2015-2018	BRA_1993-1996	54.8	0.000
MYS_2006-2011	PHL_2003-2006	36.1	0.000	MYS_2015-2018	BWA_2009-2015	38.2	0.000
MYS_2006-2011	RWA_2005-2010	51.1	0.000	MYS_2015-2018	CHN_1996-1999	27.2	0.000
MYS_2006-2011	THA_1990-1994	27.0	0.000	MYS_2015-2018	CHN_2002-2005	12.8	0.002
MYS_2006-2011	THA_1990-1996	28.1	0.000	MYS_2015-2018	COL_1992-1996	66.0	0.000
MYS_2006-2011	THA_2006-2011	23.7	0.000	MYS_2015-2018	CRI_1990-1995	15.1	0.001
MYS_2006-2011	THA_2007-2010	24.9	0.000	MYS_2015-2018	CRI_2010-2013	46.3	0.000
MYS_2008-2013	BOL_2005-2008	61.7	0.000	MYS_2015-2018	CRI_2010-2015	46.3	0.000
MYS_2008-2013	BOL_2005-2011	58.3	0.000	MYS_2015-2018	EGY_1990-1995	32.9	0.000
MYS_2008-2013	BOL_2011-2016	58.2	0.000	MYS_2015-2018	ETH_1999-2004	15.7	0.000
MYS_2008-2013	BOL_2014-2017	58.4	0.000	MYS_2015-2018	LKA_2009-2012	34.2	0.000
MYS_2008-2013	BRA_1990-1993	53.8	0.000	MYS_2015-2018	MOZ_2008-2014	22.4	0.000
MYS_2015-2018	MYS_1992-1995	13.9	0.001	THA_2010-2013	BRA_1990-1993	46.3	0.000
MYS_2015-2018	PAK_1990-1996	22.6	0.000	THA_2010-2013	BRA_1990-1995	75.0	0.000
MYS_2015-2018	PAK_2013-2018	19.6	0.000	THA_2010-2013	BRA_1993-1996	66.1	0.000
MYS_2015-2018	PHL_2003-2006	21.9	0.000	THA_2010-2013	BWA_2009-2015	85.2	0.000
MYS_2015-2018	RWA_2005-2010	23.9	0.000	THA_2010-2013	CHN_1996-1999	52.9	0.000
MYS_2015-2018	THA_1990-1994	10.8	0.005	THA_2010-2013	CHN_2002-2005	48.6	0.000
MYS_2015-2018	THA_1990-1996	12.3	0.002	THA_2010-2013	COL_1992-1996	75.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
