

EXPORTS OF SERVICES, EXPORTS OF GOODS, AND ECONOMIC GROWTH IN DEVELOPING COUNTRIES

Summary

This paper and explores quantitatively the nexus between exports of services, exports of goods, and GDP growth, focusing particularly on the role of developing and transition countries, during the last two decades of the XX century. The Introduction briefly exposes some of the shortcomings and methodological problems affecting BOP statistics on international trade in services. The analysis in Sections 2 and 3 shows that, in the long run, services exports do have a positive impact on GDP growth in developing countries. Yet, in the 1990s, the services exports/GDP growth nexus was weaker in developing than in developed countries. Moreover, in developing countries, the growth-enhancing impact of exports as a whole declined, although this decline appears to be due more to the merchandise component of exports rather than to the services component.

In the Conclusions, a tentative explanation for the aforementioned results is proposed. Most export-oriented services activities in developing countries are not concentrated in traditional services sectors, tend to be poorly integrated to the rest of the domestic economy, and are y often under the control of foreign economic agents. Thus, their potential as engines for growth is relatively limited. Furthermore, many previously inward-oriented developing countries, under conditions of financial duress, diverted resources towards exports as if they constituted a goal per se, rather than in the framework of a comprehensive long-term growth-maximizing strategy. Such opening-up reforms ended up facing diminishing returns.

Keywords: services; growth; trade; trade statistics; exports; liberalization; developing countries; transition countries; Africa.

1. The inadequacy of presently-available statistics on international trade in services

Comprehensive statistical studies on trade in services in developing countries are scarce. I am aware of only one systematic statistical exercise on the evolution of international trade in services based on the IMF BOP database, which was carried out by the WTO Secretariat (WTO 2000). A more recent evaluation, based largely on US services import data, is presented in Langhammer (2002). Both studies show that, at least up to the early 1990s, international trade in services has been more dynamic than merchandise trade, and the share of the developing countries in total world services exports increased progressively, reaching almost 1/4 of the world total. However, Langhammer observes that, during the 1990s, exports of services from developing countries did not escape from a generalized slow-down in international trade in services. Recent BOP statistics¹ show that the share of services in developing countries' exports even declined during the 1990s. Developing countries' ability to import services also declined sharply, with serious consequences on their overall economic performances.

The main purpose of the present paper is to explore quantitatively the "nexus" between exports and economic growth in developing countries over the 1980-2000, focusing mainly on the service component of total exports.² Besides the theoretical doubts raised by the so-called Export-Led growth (ELG) hypothesis and by the methodological problems faced by the attempts to verify it empirically (see below, sections 2 and 3), such an endeavour must necessarily take into account a more basic, practical difficulty: the paucity of statistical data on international trade in services.

Presently-available official statistics on international trade in services are far from being exhaustive and comprehensive, and in the case of developing and transition countries, this type of information is even more limited. Bearing this in mind, one must operate with a certain dose of caution when interpreting the economic meaning of the data presented and discussed below. The main reasons for this statistical inadequacy are two, and both relate to the peculiar nature of services as tradable economic activities and to the relative novelty of multilateral attempts to evaluate and regulate international trade in this domain. The first, and most important, is that the GATS typology based on four modes of supply is so far not matched by existing statistics (see WTO 1997, part II), especially with respect to mode 3

(commercial presence). As a result, most statistics on trade in services fail to capture local sales of services by foreign firms, and do not make a distinction between exports of services carried out by nationals and those carried out by foreign enterprises. The other reason stem from a divergence in classification criteria between existing statistics on trade in services and the GATS commitments (most of which are based on the GNS classification³).

The only comprehensive and consistent data source on international trade in services is constituted by the IMF Balance of Payments (BOP) statistics. More detailed sectoral statistics are available for most services sectors, but they are collected with sector-specific criteria and they are not mutually comparable in a systematic fashion. Both BOP and sectoral statistics suffer from the drawbacks outlined above. Data on trade in services carried out abroad by foreign affiliates of transnational corporations are only available (for some services sectors) for the United States, the only country which reports statistics on Foreign Affiliates Trade (FAT) on a regular basis. Statistical coverage on trade in services is improving, and the Inter-Agency Task Force on Trade in Services Statistics is developing a common manual that will represent a significant step forward in the strive to improve coverage and accuracy of services statistics. However, statistical reporting on trade in services is not likely to match the breadth and precision of statistics on merchandise trade in the foreseeable future. This is due, among other things, to methodological problems, a major one being the difficulty in distinguishing between price and volume data in services production and trade⁴ (see WTO 2000, para V).

The present study utilizes as a source BOP data made available on-line by WTO and UNCTAD⁵. These data, in spite of their shortcomings, are consistent and internationally comparable, and can also usefully be related with other basic macroeconomic statistics such as total GNP, total exports, and the like.

2. The Export-Led Growth (ELG) hypothesis

Growth of services exports, not differently from growth of merchandise exports, should not be considered as a goal per se, but as an instrument to contribute to the achievement of broader economic and social development, especially in developing countries. In this respect, the shortcomings of GDP growth as an overall development indicator are well-known. However, if for the sake of the argument GDP growth were assumed to be the only ultimate goal of economic policies, the degree of priority to be accorded to the intermediate goal of export expansion is a matter of controversy. In fact, on one hand, few analysts would deny that the indiscriminate expansion of at least some kinds of exports (i.e., those based on non-renewable natural resources) might in fact be inimical to long-term economic growth - and even more to the broader goal of sustainable development. On the other hand, even fewer, if any, would advocate a fully autarkic growth strategy. However, between these two extremes, opinions differ on the evaluation of the growth-enhancing potential of exports, relatively to other economically and socially relevant factors. By the same token, experts often disagree when asked to establish exactly which role should be assigned to exports in developing countries' overall growth strategy.

