

Leshner, Molly; Miroudot, Sébastien

**Article**

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Aussenwirtschaft

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*Suggested Citation:* Leshner, Molly; Miroudot, Sébastien (2007) : The Economic Impact of Investment Provisions in Regional Trade Agreements, Aussenwirtschaft, ISSN 0004-8216, Universität St.Gallen, Schweizerisches Institut für Aussenwirtschaft und Angewandte Wirtschaftsforschung (SIAW-HSG), St.Gallen, Vol. 62, Iss. 2, pp. 193-232

This Version is available at:

<https://hdl.handle.net/10419/231126>

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## **The Economic Impact of Investment Provisions in Regional Trade Agreements\***

Molly Leshner and Sébastien Miroudot

Trade Policy Analysts at the OECD Trade and Agriculture Directorate

As countries turn more to regionalism as a means of forwarding co-operation on trade rules and other areas of policymaking, governments are increasingly incorporating rules on investment into regional trade agreements (RTAs). The Asia-Pacific region is no exception, with many innovative agreements that include disciplines on investment protection and non-discrimination. We analyse the economic consequences of including investment provisions in trade agreements by creating an index of the extensiveness of investment provisions in RTAs and then using that index in a gravity model framework of trade and investment. The results indicate that investment provisions are positively associated with trade and, to an even greater extent, investment flows. Further, we observe an insignificant effect of bilateral investment treaties on investment flows, suggesting either that substantive investment provisions in RTAs impact trade and FDI flows more profoundly, or that the combination of substantive investment rules and provisions liberalising other parts of the economy jointly impact trade and investment more significantly.

*Keywords:* Investment, regional trade agreement, gravity model, trade policy, foreign direct investment, bilateral investment treaty, ANZSCEP, Asia-Pacific.

*JEL-Codes:* F14, F15, F21.

### **1 Introduction**

Today, almost 40% of all trade can be attributed to international exchanges among members of regional trade agreements (RTAs) (WORLD BANK, 2005). Taking into account the RTAs currently under negotiation or in the process of ratification, analysts expect the number of RTAs in force to grow from 139 in mid-2005 to around 300 in 2008 (CRAWFORD and FIORENTINO, 2005). One distinguishing feature of recent RTAs is their wide-ranging coverage and complexity. Tariff reductions are accompanied by provisions on non-tariff barriers (NTBs), customs procedures, sanitary and phytosanitary measures and intellectual property protection. Most of the new agreements cover trade in services, and a number of regulatory issues that go

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\* This paper is based on LESHER and MIROUDOT (2006), "Analysis of the Economic Impact of Investment Provisions in Regional Trade Agreements", OECD Trade Policy Working Paper No. 36. The findings and conclusions expressed in this article are those of the authors and do not represent those of the OECD or its member countries.

beyond multilaterally agreed disciplines – such as government procurement, competition policy and the environment – are also frequently addressed. The proliferation of RTAs between developing and developed countries and their coverage of new policy areas beyond trade is one characteristic of what some call “new regionalism” (ETHIER 1998, CRAWFORD and FIORENTINO 2005).

Countries are increasingly incorporating investment, which has traditionally been covered via separate bilateral investment treaties (BITs), in many recent RTAs. Thus, it is not surprising that the number of new BITs has been receding since the mid-1990s, while at the same time the number of RTAs with substantive investment provisions has been rising. At the end of 2005, UNCTAD estimates that around 220 RTAs contained investment provisions (UNCTAD 2005). Since WTO Members removed investment from the Doha Round negotiating agenda, it is important for policymakers to understand the consequences of including “new” provisions – such as investment – at the regional level. This paper contributes to the existing literature by exploring the drivers of trade and investment flows under new regionalism as well as the effects of substantive investment provisions on trade and investment flows.

This paper analyses investment provisions in all types of RTAs: RTAs between developed and developing countries<sup>1</sup> (North-South) in addition to RTAs strictly signed among developed countries (North-North) or developing countries (South-South). There are, however, very few North-North trade agreements that include investment provisions<sup>2</sup>. For developed countries, investment provisions are more likely to be found in other international instruments, such as the OECD Code of Liberalisation of Capital Movements or in BITs. And while South-South RTAs increasingly include investment provisions, they are either very recent, currently under negotiation or their investment/services chapters are not yet complete. A scarcity of data also complicates the analysis of South-South investment.

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1 The definition of “developing country” used in this paper is derived from how countries define themselves in the context of the WTO.