MYS_2015-2018	THA_2006-2011	10.6	0.005	THA_2010-2013	CRI_1990-1995	49.2	0.000
MYS_2015-2018	THA_2007-2010	12.0	0.003	THA_2010-2013	CRI_2010-2013	61.1	0.000
PER_2007-2010	BOL_2005-2008	76.5	0.000	THA_2010-2013	CRI_2010-2015	61.1	0.000
PER_2007-2010	BOL_2005-2011	42.3	0.000	THA_2010-2013	EGY_1990-1995	83.9	0.000
PER_2007-2010	BOL_2011-2016	39.0	0.000	THA_2010-2013	ETH_1999-2004	49.4	0.000
PER_2007-2010	BOL_2014-2017	44.0	0.000	THA_2010-2013	LKA_2009-2012	55.5	0.000
PER_2007-2010	BRA_1990-1993	24.6	0.000	THA_2010-2013	MOZ_2008-2014	81.7	0.000
PER_2007-2010	BRA_1990-1995	84.0	0.000	THA_2010-2013	MYS_1992-1995	48.9	0.000
PER_2007-2010	BRA_1993-1996	73.1	0.000	THA_2010-2013	PAK_1990-1996	81.8	0.000
PER_2007-2010	BWA_2009-2015	55.3	0.000	THA_2010-2013	PAK_2013-2018	81.2	0.000
PER_2007-2010	CHN_1996-1999	40.6	0.000	THA_2010-2013	PHL_2003-2006	51.2	0.000
PER_2007-2010	CHN_2002-2005	19.4	0.000	THA_2010-2013	RWA_2005-2010	82.0	0.000
PER_2007-2010	COL_1992-1996	84.0	0.000	THA_2010-2013	THA_1990-1994	48.1	0.000
PER_2007-2010	CRI_1990-1995	23.0	0.000	THA_2010-2013	THA_1990-1996	48.4	0.000
PER_2007-2010	CRI_2010-2013	64.0	0.000	THA_2010-2013	THA_2006-2011	41.1	0.000
PER_2007-2010	CRI_2010-2015	64.0	0.000	THA_2010-2013	THA_2007-2010	41.5	0.000
PER_2007-2010	EGY_1990-1995	48.0	0.000	TUN_1995-2000	BOL_2005-2008	117.2	0.000
PER_2007-2010	ETH_1999-2004	24.0	0.000	TUN_1995-2000	BOL_2005-2011	67.1	0.000
PER_2007-2010	LKA_2009-2012	49.7	0.000	TUN_1995-2000	BOL_2011-2016	61.2	0.000
PER_2007-2010	MOZ_2008-2014	32.8	0.000	TUN_1995-2000	BOL_2014-2017	70.1	0.000
