Transitional Dynamics in Product Quality: An empirical examination

Jorge Chami Batista
and
Getúlio Borges da Silveira

Instituto de Economia

Federal University of Rio de Janeiro

December 2011

Abstract

It is well documented that rich countries export high-unit value varieties of the same product category, suggesting a positive association between per capita income and the quality of exports. I have examined the performance of a sample of the main exporting countries to the U.S. and found that few have become relatively richer as relative export unit values increased from1996 to 2008. On the other hand, China has experienced a sharp rise in per capita GDP with a reduction in relative export unit value. These two events are interconnected. Changes in relative per capita GDP in the period are positively related to changes in relative export unit values for some countries, but negatively related for others. However, a real depreciation (appreciation) of the exchange rate leads to a decrease (increase) in relative export unit values of countries that experience either positive or negative relationships between growth and relative export unit values. I extend the quality ladder model with heterogeneous consumers to a world of two countries and three generations of a product to theoretically illustrate the ambiguous relationship between growth performance and relative unit values in the transition to long run equilibrium.

JEL Classification: F43, O33.
Keywords: economic growth, export performance, quality improvement, cost reducing technologies, PPP, China

I would like to thank Eduardo Correia de Souza for making several suggestions on an earlier version of section II of this paper. All errors are my own responsibility.

I. Introduction

It is well documented in the literature that rich countries export high-unit value varieties of the same product category (Schott, 2004; Hummels and Klenow, 2005). This suggests a positive association between per capita income and the quality of exports across countries. In a world that remains divided into rich and poor countries in the long-run, the evidence also suggests that to become rich a poor country must, at some point in the process, raise the quality of their products. This is consistent with the long run equilibrium of quality ladder growth models in which goods are vertically differentiated, firms innovate by improving the quality of existing goods, and economic growth varies in line with the rate of innovation in the North and with the rate of technology transfer in the South.

But innovation in quality ladder models may also be modeled as cost reductions (Grossman and Helpman, thereafter G&H, 1991, footnote 2, p.87; Taylor, 1993 and 1994; Acemoglu, 2009). In these models, innovations reduce the cost of production, keeping the quality of products constant. The difference is not generally perceived as theoretically substantive, since a higher quality product produced at a constant cost may also be seen as a product produced with lower cost per unit of the quality service. Indeed, the long run rate of innovation and growth, the main focus of quality ladder models, will be the same if innovations are modeled as a quality improvement or as an equivalent cost reduction. However, if innovations are modeled as cost reductions, highly innovating countries will specialize in low-price products and richer countries would be expected to export lower unit value products. This is not consistent with the empirical evidence.

Firms should actually be able to invest in R&D to improve the quality as well as to reduce the cost of their products. Cost reductions and quality improvements

in a product category may also be obtained as a result of serendipitous learning by doing in production and distribution. To the extent that quality improvements are boundless, while cost reductions are bounded, the former may be expected to dominate over the latter in the long run. This would not only be consistent with the cross-country evidence, showing that rich countries export high-unit value varieties, but would also be consistent with economies raising substantially their relative per capita income and export shares through cost reduction technologies in the transition to long run equilibrium. Unfortunately, quality ladder models still lack transitional dynamics.

The main objective of this paper is to empirically study the relationship between per capita income and export unit values over a relatively short period of time. We use detailed data on U.S. imports from a sample of the 42 largest exporting countries to test the relationship between these variables over the period 1996-2008. We would like to shed some light on how quality improving and cost reducing technologies have been related to export and economic growth across countries and over time.

The fact that we are only focusing on the U.S. import market imposes some restrictions on our analysis, especially with regards to the relationship between export and growth performance across countries. The study of the former is limited to the U.S. market, while the latter is influenced by all the other markets. We shall bear this in mind when analyzing the results and drawing our conclusions.

We find that few countries have become relatively richer as their relative export unit values increased during the course of this period. The vast majority of developed and developing countries experienced a rise in relative export unit values, while their per capita GDP fell relatively to the sample's total.

These findings suggest that firms and countries use both quality improving and cost reducing technologies to improve their economic performance, leading to an ambiguous relationship between changes in relative per capita GDP and in relative export unit values (export quality) in the transition to the long run. Using panel data regressions, we find that while relative export unit values and relative per capita GDP may have a positive relation for some countries and negative for others, the real appreciation of the exchange rate has a consistent positive association with relative export unit values across countries and over time. Through a different methodology, our results also confirm that developing countries predominantly compete in low-quality segments of product categories, while developed economies predominantly compete in high-quality segments, once we control for changes in per capita income and real exchange rate.

After this introduction, this paper is organized as follows. Section II reviews the literature and extends the quality ladder model, with heterogeneous consumers in a closed economy, to a world of two countries and three generations of a product to theoretically illustrate the ambiguous relationship between export performance and relative unit values in the transition to the long run. Section III discusses the data and methodology used in the empirics and presents the main results. Section IV sums up the main points and suggests directions for future work, while the Appendix shows the econometric details.

II. Growth with quality improving and cost reducing technologies

II.1. Quality ladder growth models

A general feature of quality ladder models is the capacity of firms producing the latest generation of a product to price out competitors producing old generations of the same

product. If only the latest generation sells in the market, as is characteristic of the first generation of quality ladder-cum-trade models (G&H, 1991, chapters 3 and 12), the firm that successfully innovates becomes a monopoly and the country where it is located will then be the sole exporter of the product.

Rigorously, it is not possible to talk about relative prices between exporting countries in any model in which only the top product sells in the market. But this is an artificial result, due to the simplifying assumptions that quality is unidimensional (there is no horizontal differentiation at all within vertically differentiated varieties) and consumers are homogeneous. Other models allow products to go through a gradual obsolescence process, as in Antràs (2005), or to have different qualities as well as different features, as in Fajgelbaum, Grossman and Helpman (2009), so that they can be sold simultaneously to consumers with varying income levels[1].

Glass and Saggi (2002) extend G&H's product cycle model (G&H, 1991, Chapter 12), allowing both imitation and foreign direct investment (FDI) to take place in the low-wage country. An interesting trait of their model is that firms in the North can invest in R&D to innovate as well as to adapt their technology to low-wage countries. However, consumers are homogeneous and firms do not invest in cost reducing technology, so that only the top quality product sells in the market and there is no gradual obsolescence.

Acemoglu and Cao (2010) also model two types of innovation that require the allocation of resources to R&D. Incumbents undertake innovations to incrementally improve the quality of their products, while entrants engage in more radical innovations to replace incumbents. Incumbent's innovations could supposedly

[1] Antràs focuses on the product cycle mechanism and its microeconomic implications, while the model developed by Fajgelbaum, Grossman and Helpman is essentially a trade model.

be modeled as a cost reducing technology. Although quantity and quality are not perfect substitutes in the model, analogously to the aforementioned first generations of quality ladder models, only the highest available quality product (machine) sells in their closed economy model.

Young (1993) and Lai (1998) construct essentially expanding variety models, but each new good is more sophisticated than the previous one. They are hybrid models of closed economies, combining the expansion of varieties with quality improvements. Young (1993) argues that rapid learning occurs following a new invention. Over time learning tends to slow and eventually stop, as the inherent (physical) limit on the productivity of a technology will be reached. Thus, in his model, cost reducing technologies are bounded, while quality improvements are boundless. Hence, quality improving technologies are expected to dominate over cost reducing technologies in the long run. This is consistent with the recent evidence showing that rich countries export higher unit value products in cross-country analysis, but also allows for countries to substantially raise their relative per capita income and export margins through cost reducing technologies and falling relative prices in the transition to long run equilibrium.

In Glass (2001), consumers differ in their assessment of how much better each generation of a certain good is compared to the previous one: while high valuation consumers regard a new generation's quality as λ_H times the previous generation's quality, low valuation consumers' factor[2] is $\lambda_L < \lambda_H$. Total spending (E) on each product is constant and the fraction of each type (f_H; f_L) of consumer is fixed. All quality levels cost the same to produce, so the firm producing the top quality variety (or latest generation) may collude with the firm producing the second-to-top quality variety

[2] It should be noted that quality remains defined as unidimensional.

(previous generation) by playing a repeated game. The top firm charges price $p_1=\lambda_H\lambda_L$ and makes sales $x_1 = f_H.E/p_1$, yielding instantaneous profits $\pi_1= (f_H.E)\ (1-1/\lambda_H\lambda_L)$. The trailing firm charges price $p_2 = \lambda_L$ and makes sales $x_2 = f_L.E/p_2$, yielding instantaneous profits $\pi_2= (f_L.E)\ (1-1/\lambda_L)$ (Glass, p.556).

In this game, the trailing firm would like to reduce its price and expand sales by capturing high valuation consumers, while maintaining low valuation consumers. However, the top firm can punish such a behavior by pricing the top quality variety at $p_p = \lambda_L$ so as to capture the entire market (Glass, p.557). The trailing firm is thus priced out of the market and makes zero profits. Collusion can occur if and only if both firms gain a higher value from cooperating than from deviating (Glass, p.558). In this way multiple quality equilibrium is feasible in Glass' model.

None of the models mentioned here has incorporated both quality improving and cost reducing technologies in a quality ladder growth-cum-trade model.

II.2. Quality ladder-cum-trade model: three consumer types and two countries

In this section, we shall extend Glass' framework to allow for international trade in a two-country world. Instead of two types of consumers, we work with three types of consumers so as to illustrate the case in which a firm or a country producing a lower-quality variety may well improve its export performance in a particular product market, while reducing its relative export price. We consider that there exist other types of goods (non-high-tech or Heckscher-Ohlin types of goods), so that in the vertically differentiated industry under consideration above balance of trade equilibrium is not necessary and export revenue of one country may rise relatively to the export revenue of the other country.

Three further simplifying assumptions are made here. First, knowledge is assumed to be internationally mobile, so that any firm in any country stands on equal foot to develop the next generation of a given good, regardless of where the previous generation was invented. Second, production technologies and wages are initially identical in the two countries, so that prices are exactly as in Glass` (2001) original setup. Finally, preferences are internationally identical.