The so-called Export-Led Growth (ELG) hypothesis is at least as old as the classical school, as it was supported by both Adam Smith and David Ricardo (see Richards 2001). Among modern economists, Beckerman (1965) attributed exports' favourable impact mainly to the efficiency gains stemming from improved resources allocation, while Haberlar (1959) stressed the relevance of dynamic benefits, such as the improved availability of foreign capital and technology through the release of the balance of payments constraint. Vernon (1966) focused on a the opposite causality channel, in which the self-propelled growth of the domestic economy leads to improved competitiveness and eventually to the expansion of exports. More recently, Helpman and Krugman (1985) developed some of Beckerman's and Vernon's ideas, arguing that the initial growth spurt favoured by export expansion through the efficiency and allocation effects reverberates in enhanced international competitiveness, fostering a new round of export expansion and paving the way for a virtuous development path. Other "endogenous growth" theories emphasize the

benefits stemming from a dynamic export sector, in a framework characterized by increasing returns to scale and by virtuous technological and managerial spill-over effects towards other sectors (Feder 1992).

After several decades and the accumulation of an ever-expanding body of research literature, however, "No consensus has emerged on the theoretical appropriateness of the export-led growth hypothesis... Theoretical disagreement on the role of exports is matched by mixed empirical evidence" (Jin 2002, p.64. See also Richards 2001). In this respect, it must be taken into account that attempts to show econometrically that exports are a crucial cause of growth face two basic problems. First, exports are themselves a component of GDP, and thus evidence of a correlation is insufficient to prove consistently any actual causal relationship that might in fact exist. Second, other relevant macroeconomic variables, and especially other components of aggregate demand, are also correlated with GDP growth and thus a missing variables problem of model mis-specification inevitably arises (Sheehey 1990)⁶.

The prevalent conclusion of the numerous studies on developing countries⁷ (see, for instance, Balassa, 1978; Jung and Marshall, 1985; Ram, 1985; Chow, 1987; Jin, 1995; Levin and Raut, 1997; , Bahmani-Oskoe et al.,1991; Sharma and Dhakal, 1994; Khalifa Al-Youssif, 1997; Shan and Sun, 1988; Biswal and Dawan,1988; Islam,1998; Glasure and Lee, 1999; Ekanayake, 1999; and the surveys by Edwards,1993, and Giles and Williams, 2000, which employed various different methodologies, tend to support Helpman and Krugman's view. In one of the most recent empirical studies, Jin, 2002, examines the export-led growth hypothesis at the provincial level in the framework of a two-and four-variable autoregressive model, using data on the four largest Korean provinces. Both bivariate and multivariate models are generally supportive of the existence of a Granger causal ordering from exports to growth, although a feedback effect in the opposite (from growth to exports) direction is also apparent.

This body of research, most of which focused on fast-growing Asian developing countries, shows that exports can indeed be shown to act as an engine of growth in many cases, but a feedback relationship between growth and exports also tends to hold. However, in other cases, the pattern of causality, or even the existence of a robust link between exports and growth, could not be demonstrated. The relationship between exports and growth appears to be particularly weak in studies

focusing on countries which, as opposed to the extensively-researched Asian NICS, did not manage to overcome the intersectoral dis-articulation and the structural lack of economic homogeneity, which are typical marks of underdevelopment. This the case, for instance, of Richards, 2001. The author tested the ELG hypothesis for the case of Paraguay over the 1966-1996 period, using several time series methods, such as the Granger causality test, error correction modelling, and vector autoregression. His conclusion does not support the ELG hypothesis: "...there does not appear to be econometric evidence that Paraguayan export activity is characterized by a dynamic that is transferred to other sectors of the economy in the manner often ascribed to export production for other less developed countries, such as the Asian NICs. This finding has important implications for the study of the linkage between exports and economic growth generally speaking..."(p.143). Also Catao, 1998, failed to confirm the validity of the ELG hypothesis, for the case of Mexico under the Porfirio Diaz regime (1877-1911).

3. Methodological issues

The brief review in the preceding sub-section confirms that the reciprocal interrelations between exports and GDP growth, and also the relative weight to be accorded to either one of the two main causal linkages (from exports to GDP, or the opposite way round) are a matter of considerable dispute in theory, and can only be exhaustively explored empirically in the framework of a comprehensive analysis of each specific national economy, with the help of a properly constructed econometric model.

In this paper, no such model-based analysis is attempted. My approach is consistent with "the researcher's view" suggested by Mela and Kopalle, 2002, as opposed to the "alternative view" which assumes the "existence of a known linear additive relationship that is indeed the true underlying process that generates the y"(p.670). According to Mela and Kopalle, : "While the researcher may or may not control the X (observations of independent variables), the true process by which the corresponding observations of the dependent variable, y, are generated is unknown to the researcher. Thus, the researcher hypothesizes a linear additive model as a paramorphic representation of the process that generates the y...In this view, the

parameters including σ^2 are determined by the data" (p.670). Consistently with these caveats, the results the following econometric exercise are to be seen in the framework of a correlation analysis, rather than as the testing of a regression model proper. Therefore, taking into account that in real-world economies the linkages between exports and growth nexus are complex, and include among other things feedback effects, my goal is not to prove the existence of a causal relationship between services exports and GDP growth (in fact, there are no a priori theoretical reasons to deny it). Rather, comparing in a relative fashion the estimates of their reciprocal correlation parameters, I try to shed some light on the magnitude and relevance of the services exports/GDP growth "nexus" in different groups of countries and different time periods.