PER_2007-2010	MYS_1992-1995	21.1	0.000	TUN_1995-2000	BRA_1990-1993	35.9	0.000
PER_2007-2010	PAK_1990-1996	33.2	0.000	TUN_1995-2000	BRA_1990-1995	126.0	0.000
PER_2007-2010	PAK_2013-2018	28.5	0.000	TUN_1995-2000	BRA_1993-1996	113.0	0.000
PER_2007-2010	PHL_2003-2006	33.2	0.000	TUN_1995-2000	BWA_2009-2015	77.5	0.000
PER_2007-2010	RWA_2005-2010	35.0	0.000	TUN_1995-2000	CHN_1996-1999	64.1	0.000
PER_2007-2010	THA_1990-1994	16.2	0.000	TUN_1995-2000	CHN_2002-2005	20.0	0.000
PER_2007-2010	THA_1990-1996	18.5	0.000	TUN_1995-2000	COL_1992-1996	126.0	0.000
PER_2007-2010	THA_2006-2011	16.2	0.000	TUN_1995-2000	CRI_1990-1995	28.5	0.000
PER_2007-2010	THA_2007-2010	18.5	0.000	TUN_1995-2000	CRI_2010-2013	101.1	0.000
THA_2010-2013	BOL_2005-2008	68.5	0.000	TUN_1995-2000	CRI_2010-2015	101.1	0.000
THA_2010-2013	BOL_2005-2011	53.4	0.000	TUN_1995-2000	EGY_1990-1995	63.5	0.000
THA_2010-2013	BOL_2011-2016	52.5	0.000	TUN_1995-2000	ETH_1999-2004	30.7	0.000
THA_2010-2013	BOL_2014-2017	53.8	0.000	TUN_1995-2000	LKA_2009-2012	79.7	0.000
TUN_1995-2000	MOZ_2008-2014	29.2	0.000	TUN_2010-2015	BOL_2014-2017	71.9	0.000
TUN_1995-2000	MYS_1992-1995	24.2	0.000	TUN_2010-2015	BRA_1990-1993	56.3	0.000
TUN_1995-2000	PAK_1990-1996	30.3	0.000	TUN_2010-2015	BRA_1990-1995	108.0	0.000
TUN_1995-2000	PAK_2013-2018	18.2	0.000	TUN_2010-2015	BRA_1993-1996	97.0	0.000
TUN_1995-2000	PHL_2003-2006	50.2	0.000	TUN_2010-2015	BWA_2009-2015	99.5	0.000
TUN_1995-2000	RWA_2005-2010	34.7	0.000	TUN_2010-2015	CHN_1996-1999	69.3	0.000