In the industry under consideration, country A exports generations 1 and 2 to B at prices p_1 and p_2 ($p_1 > p_2$), and country B exports generation 3 to A at price $p_3 < p_2$. Use a_{ijt} to denote the labor input to produce generation i in country j at time t. Initially, suppose that labor productivities are the same for all generations[3]:

$$a_{1At} = a_{2At} = a_{3Bt} = a_{4Bt} = a \qquad (1)$$

Thus prices, under what Glass (2001) calls "separation equilibrium" (cooperative equilibrium among firms producing the different generations), will be:

$$\begin{aligned} p_{1t} &= a \cdot \lambda_1 \cdot \lambda_2 \cdot \lambda_3 \\ p_{2t} &= a \cdot \lambda_2 \cdot \lambda_3 \qquad (2). \\ p_{3t} &= a \cdot \lambda_3 \end{aligned}$$

Recall that λ_k denotes the factor by which type k consumers value a quality jump (so that one generation's quality is λ_k times the previous generation's).

Adopt the following price index to measure country A/country B relative price (a proxy for "relative quality") of exports:

$$\frac{p_{At}}{p_{Bt}} = \left(\frac{f_1}{f_1 + f_2} \cdot p_{1t} + \frac{f_2}{f_1 + f_2} \cdot p_{2t} \right) \Big/ p_{3t} \qquad (3),$$

where f_k denotes the fraction of k - type consumers[4].

[3] Alternatively, we could assume that wages and labor productivity are higher in A than in B, so that labor cost per unit of product is the same in Aand B.

[4] Given that preferences are internationally identical $f_{kA}=f_{kB}$ for k ϵ [1,3].

Since country A exports two generations, bought by two different consumer types, its average price is such that weights reflect the fractions of these consumer types in population. Substituting (2) in (3):

$$\frac{p_{At}}{p_{Bt}} = \frac{f_1}{f1+f2} \cdot \lambda_1 \cdot \lambda_2 + \frac{f_2}{f1+f2} \cdot \lambda_2 \qquad (4).$$

Recalling that in Glass' (2001) setup the general expression for the quantity a firm sells is $x_i = f_i.E/p_i$, for the quality level or generation *i*, I may write relative exports as:

$$\frac{EX_{At}}{EX_{Bt}} = \frac{x_{1t} \cdot p_{1t} + x_{2t} \cdot p_{2t}}{x_{3t} \cdot p_{3t}} = \frac{E_B \cdot (f_1 + f_2)}{E_A \cdot f_3} \qquad (5),$$

where E_j denotes country's *j* expenditure.

Now suppose that from time *t* to time *t* + 1 an increase in labor productivity occurred in the production of generation 3 and in all older generations, with labor inputs changing from *a* to $\underline{a} < a$ [5]. Next I derive the sufficient conditions for a cooperative equilibrium such that firm 2 (the producer of the 2nd generation) is excluded from the market.

The maximum price firm 3 can charge is:

$$p_{3t+1} = \underline{a} \cdot \lambda_3 \qquad (6),$$

if it does not want to lose type three consumers to older generations.

But I am interested in the case in which firm 3 (producer of the best quality among low cost varieties) can potentially price out both firms 1 and 2 producers of high quality and high cost varieties). A sufficient condition for that is:

$$\underline{a} < a/\lambda_1^2 \qquad (7).$$

[5] Under the alternative of footnote 4, we could assume a wage fall in country B and the same results would follow.

Recall that the valuation factor λ_1 is raised to two because firm 1 is two quality steps ahead of firm 3.

But firm 3 may choose to cooperate with firm 1 and exclude firm 2 from the market. Assuming $a/\lambda_2 > \underline{a} \cdot \lambda_3$, firm 3 can price out firm 2 by charging the maximum price required for it to maintain type 3 consumers ($\underline{a} \cdot \lambda_3$).

Now if firm 3 charges according to (6), firm 1 has to charge:

$$\frac{p_{1t+1}}{p_{3t+1}} < \lambda_1^2 \Rightarrow p_{1t+1} < \lambda_1^2 . \underline{a} \cdot \lambda_3 \qquad (8).$$

If firm 1 charges according to (8), it must be that $a < \lambda_1^2 . \underline{a} \cdot \lambda_3$.

The final condition for firm 3 to choose to cooperate with firm 1 is that profits are higher when firm 3 does not sell to type 1 consumers:

$$\pi_{3t+1}^{\text{1rst, 2nd and 3rd}} = E \cdot (f_1 + f_2 + f_3) \cdot \left(1 - \frac{1}{(a/\lambda_1^2)}\right) < \pi_{3t+1}^{\text{2nd and 3rd}} = E \cdot (f_2 + f_3) \cdot \left(1 - \frac{1}{\underline{a} \cdot \lambda_3}\right).$$

This will lead to:

$$\frac{f_1}{f_2 + f_3} < \frac{\underline{a} \cdot \lambda_3 . \lambda_1^2 - a}{\underline{a} \cdot \lambda_3 . a - \underline{a} \cdot \lambda_3 . \lambda_1^2} \quad (9).$$

I know that $\underline{a} \cdot \lambda_3 . \lambda_1^2 - a > 0$ and from (7) $\underline{a} \cdot \lambda_3 . a - \underline{a} \cdot \underline{a} \cdot \lambda_3 . \lambda_1^2 > 0$. So provided that $\underline{a} \geq 1$, which can be satisfied by an appropriate choice of unit, the term on the right-hand side of (9) will be greater than zero. Hence, inequality (9) establishes that the fraction of type 1 consumers must not be too big for firm 3 to be willing to cooperate with firm 1.

Having thus established the conditions for equilibrium, in which country A's firm 1 takes the market for 1st valuation consumers, and country B's firm 3 takes the market for 2nd and 3rd valuation consumers, let's see how relative prices and relative exports now (at time *t*+1) stand:

The t+1 analogous to expression (3) above is

$$\frac{p_{At+1}}{p_{Bt+1}} = p_{1t+1} / p_{3t+1} = \frac{\lambda_1^2 . \underline{a} \cdot \lambda_3}{\underline{a} \cdot \lambda_3} = \lambda_1^2 \qquad (10)$$

Comparing (10) and (4),

$$\frac{p_{At+1}}{p_{Bt+1}} > \frac{p_{At}}{p_{Bt}} \Leftrightarrow \lambda_1^2 > \frac{f_1}{f1+f2} \cdot \lambda_1 \cdot \lambda_2 + \frac{f_2}{f1+f2} \cdot \lambda_2 \qquad (11)$$

, which is necessarily true since, by assumption, $\lambda_1 > \lambda_2$.

As to relative exports,

$$\frac{EX_{At+1}}{EX_{Bt+1}} = \frac{x_{1t+1} \cdot p_{1t+1}}{x_{3t+1} \cdot p_{3t+1}} = \frac{E_B \cdot f_1}{E_A \cdot (f_2 + f_3)} \qquad (12)$$

It's immediate that (12) < (5).

Summing up, a firm may dominate a product market and collude with competitors through an improvement in the quality of its product as well as through a reduction in its cost. If both quality improving and cost reducing technologies are not allowed simultaneously in the model, it does not appear possible to meaningfully introduce transitional dynamics in it.

III. Empirics

III.1. Data

Data on imports to the United States are drawn from the United States International Trade Commission (USITC) database. Products are defined according to SITC Revision 3 at the 5-digit level and by first unit quantities. Data on per capita GDP (at constant 2005 PPP), and the ratio of PPP conversion factor (GDP) to market exchange rate come from the Penn Tables (7.0). These Tables have been updated in June 3, 2011. We use version 2 of China's data, which shows the local currency more depreciated than in version 1, in previous Penn Tables, and in the World Bank Indicators.

III.2. Methodology

Prices are measured as unit values, calculated as the ratio of import expenditure (c.i.f. plus import tariffs)[6] to import quantity for each product, country of origin, and year. GDP (PPP at constant 2005 prices) of each country was divided by the sum of the 42 countries' GDP so as to obtain the share of each country in the sample's GDP total. The per capita GDP of each country was also divided by per capita GDP of the 42 countries. The average per capita GDP of the 42-country sample was calculated as the ratio of the sample's aggregate GDP to the sample's total population.

Information on product quality and cost are not available. An increase in the price of a product exported by a particular country relative to the price of all the other exporters may be due to a relative increase in the product cost in that particular country (including trade costs), a relative increase in the firms' markups, a relative increase in the product quality, or any combination of these reasons. Hence, changes in relative prices do not tell us much about the changes in relative quality-adjusted costs. According to our theoretical model, if quality is measured according to the perceptions of heterogeneous consumers, changes in relative quality-adjusted costs differ according to the type of consumer. Thus, unless these perceptions about the changes in relative quality-adjusted costs and the distribution of consumer types were known, nothing could be said about the theoretical effect on countries' relative export performances.

Therefore, there is no reason to expect either a positive or a negative association between per capita GDP and relative prices in the transition to the long run, even if changes in countries' export performance (share in world exports) were

[6] Destination prices are used to reflect consumers' perceptions of quality differences. Consumers here are importers and they pay destination prices.

perfectly correlated to changes in GDP (share of GDP of a country to the world GDP) over time.

Subject to the Marshall and Lerner condition, a real appreciation is expected to worsen the export performance of a country that exports homogeneous manufactured goods. However, to the extent that differentiated products have more room to accommodate a real appreciation of the local currency, one can argue that a greater concentration of exports in higher quality product varieties should be expected, raising relative prices within the product, as the local currency suffers a real appreciation.