In other words, exports, and services exports in particular, are seen as an "engine for growth" only in a very broad and far from exhaustive sense. The existence of a causal linkage from growth of services exports (as a component of total exports) to GDP growth is assumed ex ante and, in fact, is not falsified ex post by the results. However, the latter only synthesize statistically the product of a myriad of complex macroeconomic interactions, some of which are likely to be causal linkages running in the opposite direction, from GDP growth to export expansion. This exercise, therefore, can only contribute to estimate empirically the magnitude of the above-mentioned statistical relationship between growth of services exports and GDP respectively, and to explore its variations, if any, across the various groups of countries analyzed over different periods.⁸

Finally, I mention the issue of collinearity. The consequences of collinearity depend essentially on two factors: (1) whether or not the "true" model is known, and the correspondent variables are available; (2) whether the regression analysis is predicated upon a sample or upon the entire population (Mela and Kopalle, 2002). With respect to the first factor, in the present analysis the imperfect specification of the underlying model⁹ is taken for granted. Thus, collinearity is bound to generate a variable omission bias and (possibly) an inclusion of irrelevant variable bias.¹⁰ However, the weight of the variable omission bias is minimized by the fact that, in our analysis, all correlation coefficients are positive¹¹. With respect to the second factor affecting the potential bias implied by collinearity, it should not apply to the present analysis, as the latter is predicated virtually upon the entire population (all countries

in the world for which data are available). Therefore, the estimates of the parameter variance are expected to be fundamentally correct.

4. Data and variables

Taking into account the significant limitations still affecting both the availability and the reliability of data on services exports (see Section 1), a group of 114 countries (all those for which WTO data on services exports were available for the year 2000) was selected to constitute the basic sample group. The basic sample group was further divided into six sub-groups: Developed countries (DVD, countries 1-24); Latin America (LA, countries 25-45); Africa (AFRICA, countries 46-66); Near East and Mediterranean (NEMED, countries 67-76); East Asia and Pacific (ASIA, countries 77-95); Transition countries (TRANS, countries 96-114)¹².

The analysis covers the 1980s and the 1990s, focusing first on the whole 1980-2000 period and then on each of the two decade-long periods 1980-1990 and 1990-2000. Coefficient estimates are expected to be less than fully precise, as they are influenced, among other things, by the scale effect caused by outliers¹³.

For each period (sub-period) the growth rate of GDP (GRGDP) was taken as the dependent variable. On the right end side, the growth rate of services exports (GREXPSERV) and the growth rate of merchandise exports GREXPGOODS were taken as the core explanatory variables. As the core explanatory variables are expressed in growth rate terms, the coefficients of GREXPSERV and GREXPGOODS can be broadly interpreted as proxies for the elasticity of GDP with respect to the exports of services and goods.

In order to control for the robustness of the results, the impact on growth of two other sets of variables, along with the two core ones, was also investigated¹⁴. The first set was constituted by standard economic, social, and demographic variables which are believed in theory to be likely to have an impact on GDP growth. In the framework of the present statistical approach, only two of these variables turned out to be significant¹⁵: the investment ratio, proxied by the average gross fixed capital formation ratio over each period (GFKF), and the initial per capita GDP in log form.¹⁶ The second set of variables was formed by the six regional dummies (DVD; LA;

AFRICA; NEMED; ASIA; TRANS) and by the dummy DNC for all developing countries (countries 25-95)¹⁷.

5. Results

The first series of regressions was run on all sample countries, over the whole 1980-2000 period. Its main goal was to verify the existence of a broad statistical relationship between the growth rates of services exports and GDP, and to explore how it was influenced by the inclusion of other explanatory variables, such as the growth rates of merchandise exports and other control variables.

The first regression was a trial one, with the rate of growth of GDP (GDP8000) as the dependent variable, and the rate of growth of services exports as the only explanatory variable (Table 1, model 1)¹⁸. The regression is significant, but the R2 is low (0.21), and the coefficient of EXPSERV8000 (0.2) is likely to be spuriously high as it captures to large extent the impact of the missing variable "rate of growth of merchandise exports". In fact, when the latter (EXPGOODS8000)¹⁹ was added to the right end side, both variables turned out to be significant, and R2 rose to 0.5. Moreover, the coefficient of EXPSERV8000 fell to 0.12, about half the coefficient for the rate of growth of merchandise exports (EXPGOODS8000) (Table 1, model 2). This result shows that, besides the already-mentioned issue of collinearity, the new variable is "dominant" with respect to the first one. This indicates that, in spite of the rise of services, the impact on GDP of merchandise exports still tends to be more relevant.²⁰

Adding the investment ratio GFKF8000 and the log of the initial per capita income LOGGDPPC80, the coefficients of both EXPSERV8000 and EXPGOODS8000 changed little, showing them to be robust with respect to the introduction of the new variables. R2 increased moderately (Table 1, model 3)²¹.

The next step was the introduction on the right hand side of five of the 6 regional dummies²²(Table 1, model 4). As expected, the impact of the regional variables was strong, showing that region-specific factors tended to make growth quite high in Asia and lower in the developed countries and in Latin America, with Africa and the Near East and Mediterranean countries in an intermediate position. It

also had the effect of rendering LOGGDPPC80 insignificant (as was to be expected), as well as of lowering the coefficient of EXPGOODS8000, and of changing the sign of the intercept. The coefficient of EXPSERV8000 was virtually unchanged with respect to the previous model. R^2 rose up to 0.77. These results can be interpreted as follows. Region-specific factors (stemming particularly from Asia) were largely responsible for the income convergence effect evidenced by model 3, and also contributed to render the elasticity of GDP growth with respect to the growth of merchandise exports uneven across the various world regions. The elasticity of GDP growth with respect to the growth of services exports, on the contrary, appears to have been similar in all the regions.

Other regressions were run to investigate the differences in the aforementioned structural relations between developed countries and the whole group of developing countries taken as a whole. When added to the base model, the intercept dummy variable DNC turned out being significant, with a coefficient close to unity, confirming the accepted wisdom according to which in the long run developing countries tend to grow on average faster than developed countries. The growth rates of both exports components and the investment ratio, however, proved robust, and did not lose their significance (Table 1, model 5).