2 The Treaty of Rome (founding the European Community), the European Economic Agreement, the European Free Trade Association (EFTA) convention (as updated by the Vaduz Convention in 2001), the Australia-New Zealand Closer Economic Relations agreement (for services only) and the bilateral trade agreement between the United States and Australia (AUSFTA). We have also included the agreements between Bulgaria and the EC, and Romania and the EC in the North-North category as Bulgaria and Romania have joined the European Union.

Only trade agreements with “substantive” investment provisions have been included in the study. While it is difficult to qualitatively judge the degree to which various investment provisions are substantive, there are two cases in which investment provisions were not considered substantive in the context of this study. First, it is common to find a general objective to increase investment in the preamble of many trade agreements. In addition, some RTAs state that they cover investment, but then do not include rules or commitments on investment (for instance, some RTAs state that rules on investment and services will be included at a later stage). These agreements have been excluded from the scope of the study. Alternatively, in the case of an agreement with provisions on investment co-operation and promotion, the inclusion of mechanisms to organise co-operation and promotion meets the “substantive” criteria for including the agreement in the analysis.

## **2 The Drivers of Trade and Investment Under New Regionalism**

Trade and investment represent two sides of market access. Yet, while they share many determining factors – such as macroeconomic conditions, factor endowments and the like – there is a complex relationship between trade and FDI in the context of regional trade agreements (BLOMSTRÖM and KOKKO 1997).

Whether or not trade and investment are substitutes or complements depends on a firm’s market access motive. On one hand, the removal of trade barriers between countries can lower intra-regional FDI when investment is mainly market-seeking or “tariff jumping”. Since RTAs also imply greater regional economic integration, companies with high fixed costs may concentrate their activity in one country and develop trade flows with partner countries rather than open plants in each country. In this sense, one can say that trade substitutes for investment and that the RTA has a redistributive effect on intra-regional investment patterns. On the other hand, efficiency-seeking investment may increase because freer trade of goods and services enables companies with low fixed costs to localise their activity in different countries and then trade intermediate inputs. In this instance, investment complements trade.

The entry into force of a RTA can also affect extra-regional FDI in opposing ways. Higher regional trade barriers may encourage extra-regional market-seeking FDI while discouraging efficiency-seeking FDI. On the other hand, a RTA that does not significantly differentiate between intra- and ex-

tra-regional trade barriers should not affect FDI much. Moreover, these relationships may be influenced by differences in the level of development among countries, loose or strict rules of origin, regulatory issues beyond trade policy and the investment climate in each country.

While studies on regionalism have flourished, few have attempted to assess the economic impact of new provisions found in a wide range of RTAs. This is in part because agreements are not only numerous, but also because they take a very different approach to incorporating “new” non-trade provisions. Moreover, there are few indicators available that distinguish the different types of agreements, a necessary step for quantitative analysis. Thus, much of the previous work on trade and investment in RTAs has focused either on a description of the investment provisions found in trade agreements (UNCTAD 2004, OECD 2006) or on the econometric analysis of determinants of FDI in which RTAs are included as a dummy variable (e.g., WORLD BANK 2005, TE VELDE and BEZEMER 2004).

Only a handful of studies have investigated the impact of RTAs on trade and investment flows, and even fewer have focused on the impact of investment-related provisions in RTAs. A notable exception is JEON and STONE (2000), who study the impact of the Association of Southeast Asian Nations (ASEAN) on trade and investment in the Asia-Pacific economies. They find that intra-bloc trade flows increased as a result of ASEAN, but that ASEAN’s effect on intra-bloc investment was insignificant. In STEIN and DUADE’s important work (2001), they use a gravity model approach to assess how RTAs and various institutional factors affect investment flows. While STEIN and DUADE do indeed find a positive effect, the coefficient was also insignificant.

These studies set the stage for ADAMS et al. (2003), who also employ a version of the gravity model to analyse whether certain RTAs are associated with net investment creation or diversion. They construct an index of liberalisation to measure the breadth and depth of RTAs. Their “Member Liberalisation Index” includes a category for investment rules. Although its weight in the overall index is quite low (0.05), the category indicates whether a RTA includes provisions prohibiting restrictions on investment (1, highest score), national treatment for investment (0.75), initiatives to reduce restrictions and facilitate investment (0.25) or no provisions (0, lowest score). The index is then used in a gravity model to assess the role of some of the new provisions typical of new regionalism – including investment –

in RTAs. Their study shows that non-trade provisions significantly impact investment flows. They also test for creation and diversion effects.

