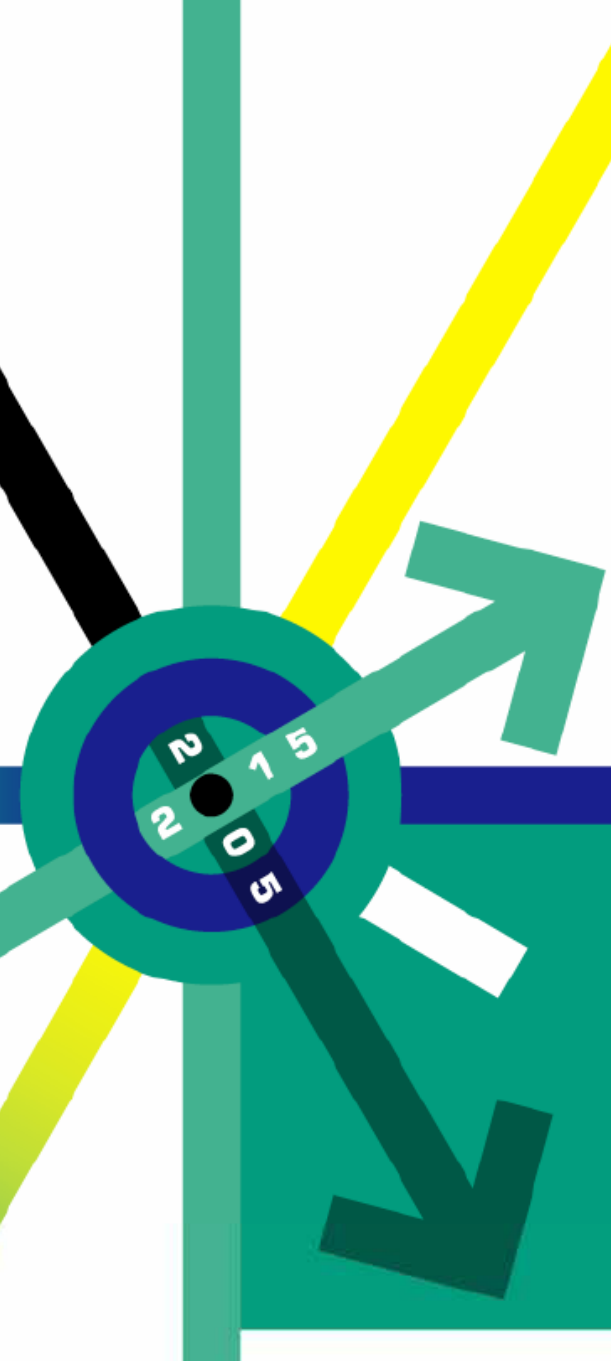



Human Development Report **2005**

Human Development Report Office
OCCASIONAL PAPER

# Openness and Growth: An Empirical Investigation

Samman, Emma. 2005.

# Main Ideas

- In an influential study, *Trade, growth and poverty, Dollar and Kraay (2001) (hereafter **DK**)* advance the argument that trade liberalization improves the growth prospects of poor countries.
- They demonstrate this point principally using **multiple regression analysis** with data for 100 countries, through which the **share of trade** in an economy is shown to have had **a statistically significant positive effect on income growth** in the 1980s and 1990s.
- On the basis of this analysis, they assert that developing countries should enact **more liberal trade policies to foster growth and reduce poverty**.

# Main Ideas

This paper finds several errors in the conceptual logic and methodology underlying the DK study.

(1) It argues that the authors employ **selective evidence in support of their view** while overlooking their data that is open to alternative interpretations.

(2) It argues that their reliance on the **share of trade in GDP as an indicator** of trade liberalization is **highly misleading**.

(3) The **failure to carefully consider selection bias** in the descriptive analysis further distorts the results.

(4) The **regression** analysis contains **several problems relating to the data used and specification**.

# Findings from Previous Research

- The primary analytical support for their argument comes from regression analysis that explores the strength of the association between **growth in per capita GDP** and **growth in trade volume** controlling for "initial income" (here, income growth in the past decade) and the time period (through period dummies).
- From this analysis, they report that a **100 percent increase in the volume of trade** would have the cumulative effect of **raising p/c income by 25 percent** over the course of a decade