TUN_1995-2000	THA_1990-1994	12.2	0.002	TUN_2010-2015	CHN_2002-2005	54.4	0.000
TUN_1995-2000	THA_1990-1996	18.0	0.000	TUN_2010-2015	COL_1992-1996	108.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
TUN_1995-2000	THA_2006-2011	17.4	0.000	TUN_2010-2015	CRI_1990-1995	56.8	0.000
TUN_1995-2000	THA_2007-2010	22.7	0.000	TUN_2010-2015	CRI_2010-2013	88.6	0.000
TUN_2005-2010	BOL_2005-2008	112.9	0.000	TUN_2010-2015	CRI_2010-2015	88.6	0.000
TUN_2005-2010	BOL_2005-2011	63.1	0.000	TUN_2010-2015	EGY_1990-1995	95.4	0.000
TUN_2005-2010	BOL_2011-2016	57.2	0.000	TUN_2010-2015	ETH_1999-2004	57.5	0.000
TUN_2005-2010	BOL_2014-2017	66.1	0.000	TUN_2010-2015	LKA_2009-2012	76.4	0.000
TUN_2005-2010	BRA_1990-1993	32.3	0.000	TUN_2010-2015	MOZ_2008-2014	87.5	0.000
TUN_2005-2010	BRA_1990-1995	121.6	0.000	TUN_2010-2015	MYS_1992-1995	55.6	0.000
TUN_2005-2010	BRA_1993-1996	108.7	0.000	TUN_2010-2015	PAK_1990-1996	87.7	0.000
TUN_2005-2010	BWA_2009-2015	74.4	0.000	TUN_2010-2015	PAK_2013-2018	85.4	0.000
TUN_2005-2010	CHN_1996-1999	60.1	0.000	TUN_2010-2015	PHL_2003-2006	63.9	0.000
TUN_2005-2010	CHN_2002-2005	17.1	0.000	TUN_2010-2015	RWA_2005-2010	88.6	0.000
TUN_2005-2010	COL_1992-1996	121.6	0.000	TUN_2010-2015	THA_1990-1994	52.4	0.000
TUN_2005-2010	CRI_1990-1995	25.2	0.000	TUN_2010-2015	THA_1990-1996	53.9	0.000
TUN_2005-2010	CRI_2010-2013	96.8	0.000	TUN_2010-2015	THA_2006-2011	46.5	0.000
TUN_2005-2010	CRI_2010-2015	96.8	0.000	TUN_2010-2015	THA_2007-2010	48.1	0.000
TUN_2005-2010	EGY_1990-1995	60.7	0.000	UGA_1992-1999	BOL_2005-2008	76.4	0.000