Another study by TE VELDE and BEZEMER (2004) uses a similar index and focuses on investment. Their index takes the following values: 0 with no provisions, 1 with some investment provisions in the region (e.g., the Common Market for Eastern and Southern Africa (COMESA), the Southern African Development Community (SADC)), 2 with advanced investment provisions in the region (e.g., ASEAN), 3 with complete investment provisions in the region (e.g., NAFTA), or -1 with more restrictive provisions (e.g., the Andean Community in the 1970s). The authors find a positive relationship between membership in one of the seven regions covered in their study and extra-regional FDI flows.

### **3 Designing an Index of Investment Provisions in RTAs**

Many studies in the literature have analysed the different formulations of investment provisions in international agreements (OECD 2003, OECD 2006, UNCTAD 2004). The following taxonomy draws upon this work and applies it to investment provisions in RTAs. To begin, we collect all relevant information on substantive investment provisions – for both goods and services – contained in all RTAs in force as of November 2005. Six broad categories of provisions have been identified:

1. Right of establishment and non-discrimination in the pre-establishment phase (national treatment (NT) and most-favoured-nation treatment (MFN));
2. Non-discrimination for post-establishment (NT, MFN);
3. Investment in services (specific provisions on establishment, NT and MFN in services sectors);
4. Investment regulation and protection (provisions on performance requirements, ownership requirements, expropriation, fair and equitable treatment, free transfer of funds and temporary entry and stay for key personnel);
5. Dispute settlement (State-State and State-Investor dispute settlement); and
6. Investment promotion and co-operation (co-operation mechanisms, harmonisation of rules, asymmetries and future liberalisation).

These categories cover all types of investment provisions to ensure that we include the relevant RTAs in the analysis. Moreover, the typology builds upon the binary approach taken in most other studies to create a more detailed matrix of investment provisions. The additional detail allows for a more accurate quantitative assessment of the impact of individual provisions as well as their combined effect on trade and investment flows.

To create the index, we code the information gathered on investment-related provisions in RTAs in the most neutral way possible by normalising the information on a zero-to-one scale, where zero indicates the absence of a given provision and one represents the most FDI-friendly provision in the list of possible options<sup>3</sup>. For example, to assess limitations on establishment, one begins with the universe of possibilities. There are three options: (1) “no” (when no right of establishment is granted), (2) “NT” (when the agreement provides for establishment on a national treatment basis), and (3) “MFN+NT” (when the agreement provides for establishment on a national treatment and most-favoured-nation basis). Using this methodology, the “no” option takes the value of zero (no right of establishment) while the right of establishment on a national treatment and most-favoured-nation basis takes the highest value, which is one. The other option rests at the centre of the zero-to-one interval, and takes a value of 0.50.

After assigning a numerical value to each type of investment provision, it is necessary to weight them to build an aggregate index. After experimenting with several methods of weighting, a simple average proved to be the most neutral and effective in the empirical analysis.<sup>4</sup> The advantage of this methodology is that it represents a simple measure of the extensiveness of investment provisions in the various RTAs. Moreover, we do not impose an *a priori* and subjective view of how various investment provisions should affect trade and investment flows by assigning different weights<sup>5</sup>.

This approach is in line with other composite indexes that include variables in which it is either unclear how to evaluate one of the variable options relative to the others, or if there is no reason to think that equal weights for

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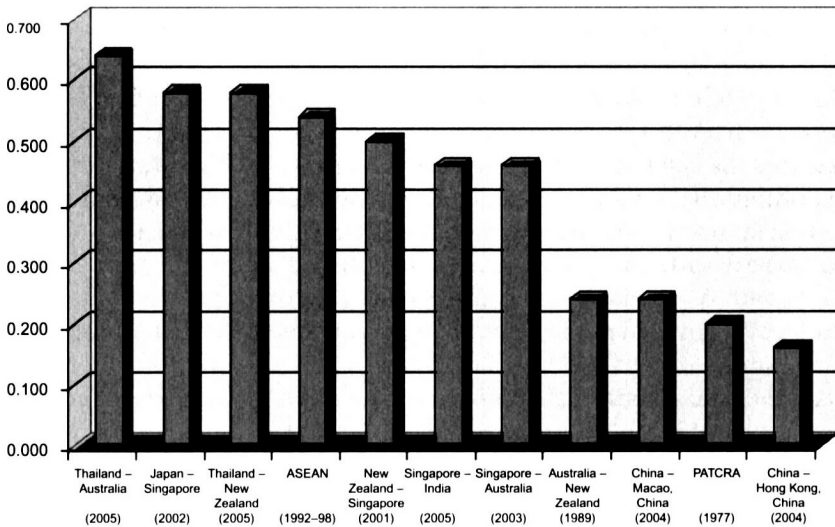
3 More detail on the methodology used to code particular provisions can be found in LESHNER and MIROUDOT (2006).