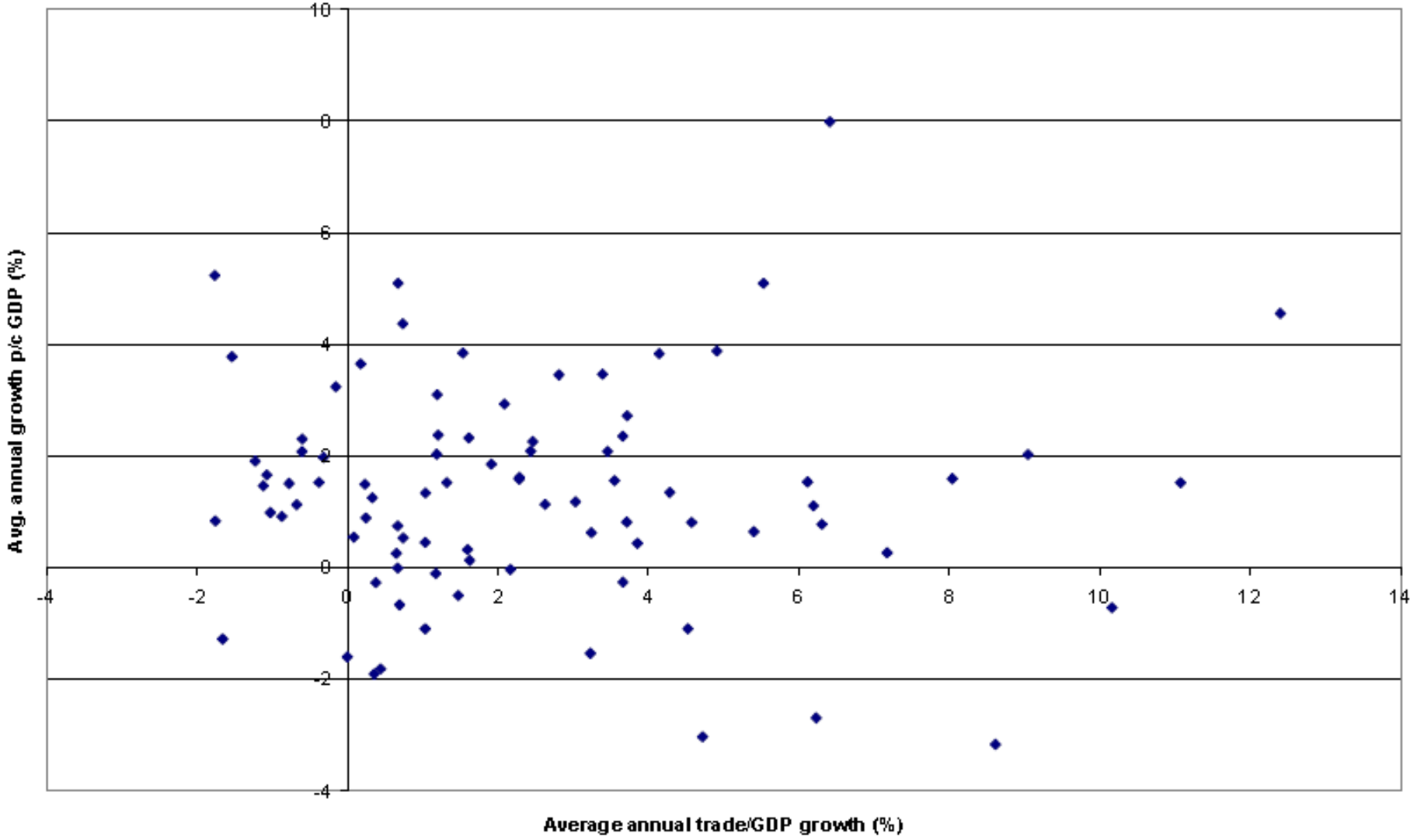
# Findings from Previous Research

- the authors devote no attention to the levels either of trade/GDP or indeed of tariffs when making their argument.
- Thus they fail to acknowledge that their **non-globalizers have much higher trade/GDP ratios** on average than the globalizers, at the beginning of the period, and that at the end of the period, the **average ratios for the two groups are not far apart** (72 percent for globalizers vs. 63 percent for non-globalizers).
- Similarly, the globalizers also had higher tariffs than non-globalizers throughout the period (57 percent falling to 35 percent, in contrast to 31 percent falling to 20 percent).
- Therefore the data lends itself equally well to the conclusion that **economies with higher shares of trade and lower tariff rates grew more slowly** than those with lower shares, a conclusion at odds with their purported findings.

# Findings from Previous Research

- We attempt to make this argument more clearly by graphically illustrating the presumed linkages underlying trade policy inputs and outputs.
- Figure 1 gives a scattered plot of growth in trade/GDP versus p/c income between 1985 and 2003 for 86 countries. The huge diversity of relationships (and weak trend) suggests the linkage is not a direct one.

Figure 1 – Average annual growth in trade/GDP vs. p/c GDP growth by country, 1985-2003



# Findings from Previous Research

- Figure 2 shows that the link between tariffs and p/c GDP growth is even more tenuous than the link between trade/GDP and growth, making clear that the nexus between the policy and an outcome measure requires scrutiny.
- Finally Figure 3 makes the central point that the link between tariffs and the share of trade/GDP is a highly indirect one.
- This echoes a point made implicitly by Dollar and Kraay, who provide a scattered plot of growth in trade relative to GDP (1975/79 to 1995/97) versus tariff reduction (1985/89 to 1995/97) , though the different time periods they use for the two variables makes the comparison all but meaningless.