We try to test these hypotheses empirically, using imports of the United States from a sample of 42 countries in the period from 1996 to 2008. We apply a panel data regression, including cross-country fixed effects, in which, the dependent variable is the relative price index of each exporting country (LPI), calculated as in Hummels and Klenow (2005). The independent variables are per capita GDP (LPCGDP) and the real exchange rate (LPPP) of each exporting country. The real exchange rate (LPPP) is measured by the PPP conversion factor to the market exchange rate of each country. To correct for both cross-section heteroskedasticity and contemporaneous correlation between cross-sections, we apply GLS weights and Cross-Section SUR (Seemingly Unrelated Regressions). Since the number of years (t) must be greater than the number of cross-sections (i) when Cross-Section SUR is applied, we run 40 panel regressions for random subsets of 12 countries each. The balanced panel data regression has the following specification:

(*) $LPI_{jt} = \alpha_j + \beta 1\ LPCGDP_{jt} + \beta 2\ LPPP_{jt} + u_{jt}$,

where j stands for countries and t for years.

The sign of the β1 coefficient is expected to vary according to the sample of countries and to the period of analysis. It might be positive, negative, or not significantly different from zero. Our null hypothesis is that the β2 coefficient is positive.

We interpret the relative price index as an indicator of the relative quality of a country's exports. A positive change in the price index is seen as an increase in the relative quality of the country exports. However, an increase in relative quality does not mean that the quality-adjusted cost declines.

III.3. Results

We start by confirming the result that rich countries export high-unit value varieties in each product category in cross country analysis. We apply a panel data regression with year fixed effects (δ_t) from 1996 to 2008 (p-values in parenthesis)[7]. Replacing per capita GDP for GDP per worker makes practically no difference.

$$LPI_{jt} = \underset{(0.00)}{0.54} + \underset{(0.00)}{0.23}\ LPCGDP_{jt} + \underset{(0.00)}{0.32}\ LPPP_{jt} + \delta_t$$

Running the above panel data regression and including a country dummy, one at a time, allows us to identify possible country outliers. Bearing in mind the Alchian-Allen effect, U.S. neighboring countries were possible candidates for a low PI, after controlling for PCGDP and PPP. It turned out that Japan and Ireland were the two countries found to be outliers, the former with a too low PI for its PCGDP and PPP and the latter with a too high PI for its PCGDP and PPP. Except for the fact that Japan has made significant FDI in Ireland, especially in chemicals and pharmaceuticals, and has lost a substantial part of its exports to Ireland (Chami Batista, 2008), this result requires further investigation.

[7] See Appendix A for details.

Applying now a panel data regression with cross-country fixed effects, we can look at the dynamics of the relationship between PI, PCGDP and PPP. Although we expect the β1 coefficient to be specific for each country, we initially run the regression assuming β1 is a common coefficient[8]. The coefficient means are reported below with empirical confidence intervals[9] in parenthesis.

$$LPI_{jt} = -0.13\ LPCGDP_{jt} + 0.16\ LPPP_{jt} + \alpha j$$
$$(-0.60;\ 0.46) \qquad (0.00;\ 0.33)$$

The elasticity of the price index with respect to per capita GDP over time is predominantly negative. In fact, thirty out of the forty regressions showed significantly negative β1 coefficients (p-values<0.001), eight showed the opposite sign, and only two showed coefficients not significantly different from zero (p-values>0.05). On the other hand, the elasticity of PI with respect to the real exchange rate over time is positive. In thirty eight regressions the β2 coefficient was positive and statistically significant (p-value=0.0000) and it was negative in two regressions only. We have tested these results replacing PCGDP in PPP at constant 2005 prices by PCGDP in PPP at current prices, by GDPPW (GDP per worker) in PPP at constant 2005 prices, and PCGDP in PPP at constant 2005 prices with data from the World Bank Indicators, and the result is quite robust.

The fixed effects by countries (α_j) reveal an interesting result. They provide a strong confirmation that richer countries tend to compete in the high (positive fixed effects) quality segments of each product category, while poorer countries compete in the low (negative fixed effects) quality segments. Table (1) reports the results for the average cross-country fixed effects. Note that Japan is an exception, with

[8] The results for these 40 regressions, each with 12-country random samples, are reported in Appendix B.
[9] Our empirical confidence intervals are calculated as follows: first, we exclude the two extreme values of the variable; then we calculate the mean between the remaining two highest values and between the two lowest values. These are the two extreme values of the interval.

negative fixed effects reflecting low unit values for her level of per capita GDP and real exchange rate.

The fixed effects also reveal an additional feature. As Table (1) shows, the countries that have the highest positive fixed effects are not only high-income countries, but are also smaller countries in population or labor. In other words, the smaller the high-income country, the more specialized in high-quality varieties they tend to be. It seems quite intuitive that small developed economies have to be more specialized in very high quality segments of product categories, given their small home market effect.

To find out the relative price elasticity of each country with respect to per capita GDP, we run again the same 40 panel data regressions for the same 12-country samples, allowing the elasticity (βj) to vary across country. The common elasticity with respect to the real exchange rate is again positive (p-value<0.017) in thirty six regressions, negative in one, and not significant in two (p-value>0.05). The coefficient mean (excluding the two non-significant ones) was 0.135 and the empirical confidence interval goes from 0.03 to 0.26. Therefore, the positive association between the real exchange rate and the relative price index remains a robust result, suggesting that a real depreciation (appreciation) of the local currency tends to lower (raise) the quality of exports in the transition to the long run.

As to the relative price elasticity with respect to per capita GDP, we find it negative for twenty-four countries, positive for thirteen, and not significantly different from zero for five countries. This confirms our common sense expectation that the relative price index may be positive or negatively related to the per capita GDP over time in the transition to the long run.

In Figure (1) we plot the actual per capita GDP growth rates across countries, based on a semi-log regression of each country's per capita GDP from 1996 to 2008, and the growth rates of the estimated price indices, based on the estimated elasticities (excluding the non-significant ones). It can be seen that the relative per capita GDP increased for four countries, while their relative price indices fell. This suggests that cost reductions were likely predominant in the vertical differentiation of these countries' exports, which should represent part of these countries' rising per capita aggregate productivity. China and Vietnam stand out as countries that improved substantially their position in the ranking of per capita GDP, while lowering their product unit values.

On the other hand, eight countries were also successful in raising their per capita GDP above average, while their relative price indices increased in the period. This suggests that quality improvements were likely predominant as a means of vertically differentiating their export products. India, Ireland, Luxembourg and Poland stand out as countries with fast growing economies and rising export quality products.

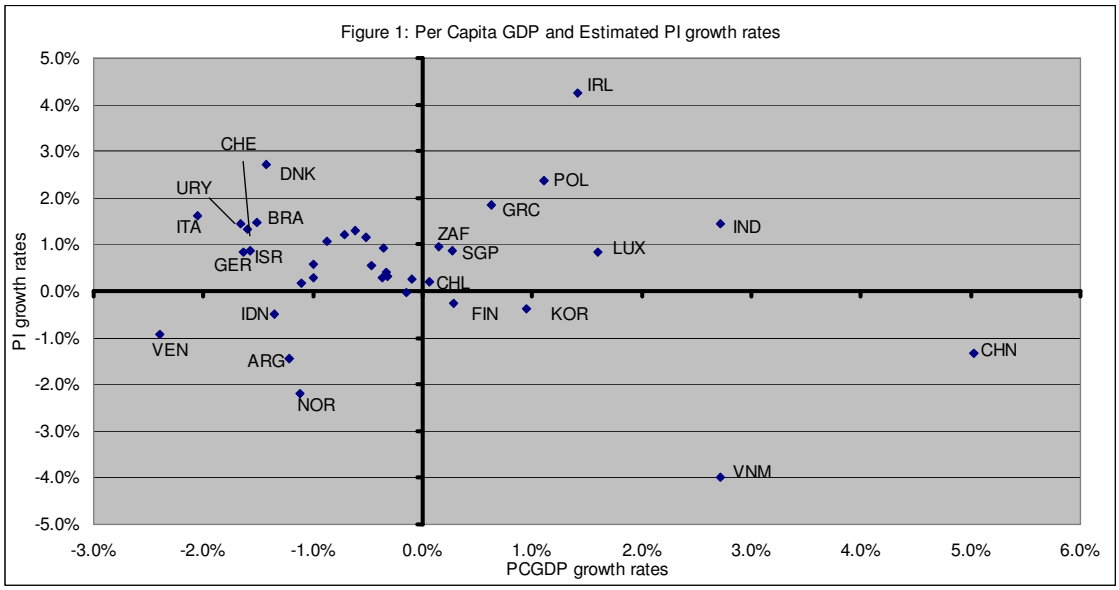
However, the vast majority of the countries (twenty) whose relative price indices went up experienced a decline in their relative per capita GDP. Although these countries are likely to have moved towards higher-quality varieties in the U.S. market, this was insufficient to counteract the effects of factors acting in the opposite direction as, for example: relative cost rises (possibly raising quality-adjusted costs), smaller number of varieties (less horizontal differentiation), smaller demand for their high quality varieties, and unfavorable results from all the other traditional factors that determine economic growth, such as changes in physical and human capital. Italy, Denmark, Uruguay, Switzerland, Brazil, Germany and Israel stand out as examples of countries following this path.

Finally, a group of five countries experienced a declining trend both in their relative per capita GDP and in their relative export price indices. Venezuela, Indonesia, Argentina, and Norway stand out as countries in this situation.