4 In particular, we also used principal component analysis, a type of factor analysis in which each category is weighted according to its contribution to the overall variance in the data, to create an aggregate index score. However, this method was neither the most robust nor transparent.

5 In light of the importance that some countries place on particular variables, such as national treatment, we also experimented with alternative weighting schemes. One such method involved “overweighting” national treatment relative to most-favoured national treatment. These approaches did not improve the results of the index in the models.

several variable options do not apply. It should also be kept in mind that the exercise is not a qualitative assessment of the value of each provision *per se*, but rather a ranking exercise used to obtain an index clearly separating different types of RTAs with investment provisions. Thus, the index is designed to be used in subsequent quantitative analysis and not to assess the quality of each agreement. The final index is presented in Annex I and visually for agreements involving Asia-Pacific economies in Figure 1 below, providing a representation of the ranking of the RTAs according to the depth and extensiveness of their investment provisions.

**Figure 1:** Index of the extensiveness of investment provisions in Asia-Pacific RTAs



Among North-South agreements, the RTA with the highest score is Mexico-Japan (0.760), followed by Canada-Chile and EC-FYROM (Former Yugoslav Republic of Macedonia) (0.720), while the lowest score went to PATCRA (Papua New Guinea-Australia Trade and Commercial Relations Agreement) (0.200). These results simply mean that the trade agreement between Papua New Guinea and Australia has fewer investment provisions than the other agreements, and that the agreement between Mexico and Japan has more of these provisions than the other agreements. If we compare the results from the analysis of North-North and South-South RTAs, the agreement with the highest score is the European Community (Treaty of Rome) with a score of 0.780. On average, North-North and South-South



RTAs with investment provisions score lower (0.506 and 0.495, respectively) than North-South RTAs (0.516). It is also worth mentioning that when South-South RTAs include an investment chapter, they contain relatively extensive investment provisions, as evidenced by the small difference between the average index scores in North-North and South-South RTAs.

Several interesting patterns emerge from the table in Annex I. For one, all of the agreements signed by the United States are clustered together and score quite high with the exception of US-Jordan, perhaps in part because the United States and Jordan had already concluded negotiations on a bilateral investment treaty prior to the conclusion of the RTA negotiations. In general, NAFTA members have tended to perpetuate the approach to investment set forth in NAFTA, which incorporates substantial provisions on pre- and post-establishment, services and State-Investor dispute settlement.

The EC agreements are also grouped together, apart from the EC agreements with FYROM, Jordan and Chile<sup>6</sup>. The majority of the EC agreements excludes the right of pre- or post-establishment, which is often included in EC country BITs, and focuses significantly on services, using a positive list approach to schedule the liberalisation of services. It also tends to include the same types of provisions, such as rules providing for the free transfer of funds, and to exclude investment-specific rules on dispute settlement (investment is covered in the general section on the settlement of disputes).

Several of the countries that have concluded RTAs with developed countries, such as Singapore and Chile, tend to conclude agreements with fairly extensive investment provisions (*i.e.*, they tend to fall in the top half of the index chart). In addition, it appears that the more RTAs that a country has signed, the higher the score. This could be a function of the fact that once a country has negotiated a RTA with extensive investment provisions and it has implemented the necessary domestic regulations to accommodate that agreement, it is easier to replicate the provisions with other countries.

Further, geography does not appear to determine the extensiveness of investment provisions since, for example, EC-Jordan and EC-Egypt have very different index scores. These patterns tend to suggest that while there is a

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6 These agreements may be unique for various reasons. For instance, FYROM is an EC accession country candidate, and it makes sense that provisions of all types would be deeper as they represent a step toward closer economic relations. In addition, the EC-Jordan agreement was negotiated within the context of Jordan's accession to the WTO, so other considerations may have played a role in determining the overall framework of the agreement. Chile can also be viewed as a special case as it represents the first time that the EC included provisions on pre-establishment in a RTA with a non-EC accession country.

diversity of provisions on investment in RTAs, many countries seem to follow a loose model that evolves over time. Further, it appears that investment provisions in RTAs are a combination of past experience as well as how far “new” countries are willing to go in following the approach favoured by the larger developed partner.