Figure 2 – Average annual change in tariffs vs. p/c GDP growth, 1985/89-2001/03

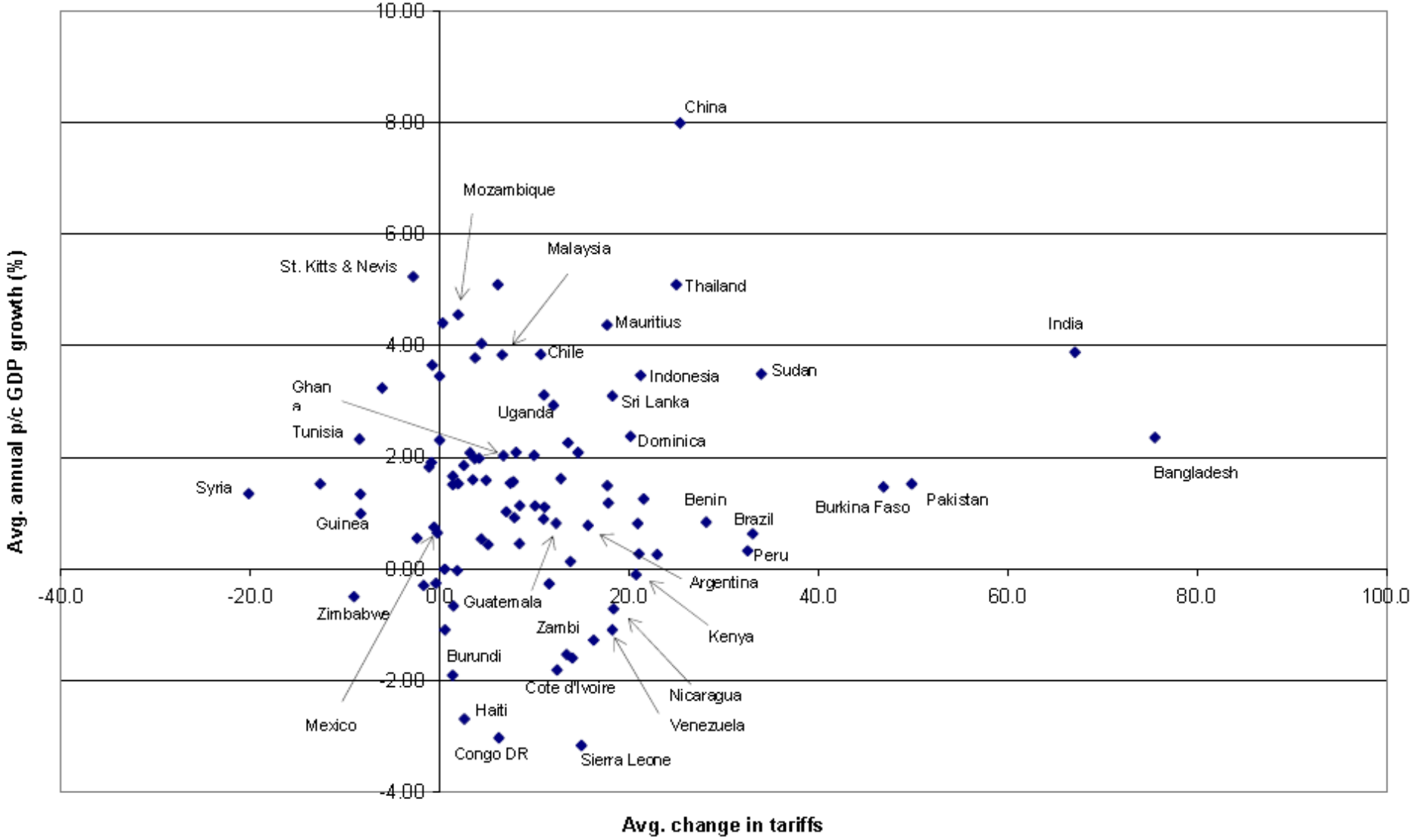
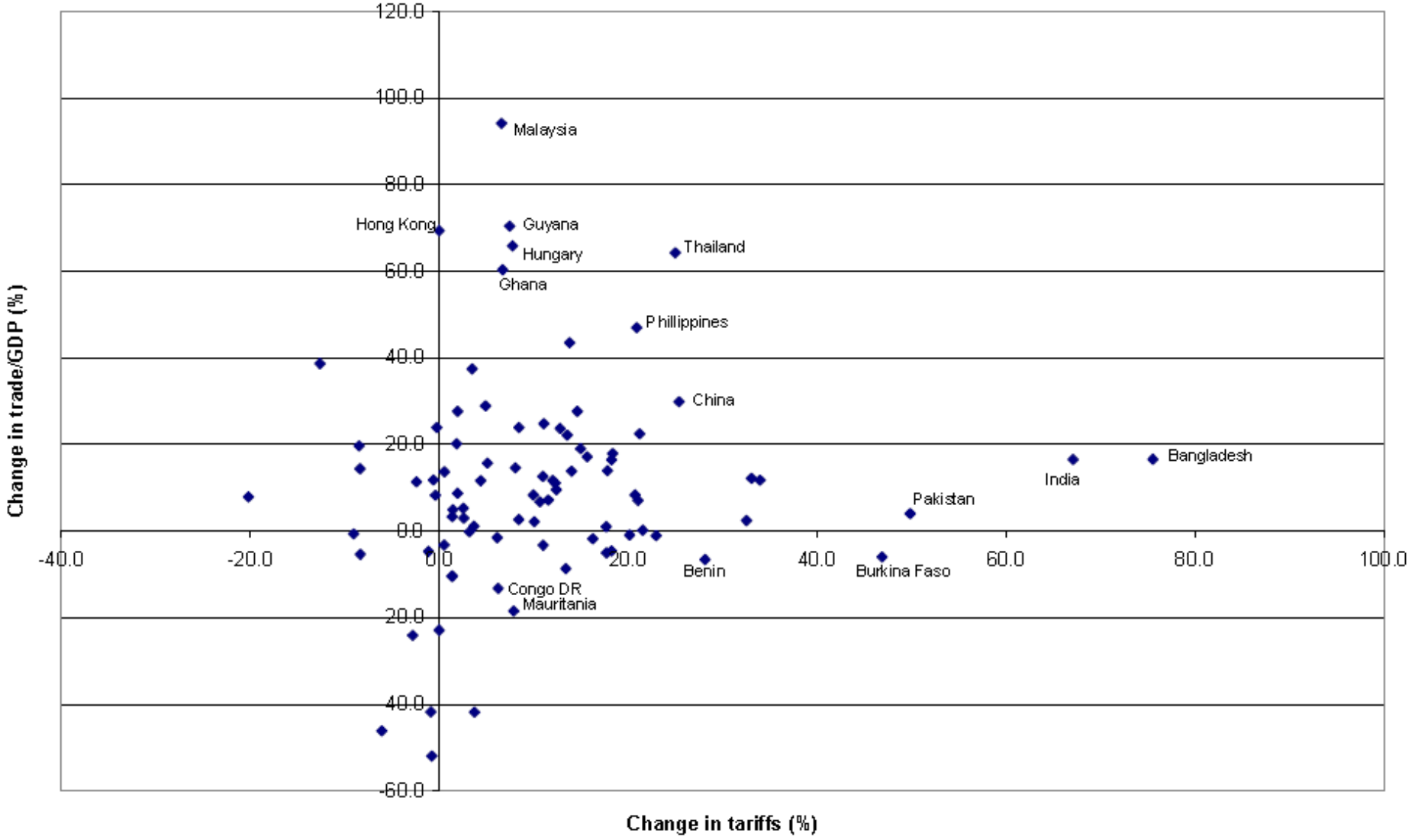