Table 1: Average Cross-Country Fixed Effects

Countries	Codes	Fixed Effects	Empirical confidence interval	
China	CHN	-1.23	-1.38	-1.05
Vietnam	VNM	-1.06	-1.61	-0.77
Pakistan	PAK	-0.81	-1.33	-0.14
Thailand	THA	-0.63	-0.84	-0.45
Indonesia	IDN	-0.63	-1.03	-0.32
Philippines	PHL	-0.60	-1.43	0.07
Malaysia	MYS	-0.58	-0.72	-0.45
India	IND	-0.56	-1.01	-0.05
Mexico	MEX	-0.52	-0.66	-0.36
Brazil	BRA	-0.49	-0.69	-0.30
Korea	KOR	-0.37	-0.51	-0.20
Egypt	EGY	-0.35	-0.57	-0.28
Turkey	TUR	-0.27	-0.42	-0.09
Venezuela	VEN	-0.25	-0.41	-0.11
Russia	RUS	-0.23	-0.38	-0.07
Japan	JPN	-0.20	-0.38	0.13
Colombia	COL	-0.18	-0.37	0.07
South Africa	ZAF	-0.11	-0.49	0.15
Chile	CHL	-0.09	-0.30	0.11
Argentina	ARG	-0.03	-0.09	0.05
Poland	POL	0.03	-0.03	0.14
Canada	CAN	0.04	-0.18	0.28
Greece	GRC	0.09	-0.23	0.33
Uruguay	URY	0.13	-0.04	0.28
Australia	AUS	0.17	0.26	0.26
Spain	ESP	0.18	-0.10	0.41
Great Britain	GBR	0.26	0.23	0.30
Belgium	BEL	0.31	0.03	0.59
France	FRA	0.31	0.23	0.50
Singapore	SGP	0.31	-0.18	0.78
Germany	GER	0.38	0.24	0.62
Israel	ISR	0.42	0.12	0.66
Sweden	SWE	0.42	0.22	0.66
Italy	ITA	0.45	0.17	0.76
Switzerland	CHE	0.51	0.24	0.74
Netherlands	NLD	0.56	0.32	0.85
Austria	AUT	0.56	0.15	0.93
Norway	NOR	0.65	0.26	0.98
Finland	FIN	0.73	0.59	0.90
Denmark	DNK	0.78	0.54	1.12
Luxembourg	LUX	0.84	0.56	1.21
Ireland	IRL	1.48	1.18	1.80

Source: calculated by the authors with data from Penn Tables 7.0



Conclusion

It is well documented in the literature that rich countries export high-unit value varieties of the same product category across countries. We have found that rich and small economies tend to be even more specialized in higher-unit value varieties in the aggregate.

The dynamics of the relationship between relative per capita GDP and relative export price in the U.S was examined and it was found that relative per capita GDP from 1996 to 2008 are positively related to relative export unit values for some thirteen countries, but negatively related for twenty four other countries, after controlling for changes in the real exchange rate over time. However, a real depreciation (appreciation) of the exchange rate unambiguously leads to a decrease (increase) in relative export unit values of countries that experience either positive or negative relationships between relative per capita GDP and relative export unit values.

The majority of the countries that experienced an increase in their relative export unit values became relatively poorer. On the other hand, China has experienced a sharp rise in per capita GDP and a reduction in her relative export unit

value. Given the large weight of China in the sample and the fact that China's export unit values are in the denominator of the relative price index of all the other countries, the poor growth performance of most countries whose relative export price index increased is likely to have been the counterpart of the exceptional growth and export performance of China and its falling relative price index. It appears that the period has been dominated by the transfer of technology to China rather than by the quality improving technologies of the developed countries. China seems to have forced most of the other countries' exports to move towards higher-unit value varieties and many of them were unable to sustain fast growth. Therefore, the observed rise in the relative export unit values of most countries in the period 1996-2008 appears to have been caused by China's successful price reduction.

The main contribution of this paper is to provide evidence that quality improving and cost reducing technologies concurrently affect relative export unit values, and countries' per capita GDP may grow faster than world average based on either of these technologies in the transition to the long run. Hence to construct quality ladder growth-cum-trade models in which the quality-adjusted cost of old generations of a product may be lower than the cost of newer generations or better quality varieties of the same product seems to be an important area for future theoretical research. In an effort in this direction, I extend the quality ladder model with heterogeneous consumers to a world of two countries and three generations of a product to theoretically illustrate the ambiguous relationship between export performance and relative unit values in the transition to long run equilibrium.

References

Acemoglu, D. (2009) *Introduction to Modern Economic Growth*, Princeton: Princeton University Press.

Acemoglu, D. and Cao, D. (2010) Innovation by Entrants and Incumbents, *NBER Working Paper No. w16411*, September.

Antràs, P. (2005) Incomplete Contracts and the Product Cycle, *American Economic Review* 95-4, 1054-1073.

Chami Batista, J. (2008) Competing for the U.S. Import Market: NAFTA and Non-NAFTA countries, in McKinney and Gardner (ed) *Economic Integration in the Americas*, Routledge Publishing Co.

Glass, J.A. (2001) Price Discrimination and Quality Improvement, *Canadian Journal of Economics* 34/2, 549-569.

Glass, J.A. and Saggi, K. (2002) Intellectual Property Rights and Foreign Direct Investment, *Journal of International Economics* 56-2, 387–410.

Fajgelbaum, P.D. Grossman, G.M. and Helpman, E. (2009) Income Distribution, Product Quality, and International Trade, *NBER Working Paper 15329*, September.

Grossman,G. & Helpman, E. (1991) *Innovation and Growth in the Global Economy*, Cambridge and London: MIT Press.

Hummels, D. and Klenow, P. (2005) The Variety and Quality of a Nation's Exports, *The American Economic Review* 95, 704-723.

Lai, E.L.C. (1998) Schumpetarian Growth with Gradual Product Obsolescence, *Journal of Economic Growth* 3, 81-103.

Schott, P. (2004) Across-Product versus Within-Product Specialization in International Trade, *The Quarterly Journal of Economics* 119, 647-678.

Taylor M.S. (1993) Quality Ladders' and Ricardian Trade, *Journal of International Economics* 34, 225-243.

__ Trips, Trade and Growth (1994) *International Economic Review* 35, 361-381.

Young, A. (1993) Invention and Bounded Learning by Doing, *The Journal of Political Economy*, 101-3, 443-472.

Appendix A:
Panel data regression with year fixed effects from 1996 to 2008
Testing if Japan and Ireland are outliers

Dependent Variable: IP?
Method: Pooled EGLS (Period SUR)
Date: 12/15/11 Time: 12:58
Sample: 1996 2008
Included observations: 13
Cross-sections included: 42
Total pool (balanced) observations: 546
Linear estimation after one-step weighting matrix
Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.543131	0.050755	10.70100	0.0000
PCGDP?	0.226974	0.042003	5.403687	0.0000
PPP?	0.318800	0.039691	8.032006	0.0000
Fixed Effects (Period)				
1996--C	-0.099650			
1997--C	-0.073130			
1998--C	-0.009340			
1999--C	-0.023188			
2000--C	0.007801			
2001--C	0.026098			
2002--C	0.023431			
2003--C	0.012626			
2004--C	0.000607			
2005--C	0.036615			
2006--C	0.009078			
2007--C	0.026649			
2008--C	0.062404			

Effects Specification

Period fixed (dummy variables)

Weighted Statistics

R-squared	0.333497	Mean dependent var	0.424807
Adjusted R-squared	0.315924	S.D. dependent var	1.242045
S.E. of regression	0.957017	Sum squared resid	486.3329
F-statistic	18.97825	Durbin-Watson stat	2.072403
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.583493	Mean dependent var	0.554963
Sum squared resid	68.71944	Durbin-Watson stat	0.098625

Japan is an outlier

Dependent Variable: IP?
Method: Pooled EGLS (Period SUR)
Date: 12/15/11 Time: 13:02
Sample: 1996 2008
Included observations: 13
Cross-sections included: 42
Total pool (balanced) observations: 546

Linear estimation after one-step weighting matrix
Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.579015	0.045545	12.71296	0.0000
PCGDP?	0.231027	0.037676	6.132002	0.0000
PPP?	0.372390	0.040573	9.178297	0.0000
DJPN?	-0.783482	0.215504	-3.635585	0.0003
Fixed Effects (Period)				
1996--C	-0.105861			
1997--C	-0.076398			
1998--C	-0.008901			
1999--C	-0.021498			
2000--C	0.012574			
2001--C	0.033607			
2002--C	0.031781			
2003--C	0.016149			
2004--C	0.000748			
2005--C	0.035163			
2006--C	0.006325			
2007--C	0.019914			
2008--C	0.056397			

Effects Specification

Period fixed (dummy variables)

Weighted Statistics

R-squared	0.414120	Mean dependent var	0.485818
Adjusted R-squared	0.397538	S.D. dependent var	1.354542
S.E. of regression	0.949301	Sum squared resid	477.6210
F-statistic	24.97478	Durbin-Watson stat	2.071918
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.622308	Mean dependent var	0.554963
Sum squared resid	62.31539	Durbin-Watson stat	0.111102

Ireland is an outlier

Dependent Variable: IP?
Method: Pooled EGLS (Period SUR)
Date: 12/15/11 Time: 13:02
Sample: 1996 2008
Included observations: 13
Cross-sections included: 42
Total pool (balanced) observations: 546
Linear estimation after one-step weighting matrix
Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.489581	0.046640	10.49702	0.0000
PCGDP?	0.229595	0.037893	6.058998	0.0000
PPP?	0.270123	0.038031	7.102637	0.0000
DIRL?	1.442580	0.232889	6.194274	0.0000
Fixed Effects (Period)				
1996--C	-0.093976			

1997--C	-0.070196
1998--C	-0.009823
1999--C	-0.024826
2000--C	0.003336
2001--C	0.019196
2002--C	0.015843
2003--C	0.009456
2004--C	0.000507
2005--C	0.037986
2006--C	0.011650
2007--C	0.032877
2008--C	0.067971

Effects Specification

Period fixed (dummy variables)

Weighted Statistics

R-squared	0.368838	Mean dependent var	0.582646
Adjusted R-squared	0.350975	S.D. dependent var	1.251842
S.E. of regression	0.974101	Sum squared resid	502.9030
F-statistic	20.64809	Durbin-Watson stat	2.060967
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.761426	Mean dependent var	0.554963
Sum squared resid	39.36224	Durbin-Watson stat	0.169564

Appendix B
Panel data regression with cross-country fixed effects
Data from Penn Tables 7.0 (CHN Version 2)
PCGDP – Per Capita GDP PPP constant 2005 prices (I$)
PPP – factor conversion from PPP to market exchange rate