In the following exercise, four slope dummy variables were constructed, multiplying each of the explanatory variables by the intercept dummy DNC, and added to the base model. In the new 8-variables control regression, Wald tests carried out on the sum of the original and the slope dummy variables' coefficients showed that those constructed from the first three explanatory variables were significant²³. On the contrary, only EXPGOODS8000 maintained a high level of significance among the original explanatory variables. Among the slope dummies, the coefficient of $DNC * GFKF8000$ was positive and significant at the 10% level, that of $DNC * GOODS8000$ was negative but not significant, and those of $DNC * EXPSERV8000$ and $DNC * LOGGDPC80$ were positive and not significant (Table 1, model 6). These findings suggest that the linkage between services exports and growth and (more clearly) the role of accumulation in the growth process were stronger for developing than for developed countries.

The results of the "very long term" 1980-2000" models suggest that the relation between GDP growth, on one hand, and the growth of merchandise and services exports, on the other hand, is significant and robust, and that the export

elasticity of GDP is much higher in the case of goods than in that of services. The investment rate and the initial per capita income are also significant in explaining growth performances. The application of dummy variables techniques, along with the weight of region-specific factors, shows that the structural linkages between growth and the explanatory variables were different, to some extent, in developed and developing countries respectively.

Another set of regressions was run over the two shorter 1980-1990 and 1990-2000 periods, in order to explore the changes – if any – in the GDP/exports nexus from one decade to the other²⁴. For the 1980s, the first to be tested was the base set of explanatory variables used in model 3: the growth rates of services and merchandise exports, the average investment ratio, and the log of the initial of per capita GDP level. The results were similar to those relative to the longer 1980-2000 period, but showed higher values for F, R², and the coefficients of GFKF and LOGGDPPC, and slightly lower values for those of EXPSERV and EXPGOODS (Table 2, model 7). Adding the regional dummies to the right hand side (Table 2, model 8), the log of the initial of per capita GDP level lost its significance, and the coefficient of EXPGOODS decreased (as they did in model 4). Regional dummies' coefficients, however, were not significant. The slope dummy model and the Wald tests showed that all the four explanatory variables were significant in the case of developing countries, but only EXPGOODS was significant²⁵ in the case of developed countries. They also showed that the elasticity of GDP growth with respect to EXPSERV, EXPGOODS, GFKF and LOGGDPPC was higher in developing than in developed countries, although not significantly so (Table 2, model 9). These results were controlled running two separate regressions run on the group of 24 developed countries, on one hand, and on that of 71 developing countries, on the other hand. The first regression failed to produce any significant result, while the second one showed that all the four explanatory variables were quite significant for the developing countries' group²⁶ (Table 2, models 10,11).

These findings show that, during the 1980s, only for developing countries the theory-consistent structural linkages between exports, accumulation, and initial per capita income did hold in a strong and robust fashion. GDP growth in developed countries, on the contrary, was not structurally related to these factors in a statistically significant way. They also imply that the growth-enhancing role of capital

accumulation and the magnitude of the catching-up process on the part of poorer countries as a whole were more relevant in that decade than (on average) during the longer 1980-2000 period.

Turning to the 1990-2000 period, only the growth rate of merchandise exports and the initial per capita income maintained its significance in the base model, with a coefficients lower than in the previous decade. The growth rate of services exports and the investment rate turned out being not significant (Table 3, model 12). The fit and the explanatory power of the regression, as shown by the values of the F-statistic and of the R², were also lower than in the previous models. These differences were due in part to the fact that - thanks to the availability of data – statistical information on a higher number of transition countries was included in the 1990-2000 sample: a control regression run for the 95 non-transition countries also produced low F and R² values and a not significant GFKF coefficients, but the growth rate of services exports turned out being significant at the 10% level (Table 3, model 13).

Adding the regional dummies, all explanatory variables lost significance. The TRANS variable, as expected, was negative, while all other dummies were positive. Three of them (LA, ASIA, and NEMED) were also significant at the 5% level, showing that in the 1990s region-specific factors had a higher impact on growth than before (table3, model 14). The results of the slope dummies model were at variance with those of the corresponding model relative to the previous decade. The Wald tests showed that no one of the explanatory variables' coefficients was significant in the case of developing countries. Conversely, the coefficients of EXPSERV, EXPGOODS, and GFKF were significant in the case of developed countries. The latter, oddly, had the wrong sign. The GDP growth elasticity, with respect to both services and merchandise exports, was lower in developing than in developed countries, while the elasticity with respect to the investment ratio was higher. For EXPGOODS and GFKF, moreover, the differences in coefficients between developed and developing countries were large, to the point of being statistically significant at the 5% level. As in the case of the 1980-1990 models, these findings were controlled running separate regressions on the two groups of developed and developing countries respectively. The coefficients for EXPSERV and EXPGOODS were high and significant in the developed countries regression, low and not significant in the developing countries regression (Table 3, models 16,17).

6. Main findings

The results of the 1990-2000 models can be summarized as follows. In the 1990s, services exports became a very significant factor²⁷ in the growth performances of the developed countries²⁸. Conversely, in developing countries, the relationship between both services and merchandise exports, on one hand, and growth, on the other hand, lost statistical significance. Contrary to the 1980-1990 period, the GDP elasticity with respect to the growth of both export components was higher in developed than in of developing countries. These trends were particularly dramatic for the merchandise component of exports, but affected services exports as well. In sum, the exports/GDP nexus became stronger in the developed countries, but weaker in the developing countries²⁹.

These findings indicate that, for developed countries, only during the last decade the growth of services exports - spurred, in particular, by the fast development of information-technology intensive services - began showing a strong and increasing impact on overall GDP growth. This is consistent with the ever more crucial role played by the services sectors in the developed economies, as well as with services' growing articulation and reciprocal inter-relation with the other productive sectors, as well as with services' increasingly traded nature. The picture is quite different in the case of developing countries. The role of services exports as a GDP growth engine was recognizable in the developing world already in the 1980s - albeit less clearly than that of merchandise exports - but in the following decade it appeared to vanish. Moreover, in the developing countries, the overall trade/growth nexus, which had been quite strong in the 1980s, was severely weakened over the 1990s. This breach was largely due to the disruptions caused by the international financial crisis of the late 1990s, which were particularly concentrated on a small cluster of very dynamic developing economies.