Figure 3 – Average annual change in tariffs vs. share of trade in GDP, 1985/89-2001/03



# Findings from Previous Research

The DK regression is specified according to the following equation:

$$y_{ct} - y_{c,t-k} = \beta_1 * (y_{c,t-k} - y_{c,t-2k}) + \beta_2' (x_{ct} - x_{c,t-k}) + (\gamma_t - y_{t-k}) + (v_{ct} - v_{c,t-k}),$$

where $y_{ct}$ = log of per capita GDP in country c at time t;

$y_{c,t-k}$ = the log of income at a previous time (here k = 10, so ten years);

$x_{c,t}$ = a set of control variables averaged over the decade t-k to t, in the specifications that concern us, the trade/GDP ratio and FDI);

and the 'disturbance' terms $\gamma$ and $v$ representing an unobserved period effect and an unobserved component varying across countries and years, respectively.

Their dataset consists of 187 observations on growth in the 1990s and growth in the 1980s for about 100 countries. The explanatory variables they employ are average annual growth in the preceding decade (i.e., a 10 year lag) and the average annual change in trade volumes.

# Findings from Previous Research

- They make a more cogent point when they identify globalizers based on tariff reductions rather than an increase in trade shares
- these globalizers's share of trade in GDP barely altered between the 1960s and the 1990s (estimates are 51 percent and 52 percent respectively)
- non-globalizers raised their share from 70 percent to 77 percent over the four decades.
- Tariff cutting and increased trade volume are not strongly connected

# Findings from Previous Research

- However many critics disagree, arguing that several "*unobserved country characteristics*" – *e.g., institutional quality or income shocks – may be correlated* with both growth and trade volume, and moreover that these potential determinants may have different impacts at different points in time (Rodrik 2000, Nye *et al. 2002). Failure to control* for these characteristics causes the trade/GDP variable to "pick up" their effects (*omitted variable bias), exaggerating its true explanatory power.*

# Findings from Previous Research

Table 2 – OLS regression results, impact of trade volume and tariff reduction on income growth, 1985-96

| Regressor | Specification 1 | Specification 2 |
|---|---|---|
| Initial income | .388<br>(.117)*** | .360<br>(.113)*** |
| Trade volume | .263<br>(.101)** | |
| Tariff reduction | | -.00046<br>(.001) |

*** Statistically significant at 99 percent level.
** Statistically significant at 95 percent level.
Robust standard errors reported in parentheses.

# Findings from Previous Research

- Figure 8 shows the growth performance for globalizers and non-globalizers defined on the basis of tariff cuts over this period.
- Globalizers registered growth of .94 percent p.a., while non-globalizers enjoyed somewhat higher growth (1.4 percent p.a.).
- In Figure 9, countries are divided into three categories based on the average size of their tariff cuts over the 1985/89-2001/03 period.
- The results suggest that the third of countries which cut their tariffs the most experienced less growth (1.35 percent p.a.) than those countries making less drastic cuts (the middle and bottom one-third of tariff cutters registered average growth of 1.6 percent p.a.).

# Findings from Previous Research

- Figure 10 repeats this analysis excluding the rich countries (as defined by Dollar and Kraay); the middle one-third of countries enacting moderate cuts grew most, while the top third grew least.
- The suggestion that high tariff cuts may hamper growth receives some support in the literature too, with Rodrik (2000) reporting that the 10 countries that made the deepest tariff cuts in the 1980/84 to 1995/97 period registered growth that is *"hardly exemplary", and that* while China and India have sharply increased their trade/GDP ratios, their economies remain among the most protected in the world.