TUN_2005-2010	ETH_1999-2004	27.3	0.000	UGA_1992-1999	BOL_2005-2011	39.0	0.000
TUN_2005-2010	LKA_2009-2012	75.5	0.000	UGA_1992-1999	BOL_2011-2016	35.1	0.000
TUN_2005-2010	MOZ_2008-2014	27.3	0.000	UGA_1992-1999	BOL_2014-2017	41.0	0.000
TUN_2005-2010	MYS_1992-1995	21.0	0.000	UGA_1992-1999	BRA_1990-1993	19.1	0.000
TUN_2005-2010	PAK_1990-1996	28.3	0.000	UGA_1992-1999	BRA_1990-1995	84.0	0.000
TUN_2005-2010	PAK_2013-2018	17.0	0.000	UGA_1992-1999	BRA_1993-1996	72.9	0.000
TUN_2005-2010	PHL_2003-2006	46.4	0.000	UGA_1992-1999	BWA_2009-2015	46.5	0.000
TUN_2005-2010	RWA_2005-2010	32.7	0.000	UGA_1992-1999	CHN_1996-1999	37.0	0.000
TUN_2005-2010	THA_1990-1994	9.9	0.007	UGA_1992-1999	CHN_2002-2005	11.1	0.004
TUN_2005-2010	THA_1990-1996	15.2	0.001	UGA_1992-1999	COL_1992-1996	84.0	0.000
TUN_2005-2010	THA_2006-2011	14.1	0.001	UGA_1992-1999	CRI_1990-1995	15.7	0.000
TUN_2005-2010	THA_2007-2010	19.1	0.000	UGA_1992-1999	CRI_2010-2013	63.3	0.000
TUN_2010-2015	BOL_2005-2008	100.3	0.000	UGA_1992-1999	CRI_2010-2015	63.3	0.000
TUN_2010-2015	BOL_2005-2011	70.6	0.000	UGA_1992-1999	EGY_1990-1995	37.3	0.000
TUN_2010-2015	BOL_2011-2016	68.1	0.000	UGA_1992-1999	ETH_1999-2004	16.9	0.000
UGA_1992-1999	LKA_2009-2012	47.5	0.000	ZAF_2008-2014	BOL_2011-2016	36.0	0.000
UGA_1992-1999	MOZ_2008-2014	16.9	0.000	ZAF_2008-2014	BOL_2014-2017	41.6	0.000
UGA_1992-1999	MYS_1992-1995	13.4	0.001	ZAF_2008-2014	BRA_1990-1993	20.2	0.000
UGA_1992-1999	PAK_1990-1996	17.5	0.000	ZAF_2008-2014	BRA_1990-1995	84.0	0.000