Therefore, contrary to the case of developed countries, the dynamics of services exports contributed relatively less to overall economic growth in the developing regions in the globalizing and liberalizing 1990s than during the previous decade. Such a diverging evolution of the services exports/GDP nexus between developed and developing countries is likely to be attributable mainly to structural

factors. Broadly speaking, developed and developing countries do not export the same kinds of services. Developed countries have been experiencing a boom in advanced, technology- and skill-intensive services sectors, which are still non-existent or embryonic in most developing countries (with some important exceptions, i.e. India. See Arora, 1999; ILO, 2001; Teltscher 2002). Conversely, services exports in developing countries tend to stem mainly from the least advanced and less dynamic services sub-sectors. These sub-sectors are also characterized by a high level of external dependence (in terms of ownership, management, technology, finance, and trade³⁰) and, in a parallel fashion, by the relative underdevelopment of their forward and backward linkages with the rest of the domestic economy.

The weight of these structural weaknesses of the services sector in developing countries, moreover, is likely to have been magnified by the tendency towards *laissez faire* and trade and financial liberalization that prevailed in both the domestic and the international policy environments during most of the decade of the 1990s. Responding to the intellectual stimuli stemming from the Washington consensus, and to the more concrete pressure stemming from Washington-based international financial institutions, governments in many developing countries scrambled to spur exports growth, often sacrificing other legitimate policy goals. As Easterly, 2001, has shown, the trade ratio (a basic openness indicator) in most developing countries increased substantially up to 1997³¹, although it subsequently dropped under the impact of the East Asian crisis. With the benefit from insight, it is arguable that the priority accorded to export expansion went often beyond what would have been advisable, as the pay-off in terms of GDP growth was in fact disappointing³².

7. Conclusions

During the last two decades of the XX century, the share of the developing countries in total world services exports increased progressively, reaching almost 1/4 of the world total. However, developing countries' exports of services experienced a slow-down in the 1990s, and so did their ability to import services, with serious consequences on their overall economic performances.

The analysis presented in this paper confirmed that, in the long run, services exports do have a positive impact on GDP growth, both in developed and in developing countries. Yet, in the latter, the services exports/GDP growth nexus was severely weakened in the 1990s (to the point of becoming statistically not significant), while it grew quite strong in developed countries. Moreover, in the developing countries, the growth-enhancing impact of exports as a whole appears to have declined in the 1990s, although this decline appears to be due more to the merchandise component of exports rather than to the services component. A tentative explanation for these results is as follows. Export-oriented services activities in developing countries tend to be concentrated on the less advanced services sectors and poorly integrated with the rest of the domestic economy, and are often under the control of foreign economic agents. The modalities and sequencing of trade and financial liberalization policies in many developing countries were sub-optimally designed and implemented, due both to domestic and external factors and constraints, among them the fact that the reforms were often carried out under conditions of duress and financial starvation. Domestic resources were diverted toward exports as if they constituted a goal per se, rather than in the framework of a comprehensive long-term growth-maximizing strategy. As a result, the opening-up reform process in many previously inward-oriented developing countries has been facing diminishing returns.

REFERENCES

- Arora A., Arunachalam V.S., 1999, The Indian Software Services industry, Carnegie Mellon University Heinz School Working Paper 1999-19, Pittsburg, PA, December.
- Bahmani-Oskoei, M., Mohtadi, H., and Ghiath S. (1991), Exports, Growth and Causality in LDCs: a re-examination, Journal of Development Economics, 36(2): 405-415.
- Balassa B., 1978, Exports and Economic Growth: Further Evidence, Journal of Development Economics, 5(2): 181-189.
- Barro R.J., 1997, Determinants of Economic Growth, A Cross-Country Empirical Study, The MIT Press, Cambridge, Mass., London, England
- Beckerman W., 1965, Demand, exports and growth. In W. Beckerman and Associates (Eds), The Britain Economy in 1975, The National Institute of Economics and Social Research, Series 23, Cambridge University Press, Cambridge UK: 44-72.
- Biswal B. and Dawan U., 1998, Export-led growth hypothesis: cointegration and causality analysis for Taiwan, Applied Economic Letters, 5(11): 699-701.
- Catao L., 1998, Mexico and export-led growth: the Porfirian period revisited, Cambridge Journal of Economics, XXII(1): 59-78.
- Chow P.C.Y., 1987, Causality between export growth and industrial development: empirical evidence from the NICs, Journal of Development Economics, 26: 55-63.
- Easterly W., 2001, The Lost Decades: developing Countries' Stagnation in Spite of Policy Reform 1980-1998, World Bank, Washington D.C., (mimeo).
- Edwards S. (1993), Openness, Trade Liberalization, and Growth in Developing Countries, Journal of Economic Literature, 31: 1358-1393.
- Ekanayake E.M., 1999, Exports and economic growth in Asian developing countries: cointegration and error-correction models, Journal of Economic Development, 24(2): 43-56.
- Feder G., 1992, On exports and economic growth, Journal of Development Economics, 12(1): 59-73.
- Giles, J.A. and Williams C.L., 2000, Export-led growth: a survey of the empirical literature and some non-causality results, Part 1, Journal of International Trade and Economic Development, 9: 261-337.

Glasure Y.U. and Lee A.R., 1999, The export-led growth hypothesis: the role of the exchange rate, money and government expenditure for Korea, Atlantic Economic Journal, 27(34).

Haberlar G., 1959, International trade and economic development, National Bank of Egypt Fiftieth Anniversary Commemoration Lectures, Cairo.

Helpman E. and Krugman P., 1985, Market Structure and Foreign Trade, MIT Press, Cambridge.

ILO (International Labour Organization), 2001, Life at Work in the Information Economy. World Employment Report 2001, Geneva.

Islam M.N., 1998, Export expansion and economic growth: testing for cointegration and causality, Applied Economics, 30: 415-425.

Jin J.C., 1995, Export-led growth and the four little dragons, Journal of International trade and Economic Development, 4: 203-215.