Figure 5 – "Globalizers": Average change in tariffs vs. average annual p/c GDP growth, 1985/89 to 1995/97

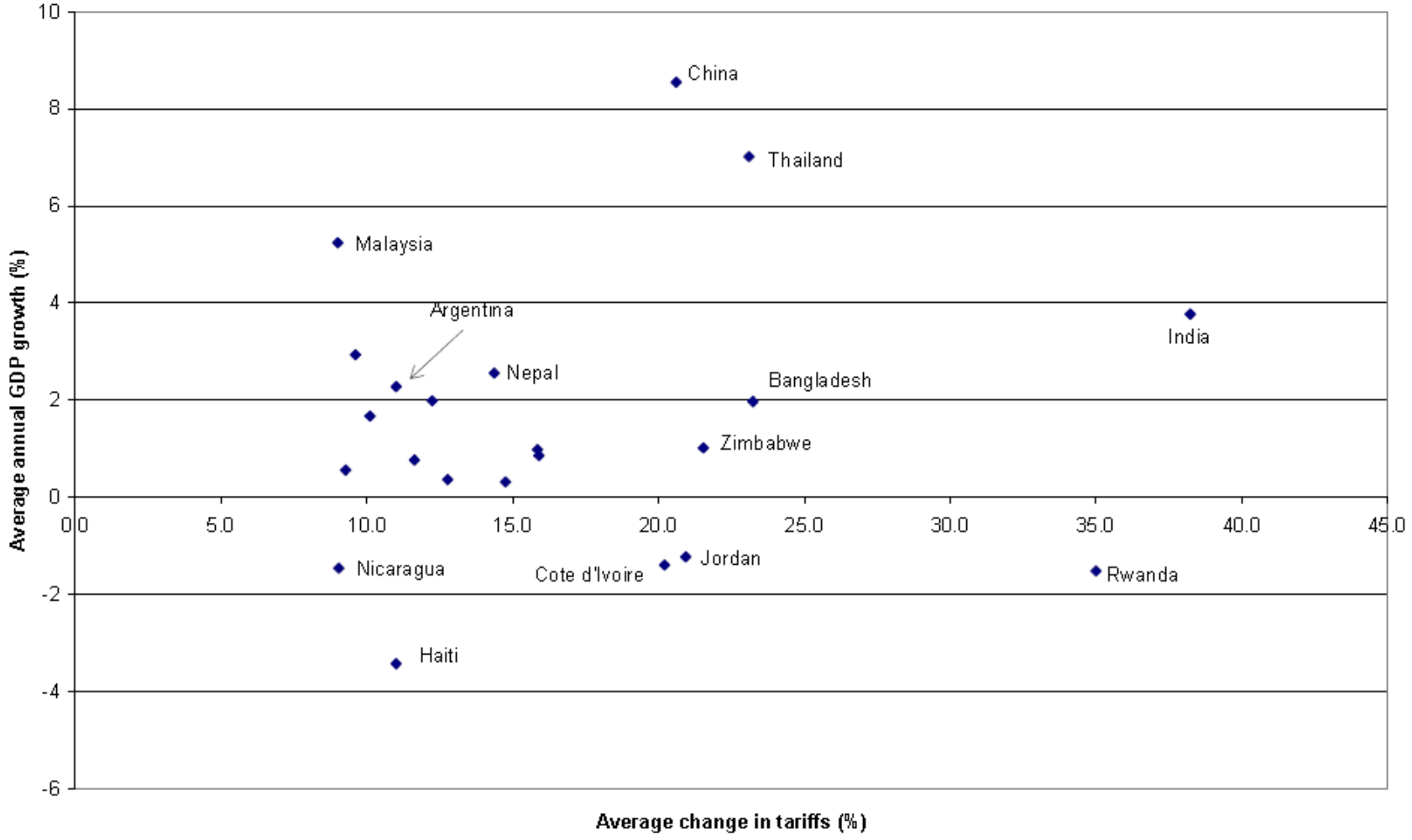


Figure 6 – "Non-globalizers" Average growth in tariffs vs. average annual p/c GDP growth, 1985/89 to 1995/97