1

Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:51
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.615486	0.005516	111.5899	0.0000
PCGDP?	0.541837	0.010890	49.75399	0.0000
PPP?	0.313078	0.003665	85.42088	0.0000
Fixed Effects (Cross)				
_DNK--C	-0.109377			
_COL--C	0.079727			
_CHL--C	-0.092253			
_AUT--C	-0.376393			
_IND--C	0.270460			

_IRL--C	1.016378
_ITA--C	-0.318110
_ESP--C	-0.412140
_SGP--C	-0.568328
_PHL--C	0.376956
_POL--C	-0.026734
_ZAF--C	0.159813

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998556	Mean dependent var	-21.24377
Adjusted R-squared	0.998424	S.D. dependent var	61.23806
S.E. of regression	1.047445	Sum squared resid	155.7940
F-statistic	7552.827	Durbin-Watson stat	2.145766
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.949098	Mean dependent var	0.761090
Sum squared resid	3.448619	Durbin-Watson stat	0.593671

2
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:52
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.550218	0.003792	145.1154	0.0000
PCGDP?	-0.338726	0.012499	-27.09916	0.0000
PPP?	0.192297	0.001792	107.2820	0.0000
Fixed Effects (Cross)				
_ARG--C	0.131011			
_AUT--C	0.956317			
_BRA--C	-0.314737			
_CAN--C	0.371319			
_EGY--C	-0.540775			
_FIN--C	1.027874			
_FRA--C	0.580065			
_IND--C	-0.994858			
_IDN--C	-0.725749			
_MYS--C	-0.365700			
_ESP--C	0.657876			
_VNM--C	-0.782643			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999427	Mean dependent var	28.94440
Adjusted R-squared	0.999374	S.D. dependent var	59.40917
S.E. of regression	1.044413	Sum squared resid	154.8933
F-statistic	19043.98	Durbin-Watson stat	2.152356
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.953414	Mean dependent var	0.375769
Sum squared resid	1.485005	Durbin-Watson stat	0.865093

3

Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:52
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.699646	0.001460	479.0730	0.0000
PCGDP?	-0.086920	0.001877	-46.30732	0.0000
PPP?	0.053744	0.002576	20.86204	0.0000
Fixed Effects (Cross)				
_AUT--C	0.440723			
_CHN--C	-1.345539			
_IRL--C	1.822371			
_ITA--C	0.374567			
_JPN--C	-0.245505			
_LUX--C	0.649733			
_MYS--C	-0.657505			
_PHL--C	-0.677795			
_RUS--C	-0.368694			
_SGP--C	0.240484			
_CHE--C	0.515033			
_VNM--C	-0.747875			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999905	Mean dependent var	101.1383
Adjusted R-squared	0.999896	S.D. dependent var	352.6863
S.E. of regression	1.046550	Sum squared resid	155.5278
F-statistic	114737.5	Durbin-Watson stat	2.145483
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.961937	Mean dependent var	0.622756
Sum squared resid	3.548412	Durbin-Watson stat	0.644034

4

Dependent Variable: IP?

Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:53
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.096986	0.001877	584.3276	0.0000
PCGDP?	-0.526677	0.002923	-180.1955	0.0000
PPP?	0.235051	0.001571	149.6252	0.0000
Fixed Effects (Cross)				
_AUT--C	0.681553			
_FRA--C	0.274872			
_ISR--C	0.365298			
_ITA--C	0.548173			
_LUX--C	1.166266			
_MEX--C	-0.751679			
_RUS--C	-0.479322			
_SGP--C	0.591287			
_ESP--C	0.339272			
_TUR--C	-0.570068			
_ZAF--C	-0.620220			
_VNM--C	-1.545433			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999147	Mean dependent var	173.8222
Adjusted R-squared	0.999069	S.D. dependent var	541.9743
S.E. of regression	1.046807	Sum squared resid	155.6043
F-statistic	12799.19	Durbin-Watson stat	2.148497
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.911613	Mean dependent var	0.624359
Sum squared resid	2.034962	Durbin-Watson stat	0.932841

5
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:53
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.580361	0.007497	77.41726	0.0000
PCGDP?	0.011988	0.016368	0.732392	0.4651
PPP?	0.156823	0.005173	30.31788	0.0000

Fixed Effects (Cross)	
_ARG--C	0.026260
_CHL--C	0.003029
_EGY--C	-0.358094
_DNK--C	0.712160
_IND--C	-0.598818
_JPN--C	-0.281568
_LUX--C	0.559603
_PHL--C	-0.356721
_RUS--C	-0.168267
_SGP--C	0.240523
_SWE--C	0.363988
_TUR--C	-0.142094

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998934	Mean dependent var	28.90767
Adjusted R-squared	0.998837	S.D. dependent var	59.86589
S.E. of regression	1.046864	Sum squared resid	155.6212
F-statistic	10240.19	Durbin-Watson stat	2.146863
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.941561	Mean dependent var	0.518846
Sum squared resid	2.006098	Durbin-Watson stat	0.984528

6

Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:53
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.498506	0.002489	200.3022	0.0000
PCGDP?	0.302014	0.005541	54.50948	0.0000
PPP?	-0.030692	0.004564	-6.724591	0.0000
Fixed Effects (Cross)				
_EGY--C	-0.250756			
_GER--C	-0.237224			
_IND--C	-0.360911			
_IRL--C	1.500948			
_KOR--C	-0.680330			
_NOR--C	0.154312			
_SGP--C	-0.194186			
_SWE--C	0.073120			
_GRC--C	-0.193555			
_URY--C	0.218338			
_ZAF--C	0.064730			
_VNM--C	-0.094486			

Effects Specification			
Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared	0.999703	Mean dependent var	-68.32020
Adjusted R-squared	0.999676	S.D. dependent var	139.5170
S.E. of regression	1.046808	Sum squared resid	155.6045
F-statistic	36745.92	Durbin-Watson stat	2.151380
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.945928	Mean dependent var	0.653590
Sum squared resid	3.978223	Durbin-Watson stat	0.769699

7
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:53
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.700139	0.008953	78.20156	0.0000
PCGDP?	-0.203467	0.012626	-16.11498	0.0000
PPP?	0.250947	0.009059	27.70135	0.0000
Fixed Effects (Cross)				
_CHL--C	-0.030435			
_CHN--C	-1.207451			
_FRA--C	0.253543			
_DNK--C	0.873719			
_IDN--C	-0.688903			
_ITA--C	0.536748			
_SGP--C	0.489095			
_CHE--C	0.643529			
_THA--C	-0.601983			
_TUR--C	-0.192483			
_GRC--C	0.197911			
_VEN--C	-0.273290			

Effects Specification			
Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared	0.998555	Mean dependent var	-8.211797
Adjusted R-squared	0.998423	S.D. dependent var	25.36109
S.E. of regression	1.046333	Sum squared resid	155.4635
F-statistic	7549.442	Durbin-Watson stat	2.148435
Prob(F-statistic)	0.000000		
Unweighted Statistics			

R-squared	0.955282	Mean dependent var	0.493782
Sum squared resid	2.117645	Durbin-Watson stat	0.938479

8
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:53
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.099557	0.001391	790.2854	0.0000
PCGDP?	-0.673152	0.002209	-304.7563	0.0000
PPP?	0.070934	0.001171	60.55839	0.0000
Fixed Effects (Cross)				
_BEL--C	0.568960			
_CHL--C	-0.392807			
_COL--C	-0.872210			
_FRA--C	0.466641			
_GER--C	0.471432			
_ITA--C	0.718677			
_KOR--C	-0.345610			
_NLD--C	0.910546			
_NOR--C	1.227663			
_PHL--C	-1.778454			
_CHE--C	0.997122			
_VNM--C	-1.971961			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999207	Mean dependent var	61.80154
Adjusted R-squared	0.999135	S.D. dependent var	548.7023
S.E. of regression	1.047947	Sum squared resid	155.9434
F-statistic	13765.64	Durbin-Watson stat	2.149591
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.950312	Mean dependent var	0.617244
Sum squared resid	1.247719	Durbin-Watson stat	1.151186

9
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:54
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.569648	0.008352	68.20727	0.0000
PCGDP?	-0.111018	0.013208	-8.405284	0.0000
PPP?	0.058036	0.004493	12.91714	0.0000
Fixed Effects (Cross)				
_AUS--C	0.345545			
_BRA--C	-0.394903			
_CAN--C	0.008915			
_CHN--C	-1.227186			
_FRA--C	0.270497			
_IND--C	-0.875673			
_ISR--C	0.441826			
_ITA--C	0.535423			
_NOR--C	0.783648			
_RUS--C	-0.228697			
_SGP--C	0.409556			
_ZAF--C	-0.068949			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999003	Mean dependent var	9.558531
Adjusted R-squared	0.998912	S.D. dependent var	36.53084
S.E. of regression	1.047828	Sum squared resid	155.9081
F-statistic	10947.56	Durbin-Watson stat	2.151414
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.959617	Mean dependent var	0.474551
Sum squared resid	1.655371	Durbin-Watson stat	0.839669

10
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:54
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.853935	0.009940	85.90919	0.0000
PCGDP?	-0.684867	0.025979	-26.36229	0.0000
PPP?	0.117492	0.013244	8.871168	0.0000
Fixed Effects (Cross)				
_BRA--C	-0.651202			
_CAN--C	0.552916			
_CHL--C	-0.126234			
_DNK--C	1.432350			
_GER--C	0.731777			
_ISR--C	0.761566			
_LUX--C	1.742978			

_PHL--C	-1.510397
_POL--C	0.110334
_THA--C	-0.984238
_TUR--C	-0.376870
_VNM--C	-1.682978

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.996924	Mean dependent var	7.774093
Adjusted R-squared	0.996643	S.D. dependent var	40.68960
S.E. of regression	1.037869	Sum squared resid	152.9585
F-statistic	3540.317	Durbin-Watson stat	2.149546
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.941073	Mean dependent var	0.510385
Sum squared resid	1.865595	Durbin-Watson stat	1.047088