UGA_1992-1999	PAK_2013-2018	11.0	0.004	ZAF_2008-2014	BRA_1993-1996	72.9	0.000
UGA_1992-1999	PHL_2003-2006	28.3	0.000	ZAF_2008-2014	BWA_2009-2015	48.5	0.000
UGA_1992-1999	RWA_2005-2010	20.0	0.000	ZAF_2008-2014	CHN_1996-1999	37.8	0.000
UGA_1992-1999	THA_1990-1994	7.0	0.030	ZAF_2008-2014	CHN_2002-2005	13.0	0.001
UGA_1992-1999	THA_1990-1996	10.1	0.007	ZAF_2008-2014	COL_1992-1996	84.0	0.000

Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
UGA_1992-1999	THA_2006-2011	9.6	0.008	ZAF_2008-2014	CRI_1990-1995	17.4	0.000
UGA_1992-1999	THA_2007-2010	12.3	0.002	ZAF_2008-2014	CRI_2010-2013	63.4	0.000
ZAF_2005-2008	BOL_2005-2008	76.5	0.000	ZAF_2008-2014	CRI_2010-2015	63.4	0.000
ZAF_2005-2008	BOL_2005-2011	40.9	0.000	ZAF_2008-2014	EGY_1990-1995	39.7	0.000
ZAF_2005-2008	BOL_2011-2016	37.4	0.000	ZAF_2008-2014	ETH_1999-2004	18.5	0.000
ZAF_2005-2008	BOL_2014-2017	42.8	0.000	ZAF_2008-2014	LKA_2009-2012	48.0	0.000
ZAF_2005-2008	BRA_1990-1993	22.2	0.000	ZAF_2008-2014	MOZ_2008-2014	20.6	0.000
ZAF_2005-2008	BRA_1990-1995	84.0	0.000	ZAF_2008-2014	MYS_1992-1995	15.1	0.001
ZAF_2005-2008	BRA_1993-1996	73.0	0.000	ZAF_2008-2014	PAK_1990-1996	21.2	0.000
ZAF_2005-2008	BWA_2009-2015	51.8	0.000	ZAF_2008-2014	PAK_2013-2018	15.2	0.001
ZAF_2005-2008	CHN_1996-1999	39.1	0.000	ZAF_2008-2014	PHL_2003-2006	29.4	0.000
ZAF_2005-2008	CHN_2002-2005	16.1	0.000	ZAF_2008-2014	RWA_2005-2010	23.5	0.000
ZAF_2005-2008	COL_1992-1996	84.0	0.000	ZAF_2008-2014	THA_1990-1994	9.1	0.010
ZAF_2005-2008	CRI_1990-1995	20.1	0.000	ZAF_2008-2014	THA_1990-1996	12.0	0.002