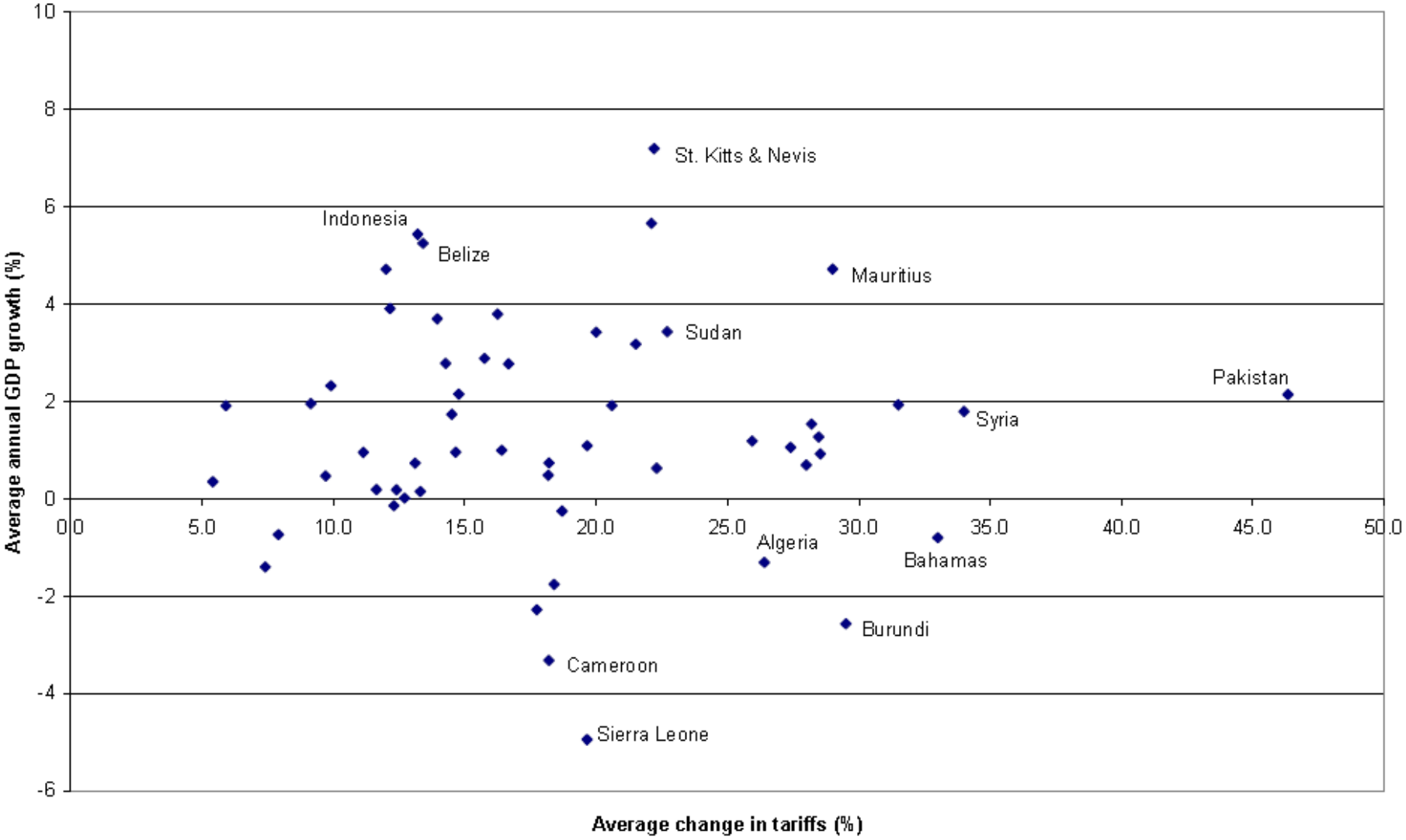


Figure 8 – Average annual growth rates of countries categorized as globalizers according to size of tariff reductions, vs. non-globalizers, 1985/89-2001/03