11
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:54
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.736294	0.001864	394.9578	0.0000
PCGDP?	-0.192409	0.002369	-81.20927	0.0000
PPP?	0.155882	0.000560	278.1777	0.0000
Fixed Effects (Cross)				
_BEL--C	0.272584			
_BRA--C	-0.517481			
_CAN--C	-0.028696			
_COL--C	-0.330934			
_FRA--C	0.206023			
_DNK--C	0.845128			
_KOR--C	-0.392350			
_MEX--C	-0.524634			
_NOR--C	0.739707			
_PAK--C	-1.012588			
_CHE--C	0.613402			
_GRC--C	0.129839			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999374	Mean dependent var	74.53339
Adjusted R-squared	0.999316	S.D. dependent var	271.7885

S.E. of regression	1.043070	Sum squared resid	154.4953
F-statistic	17427.51	Durbin-Watson stat	2.122466
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.950578	Mean dependent var	0.549551
Sum squared resid	1.746094	Durbin-Watson stat	0.921033

12
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:54
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.592212	0.003784	156.4920	0.0000
PCGDP?	-0.182909	0.005830	-31.37188	0.0000
PPP?	0.251354	0.003901	64.42776	0.0000
Fixed Effects (Cross)				
_CHL--C	0.072940			
_CHN--C	-1.085094			
_COL--C	-0.121935			
_FRA--C	0.334891			
_GER--C	0.315187			
_IDN--C	-0.561750			
_LUX--C	0.952391			
_MEX--C	-0.335865			
_CHE--C	0.720285			
_THA--C	-0.489189			
_TUR--C	-0.086107			
_GRC--C	0.284245			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999682	Mean dependent var	-16.50529
Adjusted R-squared	0.999653	S.D. dependent var	63.10596
S.E. of regression	1.045386	Sum squared resid	155.1821
F-statistic	34343.62	Durbin-Watson stat	2.170591
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.959129	Mean dependent var	0.396987
Sum squared resid	1.653972	Durbin-Watson stat	1.277396

13
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)

Date: 12/07/11 Time: 17:54
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.563263	0.010277	54.81066	0.0000
PCGDP?	-0.094086	0.015854	-5.934598	0.0000
PPP?	0.185493	0.010355	17.91313	0.0000
Fixed Effects (Cross)				
_ARG--C	0.073776			
_CHN--C	-1.068496			
_EGY--C	-0.388293			
_IDN--C	-0.522557			
_LUX--C	0.797540			
_MYS--C	-0.435765			
_NLD--C	0.573327			
_NOR--C	0.736309			
_CHE--C	0.630729			
_THA--C	-0.501680			
_TUR--C	-0.100375			
_GRC--C	0.205486			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998302	Mean dependent var	0.988994
Adjusted R-squared	0.998146	S.D. dependent var	27.34751
S.E. of regression	1.047085	Sum squared resid	155.6868
F-statistic	6420.774	Durbin-Watson stat	2.152832
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.966181	Mean dependent var	0.433269
Sum squared resid	1.790640	Durbin-Watson stat	1.147979

14
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:55
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.742697	0.014168	52.41989	0.0000
PCGDP?	-0.061467	0.014605	-4.208676	0.0000
PPP?	0.133234	0.010241	13.01009	0.0000
Fixed Effects (Cross)				

_AUT--C	0.362673
_BEL--C	0.086266
_CHL--C	-0.151722
_JPN--C	-0.339003
_LUX--C	0.551366
_MYS--C	-0.655469
_NOR--C	0.510188
_PHL--C	-0.627157
_POL--C	-0.023765
_CHE--C	0.414493
_TUR--C	-0.310839
_GBR--C	0.182970

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.995808	Mean dependent var	23.42663
Adjusted R-squared	0.995424	S.D. dependent var	63.29208
S.E. of regression	1.047226	Sum squared resid	155.7288
F-statistic	2594.606	Durbin-Watson stat	2.140672
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.942651	Mean dependent var	0.661987
Sum squared resid	1.481715	Durbin-Watson stat	0.982880

15
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:55
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.394917	0.007698	51.30136	0.0000
PCGDP?	0.780280	0.026846	29.06453	0.0000
PPP?	0.135126	0.007140	18.92438	0.0000
Fixed Effects (Cross)				
_CHL--C	0.003845			
_COL--C	0.244518			
_EGY--C	0.346873			
_IND--C	0.589792			
_IDN--C	0.390582			
_IRL--C	0.931044			
_JPN--C	-1.140258			
_MEX--C	-0.468152			
_CHE--C	-0.510512			
_THA--C	-0.188851			
_GRC--C	-0.559020			
_ZAF--C	0.360139			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.994889	Mean dependent var	5.999381
Adjusted R-squared	0.994422	S.D. dependent var	23.94305
S.E. of regression	1.047924	Sum squared resid	155.9367
F-statistic	2126.409	Durbin-Watson stat	2.151190
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.965044	Mean dependent var	0.467821
Sum squared resid	2.664082	Durbin-Watson stat	0.802769

16
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:55
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.628516	0.003082	203.9529	0.0000
PCGDP?	-0.412767	0.004780	-86.34786	0.0000
PPP?	0.043437	0.003162	13.73576	0.0000
Fixed Effects (Cross)				
_AUT--C	0.981603			
_BEL--C	0.682325			
_BRA--C	-0.459622			
_COL--C	-0.352871			
_GER--C	0.592769			
_IDN--C	-1.032020			
_ITA--C	0.857736			
_KOR--C	-0.124572			
_PAK--C	-1.350636			
_SGP--C	0.816674			
_THA--C	-0.767791			
_URY--C	0.156403			

Effects Specification			
Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared	0.999909	Mean dependent var	10.97248
Adjusted R-squared	0.999901	S.D. dependent var	159.6387
S.E. of regression	1.047426	Sum squared resid	155.7883
F-statistic	120077.6	Durbin-Watson stat	2.143250
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.939712	Mean dependent var	0.430705

Sum squared resid	1.761445	Durbin-Watson stat	1.139615

17
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:55
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.947158	0.008974	105.5482	0.0000
PCGDP?	-0.247202	0.014336	-17.24288	0.0000
PPP?	0.229659	0.004609	49.83130	0.0000
Fixed Effects (Cross)				
_DNK--C	0.693658			
_IRL--C	1.774036			
_JPN--C	-0.309071			
_MEX--C	-0.683425			
_NLD--C	0.421265			
_PHL--C	-0.981902			
_RUS--C	-0.400521			
_SGP--C	0.303082			
_ESP--C	0.161466			
_CHE--C	0.467709			
_TUR--C	-0.447229			
_VNM--C	-0.999067			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998138	Mean dependent var	41.59606
Adjusted R-squared	0.997968	S.D. dependent var	105.4679
S.E. of regression	1.044670	Sum squared resid	154.9697
F-statistic	5856.339	Durbin-Watson stat	2.143130
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.948572	Mean dependent var	0.711282
Sum squared resid	3.731955	Durbin-Watson stat	0.585787

18
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:55
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.551398	0.008239	66.92942	0.0000
PCGDP?	0.361463	0.015927	22.69528	0.0000
PPP?	0.210596	0.004765	44.19664	0.0000
Fixed Effects (Cross)				
_ARG--C	0.019885			
_AUT--C	-0.054357			
_CAN--C	-0.628767			
_CHL--C	-0.027023			
_IRL--C	1.339047			
_MEX--C	-0.468954			
_PAK--C	0.017641			
_ESP--C	-0.157788			
_GRC--C	-0.257729			
_URY--C	0.247535			
_ZAF--C	0.133797			
_VEN--C	-0.163287			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.995056	Mean dependent var	8.847123
Adjusted R-squared	0.994603	S.D. dependent var	24.91702
S.E. of regression	1.046579	Sum squared resid	155.5366
F-statistic	2198.224	Durbin-Watson stat	2.153501
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.945195	Mean dependent var	0.647821
Sum squared resid	3.408294	Durbin-Watson stat	0.934617

19
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:55
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.879123	0.020663	42.54572	0.0000
PCGDP?	-0.236269	0.022346	-10.57317	0.0000
PPP?	0.212477	0.007965	26.67610	0.0000
Fixed Effects (Cross)				
_AUS--C	0.240357			
_CHL--C	-0.216991			
_LUX--C	0.778007			
_MYS--C	-0.703835			
_MEX--C	-0.627001			
_NOR--C	0.662262			
_PAK--C	-1.148774			
_RUS--C	-0.352444			

_SGP--C	0.348198
_ESP--C	0.213290
_CHE--C	0.523329
_GBR--C	0.283602

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999474	Mean dependent var	64.49799
Adjusted R-squared	0.999426	S.D. dependent var	126.2103
S.E. of regression	1.046987	Sum squared resid	155.6577
F-statistic	20755.13	Durbin-Watson stat	2.146955
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.938942	Mean dependent var	0.603333
Sum squared resid	2.072295	Durbin-Watson stat	0.958114

20
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:56
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.394024	0.001381	285.3976	0.0000
PCGDP?	0.138560	0.002929	47.31044	0.0000
PPP?	0.106165	0.001147	92.58373	0.0000
Fixed Effects (Cross)				
_CHL--C	0.140478			
_COL--C	0.063060			
_IDN--C	-0.226147			
_KOR--C	-0.373465			
_MEX--C	-0.300467			
_NOR--C	0.516592			
_PAK--C	-0.264712			
_PHL--C	-0.056102			
_RUS--C	-0.062907			
_SGP--C	0.212047			
_ESP--C	0.239152			
_GRC--C	0.112469			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998228	Mean dependent var	-120.8476
Adjusted R-squared	0.998065	S.D. dependent var	455.5601
S.E. of regression	1.048007	Sum squared resid	155.9612

F-statistic	6151.862	Durbin-Watson stat	2.153174
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.916144	Mean dependent var	0.375064
Sum squared resid	2.185709	Durbin-Watson stat	0.816063