Jin J.C., 2002, Exports and growth: is the export-led growth hypothesis valid for provincial economies?, Applied Economics, 34(1): 63-76.

Johnston J. 1984, Econometric Methods, 3rd edn., Macmillan publishing Company, New York.

Jung W.S. and Marshall P.J., 1985, Exports, growth and causality in developing countries, Journal of Development Economics, No.18: 1-12.

Khalifa Al-Youssif Y., 1997, Exports and growth: some empirical evidence from the Arab Gulf States, Applied Economics, 29(6): 693-7.

Langhammer R.J., 2002, Developing Countries as Exporters of Services: What Trade Statistics Suggest, Journal of Economic Integration, 17(2): 297-310.

Levin A. and Raut L.K., 1997, Complementarities between exports and human capital in economic growth: evidence from the semi-industrialized countries, Economic Development and Cultural Change, 46: 155-174.

Mela C.F. and Kopalle P.K., 2002, The impact of collinearity on regression analysis: the asymmetric effects of negative and positive correlations, Applied Economics, vol. 34, No.6, April, pp.667-677.

OECD 2000, Information Technology Outlook: ICTs, E-commerce and the Information Economy, OECD, Paris.

Ram R., 1985, Exports and economic growth: some additional evidence, Economic Development and Cultural Change, 33: 415-25.

Richards D.G., 2001, Exports as a determinant of long-run growth in Paraguay, 1966-1996, Journal of Development Studies, 38(1): 128-146.

Rodriguez F. and Rodrik D., 1999, Trade policy and economic growth: a skeptic's guide to the cross-national evidence, NBER Working Paper 7081, National Bureau of Economic Research, Cambridge MA.

Sharma S. and Dhakal D., 1994, Causal analysis between exports and economic growth in developing countries, Applied Economics, 26(12): 1145-1157.

Shan J. and Sun F., 1998, On the export-led growth hypothesis for the Little Dragons: an empirical investigation, Atlantic Economic Journal, 26(4).

Sheehy E., 1990, Exports and growth: a flawed framework, The Journal of Development Studies, 27(8): 111-116.

Teltscher S., 2002, Export Competitiveness and E-Services, UNCTAD, Geneva (mimeo).

Vernon R., (1966), International investment and international trade in the product cycle, Quarterly Journal of Economics, No.80: 290-307.

WTO (1997), A review of statistics on trade flows in services - Note by the Secretariat, (S/C/W/27), Geneva.

WTO (2000), A review of statistics on trade flows in services - Note by the Secretariat – Addendum, (S/C/W/27/Add.1), Geneva.

Appendix

Definition of explanatory variables*

1. 1980-2000 Period

EXPSEV8000	Growth rate of services exports, 1980-2000
EXPGOODS8000	Growth rate of merchandise exports, 1980-2000
GFK8000	Growth rate of gross fixed capital formation, 1980-2000
LOGGDPPC80	Log of per capita GDP, 1980

2. 1980-1990 Period

EXPSEV8090	Growth rate of services exports, 1980-1990
EXPGOODS8090	Growth rate of merchandise exports, 1980-1990
GFK8090	Growth rate of gross fixed capital formation, 1980-1990

3. 1990-2000 Period

EXPSEV9000	Growth rate of services exports, 1990-2000
EXPGOODS9000	Growth rate of merchandise exports, 1990-2000
GFK9000	Growth rate of gross fixed capital formation, 1990-2000
LOGGDPPC90	Log of per capita GDP, 1990

4. Regional dummy variables

DVD	Developed countries
LA	Latin American countries
AFRICA	African countries
NEMED	Near East and Mediterranean countries
ASIA	East Asian and Pacific countries
TRANS	Transition countries

* In each group of models, run for three different periods (1980-2000, 1980-1990, 1990-2000) the dependent variable is the growth rate of GDP (GRGDP) in the corresponding period.

Notes

¹ More statistical evidence on trade in services in developing countries and the role of main services exporters among developing and transition countries will be presented in a twin study which the author is about to finalize.

² This paper differs from WTO 2000 in three fundamental aspects: its perspective is a long term one (from 1980 to 2000); it focuses mainly on developing and transition countries; and it analyzes specifically the linkage between exports of services and economic growth.

³ The GNS classification is largely based on the UN-CPC classification, but deviates from the latter in telecommunication, financial, and transport services.

⁴ It is more difficult than in the case of merchandise trade to determine to what extent an increase in trade for a particular services sector is due, respectively, to: changing in relative prices; diverging variations in the exchange rate and in inflation among trading partners; improvements in product quality; changes infra-sectoral product composition; "true" quantitative increases in trade volumes (WTO 2000, p.17).

⁵ Most BOP statistics on trade in services were reported according to the concepts and the classification system of the 4th edition (1977) of the IMF Balance of Payments Manual (BPM-4). A transition is now occurring to the conceptual framework and the criteria of the 5th edition of the manual (BPM-5). With respect to BPM-4, BPM-5 is more disaggregated and relatively less discordant with respect to GNS.

⁶ The story of the ELG hypothesis bears some resemblance to that of the "openness" story. In the latter case, attempts to "demonstrate" econometrically in a simplified fashion that one single factor, the "openness" of trade policies, could explain most of the variability in GDP growth performance among developing countries, have been shown to fail to pass a rigorous econometric scrutiny (Rodriguez and Rodrik 1999). Similar difficulties are the symptom of a deeper epistemological fallacy, common to all analytical approaches which aim to explain complex and diverse social and economic phenomena by means of a standardized and reductionist formal model.

⁷ Many of these studies did not deal satisfactorily with the two crucial methodological problems raised by Sheehey (Richards 2001).