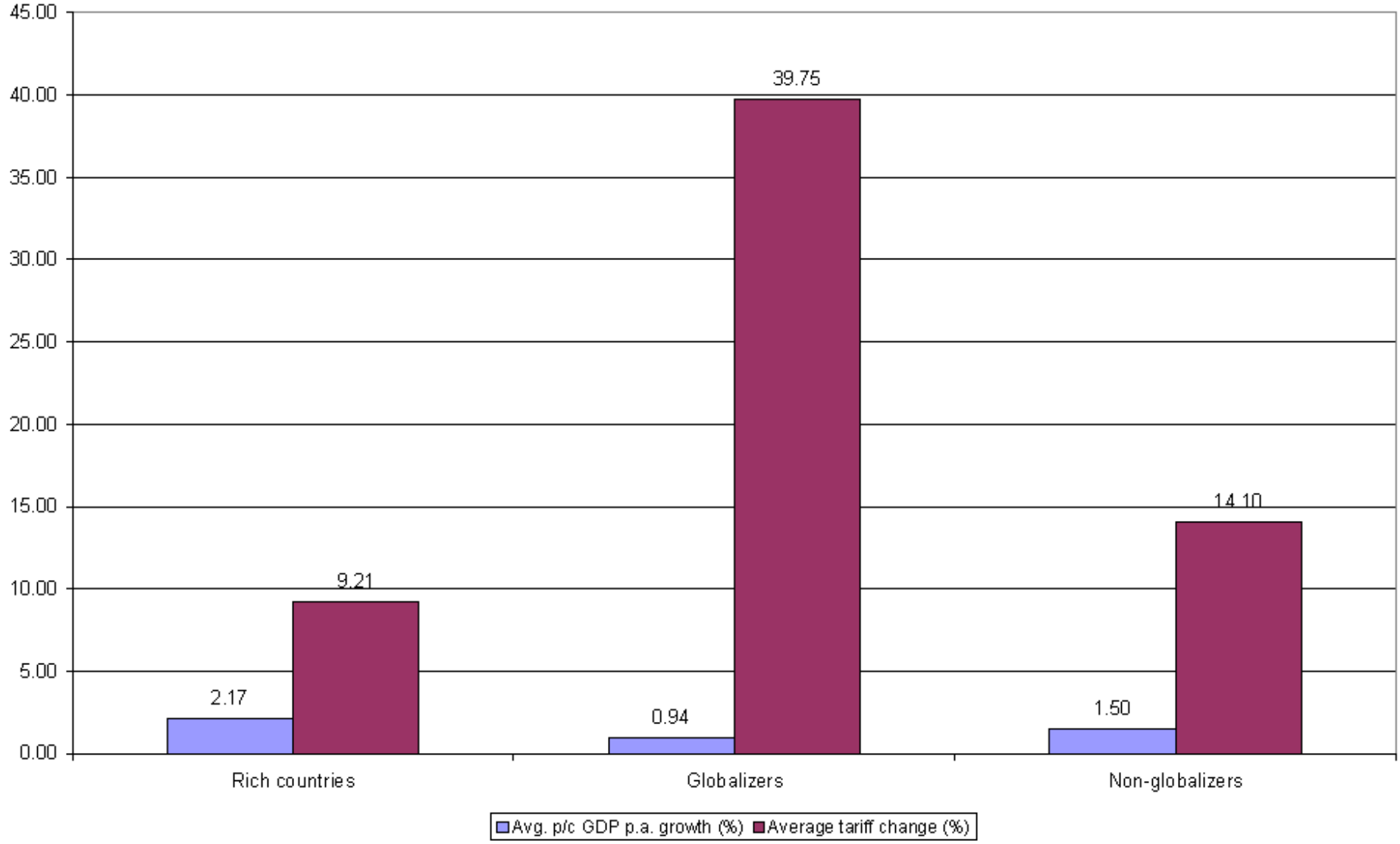


Figure 9 – Relationship between annual average tariff reduction and p/c income growth, 1985/89-2001/03 (92 countries split into three groups)