21
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:57
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.538485	0.009009	59.76896	0.0000
PCGDP?	-0.087519	0.010424	-8.396260	0.0000
PPP?	0.247259	0.008397	29.44588	0.0000
Fixed Effects (Cross)				
_CAN--C	0.030928			
_COL--C	-0.046602			
_FRA--C	0.265470			
_IND--C	-0.578077			
_JPN--C	-0.121783			
_KOR--C	-0.256317			
_RUS--C	-0.011496			
_ESP--C	0.387075			
_CHE--C	0.630805			
_THA--C	-0.418406			
_GRC--C	0.236499			
_VEN--C	-0.118095			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.990268	Mean dependent var	3.450469
Adjusted R-squared	0.989377	S.D. dependent var	20.95937
S.E. of regression	1.047925	Sum squared resid	155.9368
F-statistic	1111.509	Durbin-Watson stat	2.146743
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.927581	Mean dependent var	0.390897
Sum squared resid	1.555401	Durbin-Watson stat	1.028438

22
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:58
Sample: 1996 2008

Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.494169	0.003819	129.3819	0.0000
PCGDP?	-0.158884	0.005827	-27.26781	0.0000
PPP?	-0.070100	0.003132	-22.38254	0.0000
Fixed Effects (Cross)				
_AUT--C	0.747327			
_CAN--C	0.136284			
_CHN--C	-1.325798			
_EGY--C	-0.607965			
_GER--C	0.388078			
_IND--C	-1.023459			
_ISR--C	0.554481			
_JPN--C	0.082659			
_KOR--C	-0.266941			
_SGP--C	0.516078			
_GBR--C	0.563610			
_URY--C	0.235645			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999805	Mean dependent var	-27.49085
Adjusted R-squared	0.999787	S.D. dependent var	88.62444
S.E. of regression	1.044608	Sum squared resid	154.9513
F-statistic	56073.55	Durbin-Watson stat	2.143961
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.965398	Mean dependent var	0.416667
Sum squared resid	1.325296	Durbin-Watson stat	1.119891

23
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:58
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.476930	0.001235	386.1760	0.0000
PCGDP?	-0.137952	0.004636	-29.75620	0.0000
PPP?	0.106653	0.002292	46.54196	0.0000
Fixed Effects (Cross)				
_BRA--C	-0.280321			
_CAN--C	0.146431			

_GER--C	0.373211
_IND--C	-0.758708
_ISR--C	0.567441
_JPN--C	0.036390
_PAK--C	-0.736060
_POL--C	0.256042
_SWE--C	0.678895
_THA--C	-0.497767
_URY--C	0.314340
_VEN--C	-0.099894

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999715	Mean dependent var	33.57442
Adjusted R-squared	0.999689	S.D. dependent var	104.3255
S.E. of regression	1.045648	Sum squared resid	155.2600
F-statistic	38382.52	Durbin-Watson stat	2.150522
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.942295	Mean dependent var	0.385064
Sum squared resid	1.487953	Durbin-Watson stat	1.213108

24
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:58
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.667550	0.002650	251.8800	0.0000
PCGDP?	0.179097	0.003233	55.40410	0.0000
PPP?	0.148267	0.000664	223.2865	0.0000
Fixed Effects (Cross)				
_CHL--C	-0.125823			
_CHN--C	-1.028140			
_COL--C	-0.172584			
_IDN--C	-0.417288			
_IRL--C	1.479599			
_ISR--C	0.050488			
_NLD--C	0.055893			
_NOR--C	0.164625			
_SGP--C	-0.110401			
_SWE--C	0.049336			
_CHE--C	0.122421			
_GBR--C	-0.068126			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.999114	Mean dependent var	-194.9860
Adjusted R-squared	0.999033	S.D. dependent var	848.1753
S.E. of regression	1.047624	Sum squared resid	155.8472
F-statistic	12323.67	Durbin-Watson stat	2.151162
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.961190	Mean dependent var	0.777179
Sum squared resid	3.163204	Durbin-Watson stat	0.600205

25
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:59
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.921455	0.006867	134.1802	0.0000
PCGDP?	-0.279085	0.007589	-36.77577	0.0000
PPP?	0.286364	0.004182	68.47137	0.0000
Fixed Effects (Cross)				
_AUS--C	0.270664			
_AUT--C	0.501085			
_FIN--C	0.570180			
_KOR--C	-0.448187			
_MYS--C	-0.689942			
_NLD--C	0.495789			
_PAK--C	-1.162112			
_SGP--C	0.397870			
_SWE--C	0.404450			
_CHE--C	0.528039			
_TUR--C	-0.388159			
_VEN--C	-0.479677			

Effects Specification
Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.999836	Mean dependent var	-29.67912
Adjusted R-squared	0.999821	S.D. dependent var	172.1668
S.E. of regression	1.038128	Sum squared resid	153.0349
F-statistic	66709.16	Durbin-Watson stat	2.159643
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.954542	Mean dependent var	0.614231
Sum squared resid	1.536713	Durbin-Watson stat	0.863842

26
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:59
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.938453	0.015816	59.33574	0.0000
PCGDP?	-0.491059	0.026056	-18.84628	0.0000
PPP?	0.140377	0.007828	17.93265	0.0000
Fixed Effects (Cross)				
_ARG--C	-0.254287			
_AUT--C	0.786674			
_BRA--C	-0.725905			
_ISR--C	0.477311			
_KOR--C	-0.325643			
_LUX--C	1.252933			
_MYS--C	-0.754155			
_NLD--C	0.797351			
_PHL--C	-1.340723			
_SWE--C	0.696008			
_URY--C	-0.114581			
_ZAF--C	-0.494985			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998753	Mean dependent var	3.627830
Adjusted R-squared	0.998639	S.D. dependent var	44.41198
S.E. of regression	1.045518	Sum squared resid	155.2215
F-statistic	8749.334	Durbin-Watson stat	2.156045
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.936117	Mean dependent var	0.597051
Sum squared resid	1.781307	Durbin-Watson stat	1.372148

27
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:59
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.952011	0.008332	114.2575	0.0000

PCGDP?	-0.403098	0.011696	-34.46592	0.0000
PPP?	0.331711	0.003764	88.12897	0.0000
Fixed Effects (Cross)				
_BEL--C	0.347106			
_DNK--C	0.884094			
_IDN--C	-1.036229			
_ITA--C	0.543945			
_JPN--C	-0.121360			
_NLD--C	0.653113			
_PAK--C	-1.312379			
_POL--C	0.036305			
_SWE--C	0.537716			
_CHE--C	0.674086			
_THA--C	-0.822853			
_TUR--C	-0.383543			

Effects Specification
Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.998346	Mean dependent var	3.765230
Adjusted R-squared	0.998195	S.D. dependent var	75.75097
S.E. of regression	1.041331	Sum squared resid	153.9804
F-statistic	6594.103	Durbin-Watson stat	2.165993
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.975216	Mean dependent var	0.589359
Sum squared resid	0.982063	Durbin-Watson stat	1.106184

28
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 17:59
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.378029	0.003136	120.5520	0.0000
PCGDP?	0.378866	0.005136	73.76013	0.0000
PPP?	0.024934	0.002406	10.36403	0.0000
Fixed Effects (Cross)				
_AUS--C	-0.185862			
_BEL--C	-0.154260			
_BRA--C	-0.219260			
_IRL--C	1.509881			
_ISR--C	0.119550			
_MYS--C	-0.454539			
_MEX--C	-0.392615			
_PAK--C	-0.008729			
_PHL--C	0.188648			
_RUS--C	-0.185523			
_SGP--C	-0.174700			

_TUR--C	-0.042590

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999658	Mean dependent var	-75.64724
Adjusted R-squared	0.999626	S.D. dependent var	180.4460
S.E. of regression	1.047674	Sum squared resid	155.8622
F-statistic	31886.96	Durbin-Watson stat	2.152052
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.955408	Mean dependent var	0.524487
Sum squared resid	3.211728	Durbin-Watson stat	0.620121

29

Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:00
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.706061	0.014365	49.15288	0.0000
PCGDP?	-0.095750	0.027613	-3.467581	0.0007
PPP?	0.350885	0.024666	14.22565	0.0000
Fixed Effects (Cross)				
_AUT--C	0.453444			
_DNK--C	0.691298			
_IND--C	-0.628033			
_LUX--C	0.653767			
_MYS--C	-0.472990			
_PAK--C	-0.610859			
_PHL--C	-0.460685			
_POL--C	0.168735			
_ESP--C	0.249842			
_SWE--C	0.360859			
_TUR--C	-0.153718			
_VEN--C	-0.251659			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.995783	Mean dependent var	7.761212
Adjusted R-squared	0.995396	S.D. dependent var	22.64994
S.E. of regression	1.047493	Sum squared resid	155.8085
F-statistic	2579.062	Durbin-Watson stat	2.152206
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.960638	Mean dependent var	0.519551
Sum squared resid	1.738439	Durbin-Watson stat	0.921886

30
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:00
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.581401	0.012152	47.84341	0.0000
PCGDP?	-0.320914	0.023679	-13.55289	0.0000
PPP?	0.105221	0.013710	7.674585	0.0000
Fixed Effects (Cross)				
_BRA--C	-0.385011			
_IDN--C	-0.834429			
_ITA--C	0.793186			
_JPN--C	0.181876			
_KOR--C	-0.138483			
_MYS--C	-0.456113			
_NLD--C	0.896948			
_SGP--C	0.741482			
_GRC--C	0.409460			
_ZAF--C	-0.111551			
_VEN--C	-0.196526			
_VNM--C	-0.900839			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.989741	Mean dependent var	5.092066
Adjusted R-squared	0.988802	S.D. dependent var	28.72521
S.E. of regression	1.047246	Sum squared resid	155.7347
F-statistic	1053.791	Durbin-Watson stat	2.152265
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.896268	Mean dependent var	0.394423
Sum squared resid	2.388311	Durbin-Watson stat	0.840736

31
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:00
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156

Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.429092	0.003572	120.1321	0.0000
PCGDP?	-0.308032	0.012325	-24.99303	0.0000
PPP?	0.055737	0.004837	11.52310	0.0000
Fixed Effects (Cross)				
_CHL--C	0.188000			
_CHN--C	-1.223139			
_COL--C	-0.118727			
_GER--C	0.651009			
_ISR--C	0.787503			
_JPN--C	0.326388			
_PAK--C	-0.989002			
_SGP--C	0.856822			
_URY--C	0.354066			
_ZAF--C	0.021937			
_VEN--C	-0.060865			
_VNM--C	-0.793992			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999066	Mean dependent var	15.90098
Adjusted R-squared	0.998980	S.D. dependent var	39.78767
S.E. of regression	1.043917	Sum squared resid	154.7464
F-statistic	11684.02	Durbin-Watson stat	2.171772
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.933455	Mean dependent var	0.359808
Sum squared resid	2.043344	Durbin-Watson stat	1.169527

32
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:01
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.949784	0.013326	71.27290	0.0000
PCGDP?	-0.487984	0.022616	-21.57723	0.0000
PPP?	0.202876	0.006471	31.35118	0.0000
Fixed Effects (Cross)				
_AUT--C	0.772255			
_BEL--C	0.465194			
_CAN--C	0.186559			
_FIN--C	0.818941			
_DNK--C	1.037621			

_IDN--C	-1.250321
_MYS--C	-0.726388
_MEX--C	-0.631365
_ESP--C	0.434828
_URY--C	-0.103928
_ZAF--C	-0.477769
_VEN--C	-0.525626

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.996996	Mean dependent var	8.038177
Adjusted R-squared	0.996721	S.D. dependent var	39.87064
S.E. of regression	1.046576	Sum squared resid	155.5356
F-statistic	3624.804	Durbin-Watson stat	2.149164
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.950587	Mean dependent var	0.586218
Sum squared resid	1.588969	Durbin-Watson stat	1.198328

33
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:01
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.678648	0.003975	170.7109	0.0000
PCGDP?	0.157317	0.020118	7.819629	0.0000
PPP?	0.208286	0.005139	40.52685	0.0000
Fixed Effects (Cross)				
_ARG--C	-0.073984			
_COL--C	-0.149937			
_EGY--C	-0.305234			
_IRL--C	1.491429			
_ITA--C	0.097906			
_PAK--C	-0.399616			
_PHL--C	-0.237353			
_POL--C	-0.000518			
_ESP--C	-0.046963			
_TUR--C	-0.225111			
_URY--C	0.131402			
_VEN--C	-0.282021			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998232	Mean dependent var	-20.87520
Adjusted R-squared	0.998070	S.D. dependent var	52.79169
S.E. of regression	1.046196	Sum squared resid	155.4226
F-statistic	6165.686	Durbin-Watson stat	2.136774
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.949190	Mean dependent var	0.586218
Sum squared resid	3.375579	Durbin-Watson stat	0.817909

34

Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:01
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.730487	0.017889	40.83447	0.0000
PCGDP?	-0.151908	0.027602	-5.503530	0.0000
PPP?	0.140634	0.005264	26.71455	0.0000
Fixed Effects (Cross)				
_ARG--C	-0.103342			
_BRA--C	-0.518606			
_CHL--C	-0.115878			
_EGY--C	-0.638856			
_FIN--C	0.613021			
_KOR--C	-0.429598			
_LUX--C	0.752329			
_NOR--C	0.678076			
_TUR--C	-0.286842			
_GBR--C	0.317832			
_URY--C	0.073649			
_VEN--C	-0.341787			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998268	Mean dependent var	17.92461
Adjusted R-squared	0.998109	S.D. dependent var	62.03650
S.E. of regression	1.047413	Sum squared resid	155.7846
F-statistic	6295.493	Durbin-Watson stat	2.161091
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.925159	Mean dependent var	0.597308
Sum squared resid	2.025958	Durbin-Watson stat	1.373910

35

Dependent Variable: IP?

Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:02
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.785212	0.006910	113.6404	0.0000
PCGDP?	-0.008215	0.006970	-1.178534	0.2406
PPP?	0.267422	0.000928	288.3073	0.0000
Fixed Effects (Cross)				
_BEL--C	-0.028647			
_CAN--C	-0.326598			
_CHL--C	-0.153802			
_EGY--C	-0.471910			
_FIN--C	0.360441			
_DNK--C	0.508872			
_KOR--C	-0.568342			
_LUX--C	0.393981			
_NLD--C	0.222592			
_NOR--C	0.349579			
_POL--C	-0.000685			
_TUR--C	-0.285481			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999807	Mean dependent var	-47.27466
Adjusted R-squared	0.999789	S.D. dependent var	183.2081
S.E. of regression	1.041119	Sum squared resid	153.9180
F-statistic	56470.10	Durbin-Watson stat	2.138890
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.948839	Mean dependent var	0.721538
Sum squared resid	1.520875	Durbin-Watson stat	1.160610

36
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:02
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.789933	9.09E-05	8689.317	0.0000
PCGDP?	-0.212476	0.000193	-1101.103	0.0000
PPP?	0.163712	0.000116	1408.259	0.0000

Fixed Effects (Cross)	
_AUT--C	0.533896
_BEL--C	0.246541
_GER--C	0.159201
_IND--C	-1.100790
_ISR--C	0.337778
_ITA--C	0.451726
_PAK--C	-1.085002
_POL--C	0.010771
_CHE--C	0.588222
_GRC--C	0.099031
_URY--C	0.025929
_ZAF--C	-0.267301

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.999979	Mean dependent var	857.7780
Adjusted R-squared	0.999977	S.D. dependent var	2975.076
S.E. of regression	1.046649	Sum squared resid	155.5573
F-statistic	526889.5	Durbin-Watson stat	2.145403
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.942670	Mean dependent var	0.619359
Sum squared resid	1.588061	Durbin-Watson stat	1.291510

37
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:03
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.126981	0.009214	122.3108	0.0000
PCGDP?	-0.304055	0.008466	-35.91582	0.0000
PPP?	0.318113	0.005054	62.93682	0.0000
Fixed Effects (Cross)				
_BRA--C	-0.835157			
_CHL--C	-0.407869			
_FRA--C	-0.045376			
_DNK--C	0.572559			
_ISR--C	0.111504			
_ITA--C	0.242458			
_JPN--C	-0.428798			
_LUX--C	0.668925			
_POL--C	-0.188133			
_ESP--C	0.065764			
_CHE--C	0.352660			
_GRC--C	-0.108538			

Effects Specification			
Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared	0.999758	Mean dependent var	-46.03758
Adjusted R-squared	0.999735	S.D. dependent var	200.6904
S.E. of regression	1.047332	Sum squared resid	155.7606
F-statistic	45037.95	Durbin-Watson stat	2.143029
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.896962	Mean dependent var	0.765962
Sum squared resid	2.027759	Durbin-Watson stat	1.128159

38
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:03
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.750037	0.003750	200.0139	0.0000
PCGDP?	-0.191241	0.004049	-47.22616	0.0000
PPP?	0.097663	0.006617	14.75922	0.0000
Fixed Effects (Cross)				
_CHN--C	-1.418354			
_COL--C	-0.382490			
_DNK--C	0.843931			
_IRL--C	1.909705			
_KOR--C	-0.429291			
_NOR--C	0.735040			
_SGP--C	0.367880			
_ESP--C	0.266799			
_THA--C	-0.790821			
_URY--C	0.041161			
_ZAF--C	-0.251529			
_VNM--C	-0.892031			

Effects Specification			
Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared	0.999908	Mean dependent var	28.53194
Adjusted R-squared	0.999899	S.D. dependent var	115.1546
S.E. of regression	1.047837	Sum squared resid	155.9108
F-statistic	118242.0	Durbin-Watson stat	2.153028
Prob(F-statistic)	0.000000		
Unweighted Statistics			

R-squared	0.955011	Mean dependent var	0.622372
Sum squared resid	4.247173	Durbin-Watson stat	0.700119

39
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:14
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.398688	0.006520	61.14784	0.0000
PCGDP?	-0.049934	0.010505	-4.753279	0.0000
PPP?	0.051649	0.009431	5.476257	0.0000
Fixed Effects (Cross)				
_AUT--C	0.688291			
_CHN--C	-1.021745			
_EGY--C	-0.320034			
_IND--C	-0.630745			
_PAK--C	-0.600412			
_PHL--C	-0.333423			
_RUS--C	-0.078534			
_SGP--C	0.483002			
_SWE--C	0.643781			
_CHE--C	0.760587			
_GRC--C	0.294978			
_ZAF--C	0.114254			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.997628	Mean dependent var	3.950250
Adjusted R-squared	0.997411	S.D. dependent var	22.36236
S.E. of regression	1.046073	Sum squared resid	155.3861
F-statistic	4594.394	Durbin-Watson stat	2.147356
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.962899	Mean dependent var	0.362179
Sum squared resid	1.737998	Durbin-Watson stat	0.808609

40
Dependent Variable: IP?
Method: Pooled EGLS (Cross-section SUR)
Date: 12/07/11 Time: 18:15
Sample: 1996 2008
Included observations: 13
Cross-sections included: 12
Total pool (balanced) observations: 156
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.746722	0.005094	146.5993	0.0000
PCGDP?	-0.445761	0.005110	-87.22839	0.0000
PPP?	0.076985	0.006975	11.03674	0.0000
Fixed Effects (Cross)				
_AUT--C	0.911707			
_BEL--C	0.609603			
_BRA--C	-0.562707			
_CHN--C	-1.610955			
_FIN--C	0.980933			
_FRA--C	0.525431			
_DNK--C	1.211750			
_NOR--C	1.184383			
_PAK--C	-1.474746			
_THA--C	-0.862212			
_GRC--C	0.369788			
_VNM--C	-1.282975			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.998762	Mean dependent var	7.312745
Adjusted R-squared	0.998649	S.D. dependent var	28.43460
S.E. of regression	1.045043	Sum squared resid	155.0804
F-statistic	8815.171	Durbin-Watson stat	2.131030
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.968763	Mean dependent var	0.499615
Sum squared resid	1.891421	Durbin-Watson stat	0.962083