ZAF_2005-2008	CRI_2010-2013	63.7	0.000	ZAF_2008-2014	THA_2006-2011	11.1	0.004
ZAF_2005-2008	CRI_2010-2015	63.7	0.000	ZAF_2008-2014	THA_2007-2010	13.7	0.001
ZAF_2005-2008	EGY_1990-1995	43.7	0.000	ZMB_1998-2004	BOL_2005-2008	76.4	0.000
ZAF_2005-2008	ETH_1999-2004	21.1	0.000	ZMB_1998-2004	BOL_2005-2011	39.3	0.000
ZAF_2005-2008	LKA_2009-2012	48.8	0.000	ZMB_1998-2004	BOL_2011-2016	35.6	0.000
ZAF_2005-2008	MOZ_2008-2014	26.5	0.000	ZMB_1998-2004	BOL_2014-2017	41.3	0.000
ZAF_2005-2008	MYS_1992-1995	18.0	0.000	ZMB_1998-2004	BRA_1990-1993	19.6	0.000
ZAF_2005-2008	PAK_1990-1996	27.0	0.000	ZMB_1998-2004	BRA_1990-1995	84.0	0.000
ZAF_2005-2008	PAK_2013-2018	21.6	0.000	ZMB_1998-2004	BRA_1993-1996	72.9	0.000
ZAF_2005-2008	PHL_2003-2006	31.2	0.000	ZMB_1998-2004	BWA_2009-2015	47.5	0.000
ZAF_2005-2008	RWA_2005-2010	29.1	0.000	ZMB_1998-2004	CHN_1996-1999	37.4	0.000
ZAF_2005-2008	THA_1990-1994	12.5	0.002	ZMB_1998-2004	CHN_2002-2005	12.1	0.002
ZAF_2005-2008	THA_1990-1996	15.1	0.001	ZMB_1998-2004	COL_1992-1996	84.0	0.000
ZAF_2005-2008	THA_2006-2011	13.5	0.001	ZMB_1998-2004	CRI_1990-1995	16.5	0.000
ZAF_2005-2008	THA_2007-2010	16.0	0.000	ZMB_1998-2004	CRI_2010-2013	63.3	0.000
ZAF_2008-2014	BOL_2005-2008	76.4	0.000	ZMB_1998-2004	CRI_2010-2015	63.3	0.000
ZAF_2008-2014	BOL_2005-2011	39.7	0.000	ZMB_1998-2004	EGY_1990-1995	38.5	0.000
ZMB_1998-2004	ETH_1999-2004	17.7	0.000				
ZMB_1998-2004	LKA_2009-2012	47.8	0.000				
ZMB_1998-2004	MOZ_2008-2014	18.7	0.000				
ZMB_1998-2004	MYS_1992-1995	14.2	0.001				