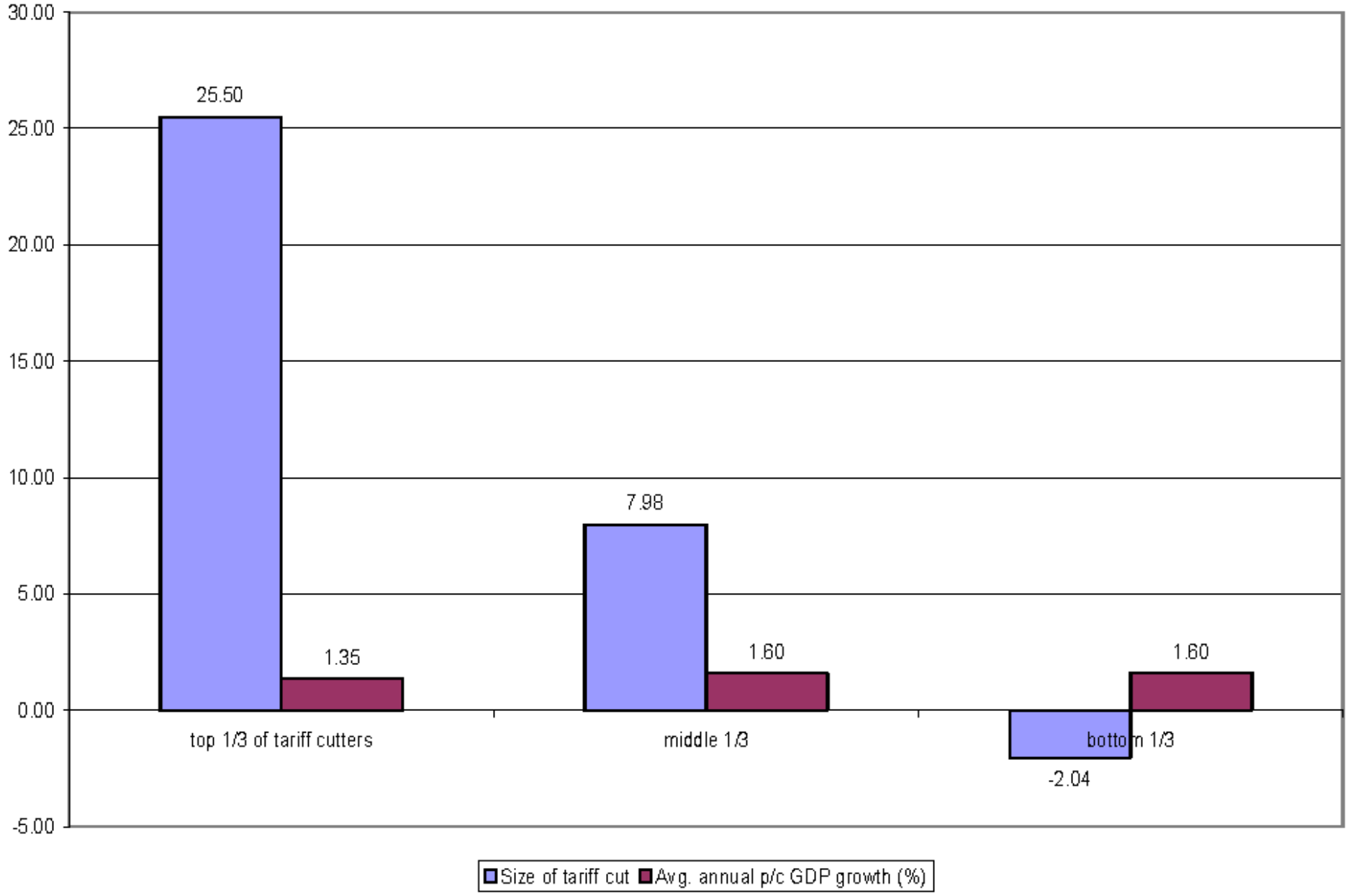
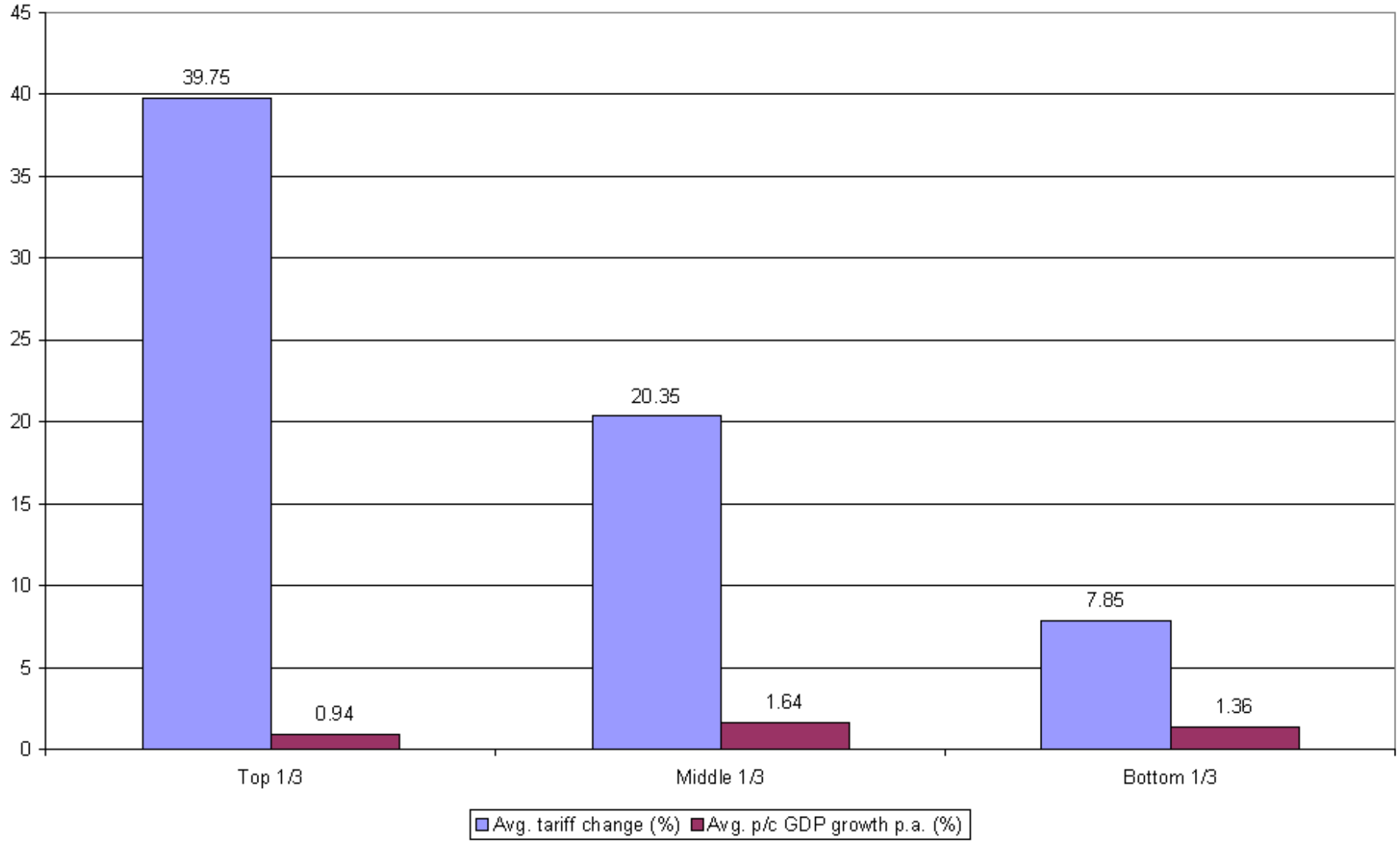


Figure 10 – Relationship between annual average tariff reduction and p/c income growth, 1985/8-2001/03 (78 countries split into three groups, excluding rich countries)



# Key Findings

- In short, a brief examination of these data point to three conclusions:

  1) countries that **reduced their tariffs** appear to have fared **no better than those that did not**;

  2) **deeper tariff cuts** may be associated with **lower growth than more moderate cuts**;

  3) more generally, the large diversity of experiences precludes drawing any sweeping conclusions.

- These findings are subject to two cautions.

  First it may be that our "globalizers" would have are worse than they did had they not reduced their tariffs, but we have **no counterfactual evidence given that no countries with very high tariffs maintained them over this time period**.

  Second, we reiterate the caution that the data is so patchy that **the specific selection of countries and time periods may influence strongly the results** (though we provide country data so that the full diversity of experiences is evident).