⁸ This approach is different, for instance, from that of Feder (1983). Feder started his analysis with a neoclassical model based on a standard production function where growth in two factors, capital and labor, explains (or "accounts for") growth in GDP. Then, he added a parameter representing the differential productivity of factors in the export sector, showing that it was significant and positive. He interpreted his results as indicative that allocating more productive factors to the export sector was beneficial for GDP growth, due to the impact of positive externalities associated with exports. Conversely, my methodology does not assume a priori the existence of a neoclassical production function, and does not try to demonstrate the existence of a differential growth-enhancing potential of the export sector vis a vis the rest of the economy. It focuses essentially on the GDP/exports nexus and its variations across different groups of countries, and its changes over time. The introduction of additional explanatory variables in some models mainly serves the purpose of checking heuristically their impact on the GDP/exports nexus, rather than attempting to "account" exhaustively for all sources of GDP growth either.

⁹ Consistently with the "researcher's view" mentioned above, in fact, the regressions are not based on a "model" in the proper sense of the word, but only in the sense of a simplified statistical specification of the linear exports/GDP linkage.

¹⁰ "Following Johnston (1984), p.260), it is noted that the effect of omitting j relevant variables ...biases the parameter estimates for the remaining $P-j$ variables (Mela and Kopalle 2002, pp.699-670).

¹¹ Mela and Kopalle (2002) show that, in regressions where all correlation coefficients between the dependent and the independent variables are positive, "negative correlations among the independent variables have a much greater impact on variable omission bias than equivalent positive correlations" (p.675). In the present exercise, collinearity between the growth rates of services exports and those of merchandise exports turned out being always positive (see below, note 19). Therefore, the bias in the estimated parameters and the deterioration in the overall fit of the regressions which might be assumed to have been caused by the variable omission problem is relatively less important than it would be otherwise.

¹² As consistent data for the TRANS sub-group are only available for a few countries and not for all years, these 18 countries were in fact excluded from all but three of the models.

¹³ Distortions are stronger for countries which experience disturbances, turmoil and less stability, and therefore they are likely to affect more severely parameter estimates for developing rather than for developed countries. Most outliers, in fact, are small developing countries exhibiting exceptionally high or low growth rates of either exports or (less frequently) GDP, due to country- and period-specific causes different from the underlying structural export/growth nexus.

¹⁴ Consistently with the caveats exposed in sub-section 3.3., the inclusion of these control variables is not to be seen as an attempt to build a comprehensive model capable to explain fully the diverse countries' growth performances.

¹⁵ Besides GFKF and LOGGDPPC, the following explanatory variables were tried (either in levels or in log form), but turned out being either not available for a sufficient number of countries or not significant: primary, secondary and tertiary school enrolment rate (total and female, gross and net); illiteracy rate (total and female); population density (initial, 1980); population total (initial, 1980); population growth (average, 1980-2000); debt service ratio (debt service as a percentage of exports, average 1980-2000); share of services in GDP (initial, 1980). Many of these variables have been utilized in other studies in the framework of previous empirical exercises (see, for instance, Barro 1997), producing varying results according to the specific analytical framework in which they were carried out.

¹⁶ GDPPC80, in particular, exhibits a strong negative (and thus theory-consistent) coefficient. The magnitude of the convergence effect (ie, the often-assumed tendency for growth to be faster in poorer countries), however, should not be over-emphasized, due mainly to two reasons. First, owing to high population growth in most developing countries, a faster growth of total GDP in poorer than in richer countries does not necessarily translate into a closing up of the GDP per capita gap (not measured in the present model). Second, as mentioned below in the main text, once regional dummies are added to the regression the convergence effect loses significance, suggesting it was essentially confined to the strong performance of only one developing region, Asia.

¹⁷ Dummy variables' values are 1 for the countries belonging to each group and 0 for all the other countries.

¹⁸ As all the models have a cross-country structure, this regression, like all the others, was run using the White heteroskedasticity-consistent correction technique.

¹⁹ The correlation coefficients between the GREXSERV and GREXGOODS are high: 0.47 for 1980-2000, 0.49 for 1980-1990, and 0.41 for 1990-2000. This finding confirms the existence of positive collinearity between the growth rates of services and merchandise exports. Yet, the results of this exercise, with all the caveats referred to above, can be interpreted as basically correct according to the Mela and Kopalle (2002) argument briefly exposed in note 11.

²⁰ In order to check this proposition, control regressions were run substituting GRGOODS to GRSERV as the only explanatory variable. For all sub-periods and groups of countries, coefficients and T statistics were much higher than in the regressions where GREXSERV was the only explanatory variable.

²¹ See above, note 8.

²² The dummy variable TRANS was excluded because 1980-2000 data on most transition countries were not available. Consistently, c was kept in the model.

²³ At the 5% confidence level.

²⁴ Initially, trial regressions were also run for the short 5-year sub-periods 1990-1995 and 1995-2000. However, they did not produce significant and consistent results, due most likely to the very shortness of the sub-periods analyzed. Therefore, their findings are not presented in the main text of the paper.

²⁵ At the 10% level.

²⁶ As opposed to model 7, the latter two models explore the variables' variations from the mean separately among each of the two sub-samples of countries respectively. Therefore, the results of the two approaches, while pointing towards the same direction, are not statistically equivalent.

²⁷ See, in particular, the high value of R² in model 16.

²⁸ On the contrary, fixed capital accumulation appears to have played a marginal, if not perverse role in the growth process of developed countries during the 1990s. This apparent statistical curiosis is due largely to the Japanese stagnation, but it might as well reflect to some extent the increased weight of technological and financial factors.

²⁹ Indicative results from trial regressions run over the 1990-1995 and 1995-2000 sub-periods (see note 35), along with the statistical evidence presented in Section 2, suggest that the changes took place mainly in the second part of the 1990s.

³⁰ Ceteris paribus, the least each dollar worth of services (or merchandise) exports contributes to relieve the external constraint (i.e., the lower its positive contribution to the current account balance, net of the imports needed to generate it in the first place), the lower is likely to be its positive impact on the growth of the economy as a whole.

³¹ Easterly shows that the median Export/GDP ratio in developing countries increased strongly since the late 1980s up to 1997, and fell afterwards (Fig. 6c, p.35).