ZMB_1998-2004	PAK_1990-1996	19.3	0.000				
ZMB_1998-2004	PAK_2013-2018	13.1	0.001				
ZMB_1998-2004	PHL_2003-2006	28.8	0.000				
ZMB_1998-2004	RWA_2005-2010	21.7	0.000				
ZMB_1998-2004	THA_1990-1994	8.1	0.018				

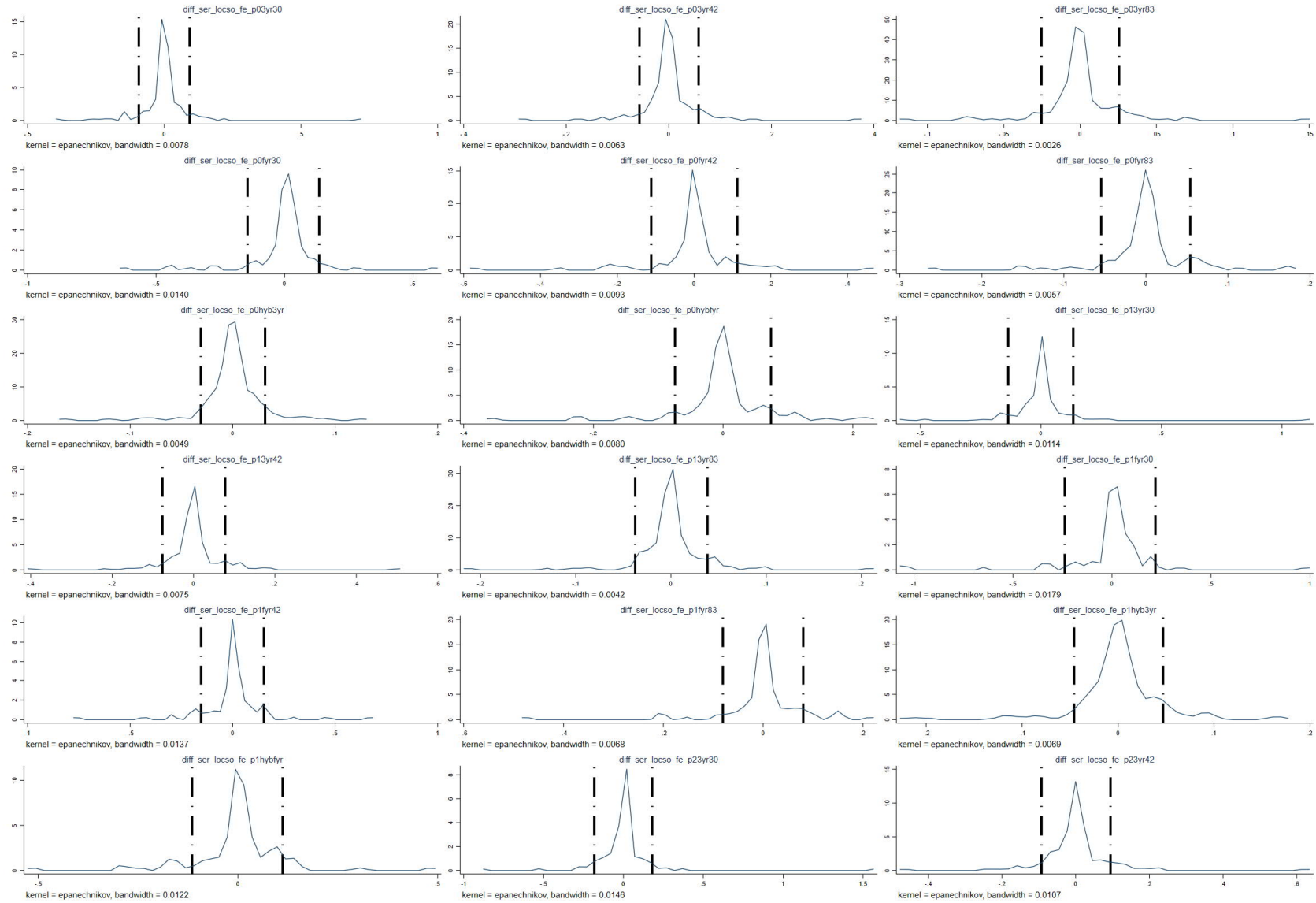
Top	Bottom	Chi2	p	Top	Bottom	Chi2	p
ZMB_1998-2004	THA_1990-1996	11.0	0.004				
ZMB_1998-2004	THA_2006-2011	10.3	0.006				
ZMB_1998-2004	THA_2007-2010	13.0	0.001				
ZMB_2002-2006	BOL_2005-2008	76.7	0.000				
ZMB_2002-2006	BOL_2005-2011	46.9	0.000				
ZMB_2002-2006	BOL_2011-2016	44.4	0.000				
ZMB_2002-2006	BOL_2014-2017	48.3	0.000				
ZMB_2002-2006	BRA_1990-1993	32.5	0.000				
ZMB_2002-2006	BRA_1990-1995	84.0	0.000				
ZMB_2002-2006	BRA_1993-1996	73.4	0.000				

Appendix Table 13 Cross Tabulation of Typology and World Bank Income Categories

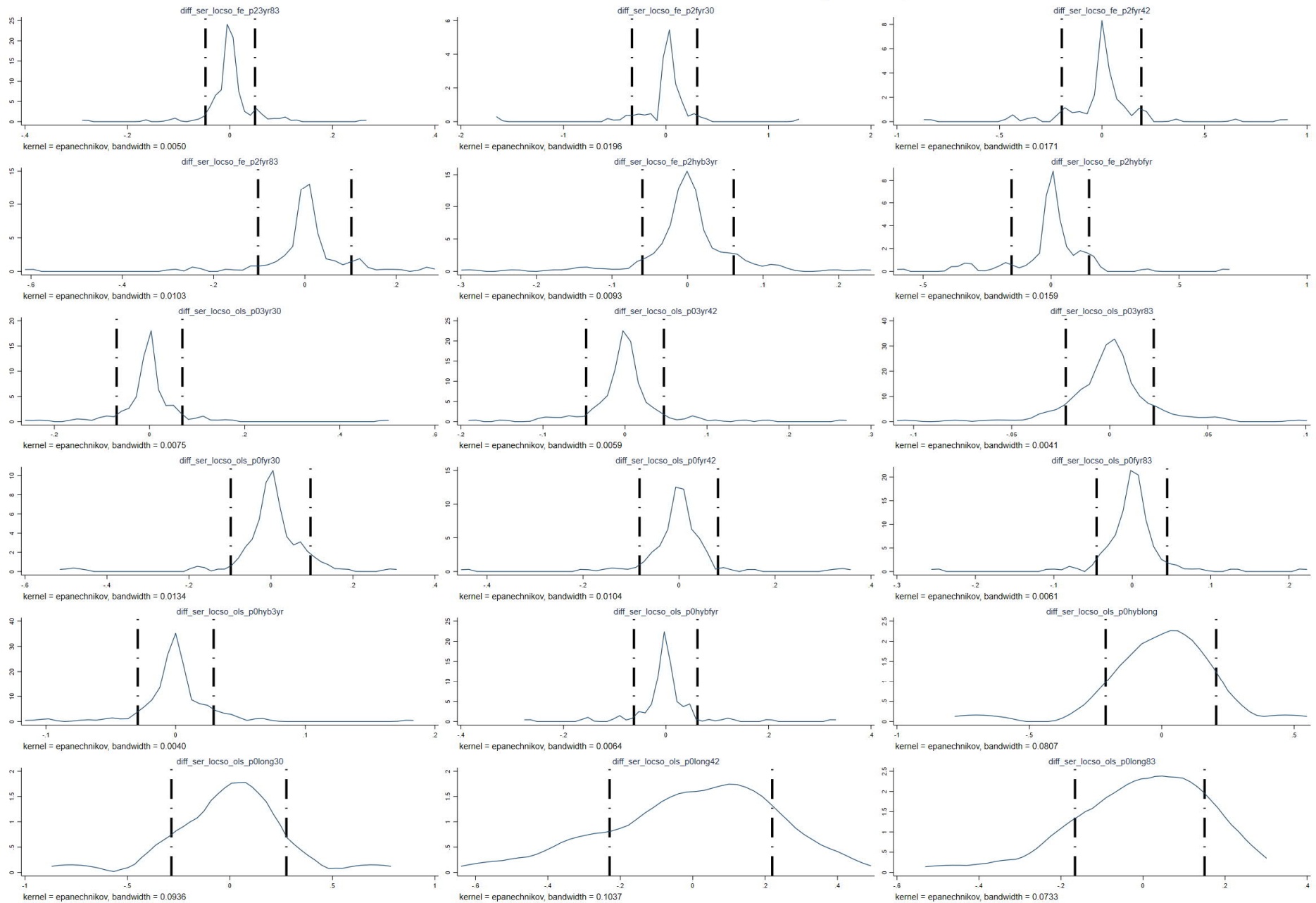
Baymul/Sen Typology	World Bank (Historical) Income Categories			
	Low Income	Lower Middle Income	Upper Middle Income	Total
#1	54	36	3	93
#2	0	35	23	58
#3	0	5	48	53
Total	54	76	74	204

Appendix Figure 1 Kernel Densities of Diff_Ser Coefficient (+/- 1 Standard Deviation)

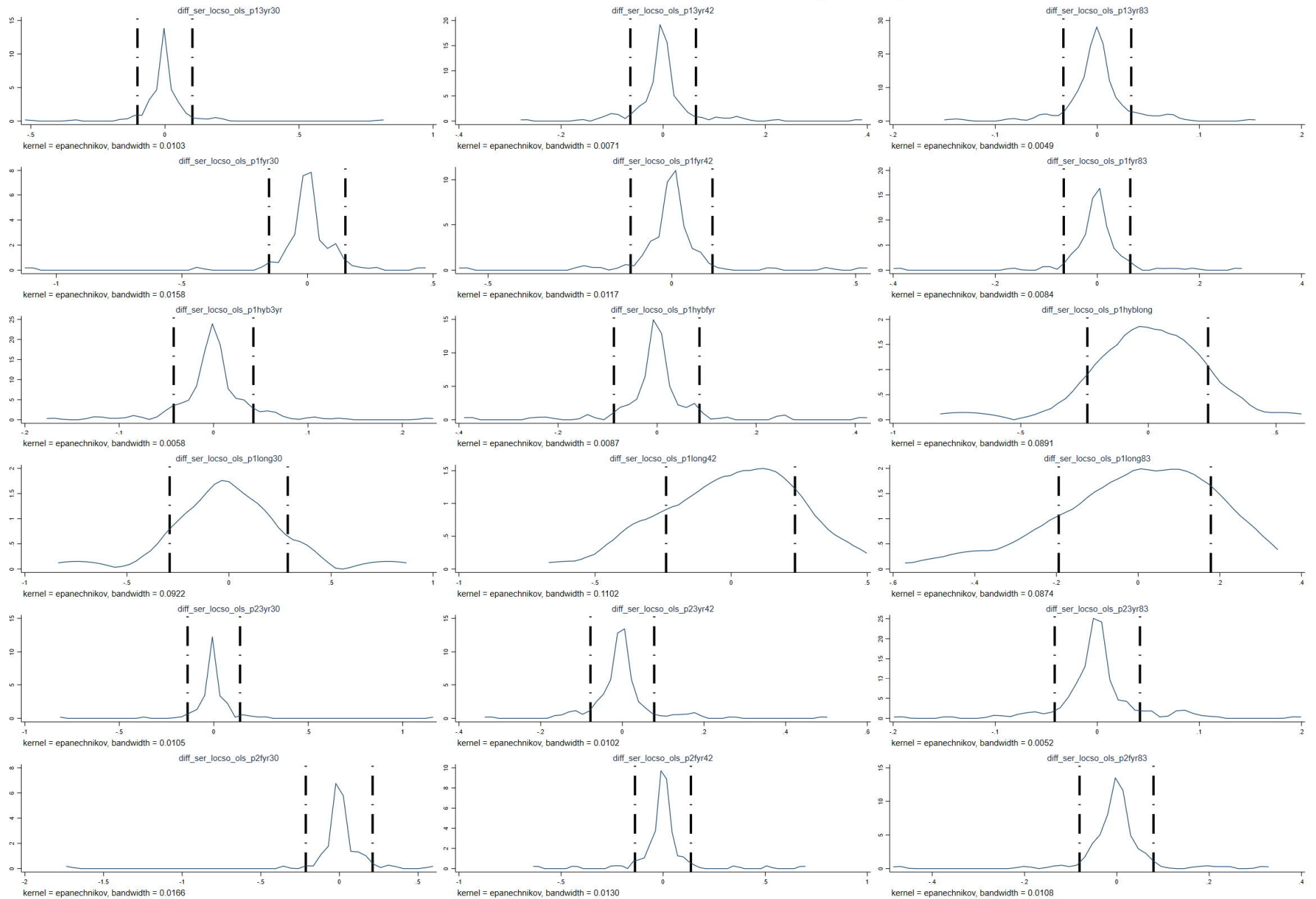
Kernel densities with mean ± 1 SD (Part 1)



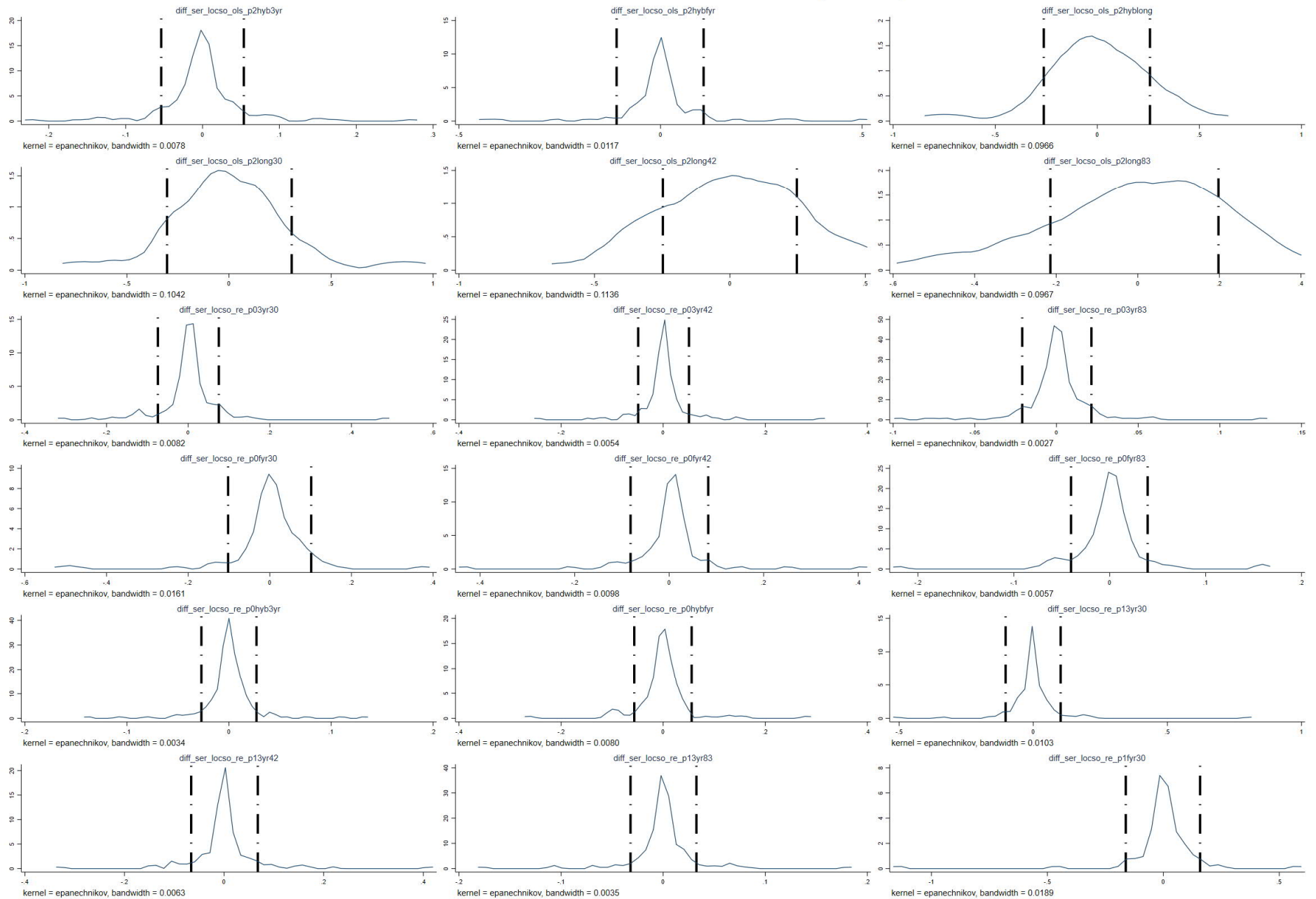
Kernel densities with mean ± 1 SD (Part 2)



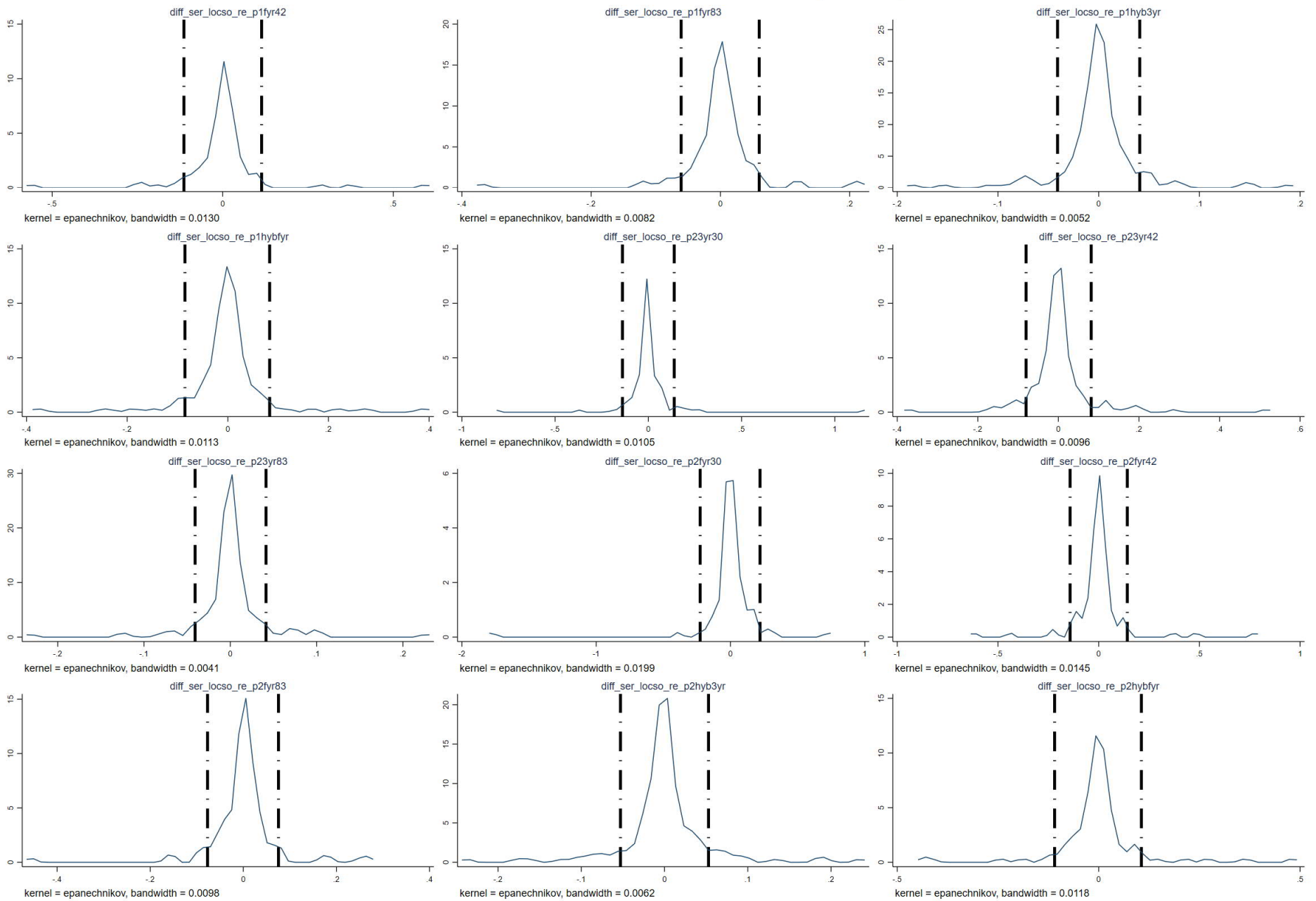
Kernel densities with mean ± 1 SD (Part 3)



Kernel densities with mean ± 1 SD (Part 4)



Kernel densities with mean ± 1 SD (Part 5)



Kernel densities with mean ± 1 SD (Part 6)