³² Median per capita growth in developing countries during the 1980-1998 period, was 0.0 percent (Easterly 2001, p.3).

TABLE 1 Period:1980-2000

TABLE 2 Period:1980-1990

TABLE 3 Period:1990-2000

Explanatory variables	Coefficient	t-Statistic	R-squared	F statistic	Explanatory variables	Coefficient	t-Statistic	R-squared	F statistic	Explanatory variables	Coefficient	t-Statistic	R-squared	F statistic
1 114 countries EXP/SERV/8000 c	0.2 4.09** 1.76 5.68**		0.21	25.5	7 114 countries EXP/SERV/8090 EXP/GOODS/8090 GFKF8090 LOGGDP/PC80 c	0.08 2.12** 0.17 4.2** 0.15 5.11** -0.49 -5.35 ss 2.3 2.87**		0.65	33.2	12 114 countries EXP/SERV/9000 EXP/GOODS/9000 GFKF9099 LOGGDP/PC90 c	0.06 1.25 0.15 2.7** 0.06 1.38 -0.22 -2.22 ** 2.61 2.16		0.33	8.9
2 114 countries EXP/SERV/8000 EXP/GOODS/8000 c	0.12 3.1** 0.25 5.96** 1.05 4.16**				8 114 countries EXP/SERV/8090 EXP/GOODS/8090 GFKF8090 LOGGDP/PC80 DWD LA AFRICA ASIA NEMED c	0.08 2.17** 0.13 3.4** 0.09 3.26** -0.02 -0.12 -1.43 -1.2 -1.58 -1.36 0.18 0.17 1.35 1.17 -0.94 -0.8 0.57 0.39				13 DWD,DNC 1 95 EXP/SERV/9000 EXP/GOODS/9000 GFKF9099 LOGGDP/PC90 c	0.09 1.75* 0.11 2.3* 0.05 1.35 -0.25 -2.38 ** 3.07 2.62		0.38	10.5
3 114 countries EXP/SERV/8000 EXP/GOODS/8000 GFKF8000 LOGGDP/PC80 c	0.1 2.3** 0.2 3.35** 0.08 2.29** -0.25 -2.83 ** 1.72 2.18**		0.56	22.7	9 114 countries EXP/SERV/8090 EXP/GOODS/8090 LOGGDP/PC80 DNC*EXP/SERV/8090 DNC*EXP/GOODS/8090 DNC*GFKF8090 DNC*LOGGDP/PC80 DNC c	0.01 0.13 0.13 1.8* 0.06 0.91 -0.19 -0.64 0.08 0.89 0.04 0.48 0.08 1.13 -0.25 -0.72 -0.15 -0.04 2.12 0.67		0.76	23.6	14 114 countries EXP/SERV/9000 EXP/GOODS/9000 GFKF9099 LOGGDP/PC90 DWD LA AFRICA ASIA NEMED TRANS c	0.07 1.26 0.07 1.39 0.05 1.49 -0.16 -0.89 2.44 1.41 2.98 2.14** 2.23 1.65 4.27 2.93** 4.23 2.7** -2.22 -1.55		0.57	9.7
4 114 countries EXP/SERV/8000 EXP/GOODS/8000 GFKF8000 LOGGDP/PC8000 LA AFRICA ASIA NEMED c	0.11 2.86** 0.12 2.02** 0.05 2.09** 0.1 0.76 1.01 1.15 1.39 1.68 2.44 3.13** 3.69 3.77** 2.6 3.16** -1.91 -1.63		0.77	23.6	10 DWD 1 24 EXP/SERV/8090 EXP/GOODS/8090 GFKF8090 LOGGDP/PC80 c	0.01 0.12 0.13 1.68 0.06 0.85 -0.19 -0.59 2.12 0.62		0.66	13.9	15 114 countries EXP/SERV/9000 EXP/GOODS/9000 GFKF9099 LOGGDP/PC90 DNC*EXP/SERV/9000 DNC*EXP/GOODS/9000 DNC*GFKF8099 DNC*LOGGDP/PC90 DNC c	0.13 2.33** 0.3 3.74** -0.08 -1.05 * -0.06 -0.93 -0.04 -0.51 -0.21 -2.22 ** 0.14 2.49** 7.58E-05 0.67 -1.23 -0.85 4.24 1.67		0.44	5.5
5 114 countries EXP/SERV/8000 EXP/GOODS/8000 GFKF8000 LOGGDP/PC8000 DNC c	0.1 2.6** 0.17 3.4** 0.08 3.35** -0.09 -0.3 0.99 2.43** -0.55 -0.46		0.6	19.7	11 DNC 25 95 EXP/SERV/8090 EXP/GOODS/8090 GFKF8090 LOGGDP/PC80 c	0.08 1.99* 0.18 3.55** 0.14 4.22** -0.44 -2.71 ** 1.98 1.8*		0.22 1.06(p<0.4)	25.1	16 DWD 1 24 EXP/SERV/9000 EXP/GOODS/9000 GFKF9099 LOGGDP/PC90 c	0.14 2.6** 0.3 3.67** -0.06 -1.02 * -0.01 -0.043 2.04 0.3		0.8	16.5
6 114 countries EXP/SERV/8000 EXP/GOODS/8000 GFKF8000 LOGGDP/PC8000 DNC*EXP/SERV/8000 DNC*EXP/GOODS/8000 DNC*GFKF8000 DNC c	0.08 1.14 0.22 2.31** -0.02 -0.09 -0.33 -1.12 0.02 0.26 -0.05 -0.43 0.09 1.73* 0.3 0.9 -3.72 -1.33 3.97 1.55		0.6	10.6						17 DNC 25 95 EXP/SERV/9000 EXP/GOODS/9000 GFKF9099 LOGGDP/PC90 c	0.08 1.4 0.09 1.6 0.06 1.54 -0.07 -0.34 1.92 1.19		0.8	16.5
** Significant at the 10% level														
Significant at the 5% level														

* Significant at the 0% level

** Significant at the 5% level