#### **4 A Quantitative Analysis of the Impact of Investment Provisions Contained in RTAs**

The use of the index of investment provisions in empirical work represents an important next step in the analysis of the relationship between RTAs with substantive investment provisions and trade and investment flows. The quantitative analysis in this section uses both a dummy variable that indicates if the country pairs are party to a RTA with substantive investment provisions as well as the index of investment provisions to build upon the existing gravity model literature. The purpose of the quantitative analysis is to assess the relationship between substantive investment provisions and trade and investment flows.

The gravity model has proven a useful tool in evaluating the determinants of bilateral trade flows between countries. The core of the gravity model rests on the assumption that trade flows between two countries are determined by size (economic mass) and trade-related friction (distance). GDP often serves as a proxy for size, and geographical distance and cultural characteristics, such as sharing a common language, often represent friction. Recently, researchers have sought to fine-tune the gravity model by including additional variables to control for other determining factors of trade flows between countries.

The gravity model was first used to study the effects of RTAs on bilateral trade flows in AITKEN’s (1973) seminal study. Since then, most studies have included one or more dummy variables to assess the impact of RTAs on trade flows (see, for example, SOLOAGA and WINTERS 1999). Because trade and investment flows are determined by many of the same factors, scholars have begun to apply the gravity model to investment flows (see ADAMS et. al. 2003, DAUDE et. al. 2003, STONE and JEON 2000). The quantitative analysis in this section relies upon the gravity model to analyse the determinants of bilateral trade and investment flows between countries in the RTA context, but refines the dummy variable methodology used previously in the literature by extending it to particular provisions in the agreement.

The versions of the gravity model used in this paper draw upon both the trade and investment literature, but go a step further in the study of the gravity model in the RTA context. Almost all RTA studies that use the gravity model framework employ a dummy variable to analyse the effects of the RTA on trade and, to a lesser extent, FDI flows. This “black box” method, while useful, is also somewhat imprecise. A key value of this study is the addition of an index of the extensiveness of these investment provisions in RTAs.

#### 4.1 The Base Models

The base trade model tests the effects of joint GDP, distance, joint GDP per capita, exchange rates (both nominal rates and volatility), bilateral tariffs and various geographical and cultural factors – such as whether or not the two countries share a border, a common official language and a colonial past – on bilateral exports<sup>7</sup>. The base investment model uses the same explanatory variables to test their effects on net positive outward FDI flows. According to theory, one expects trade flows – and, in our extension, FDI flows – to be a positive function of joint GDP and cultural factors and a negative function of distance, tariff rates and fluctuations in the exchange rate. The impact of joint GDP per capita is ambiguous (see DE ROSA and GILBERT 2006). Annex III includes a complete description of the variables and the mathematical expressions of each of the models.

All of the gravity models specified in this paper use unbalanced bilateral panel data for the period 1990–2004. In line with current conventions, the data on FDI flows is calculated on a net, rather than a gross, basis. (Data on FDI flows from all of the major international sources – OECD, IMF, UNCTAD and the World Bank – are calculated on a net basis because the data is constructed from balance of payments schedules.) This formulation is somewhat problematic in the gravity model framework because negative net flows are “lost” when transformed into natural logarithms. To help alleviate this data problem, we use a TOBIT regression approach for the FDI models which allows us to account for the censored nature of the data. A TOBIT specification estimates the regression coefficients under the assumption that the dependent variable and the distribution of the residuals are truncated.

7 Joint GDP and joint GDP per capita are used rather than individual GDP because the dataset is based on bilateral pairs. However, some specifications we used allow for the inclusion of the GDP of the reporter and partner countries separately.

The trade models are estimated using ordinary least squares (OLS) regression techniques and robust standard errors that are consistent with heteroskedastic conditions. Further, time and country fixed effects are included in both models to control for omitted variables that vary both across time and country<sup>8</sup>. The dataset includes country pair data for which more than one observation exists.

#### **4.2 Dummy Variables for RTAs with Substantive Investment Provisions and BITs**

The first dummy variable created indicates whether the country pairs in the dataset belong to a RTA with substantive investment provisions. This method represents a departure from the literature in the sense that this model adds the stipulation that the RTA must contain substantive investment provisions (most studies include a dummy variable that indicates whether a RTA exists between the country pairs). All RTAs – both WTO-notified and un-notified between countries at all levels of development – were analysed across the sample. This variable helps determine, at the most general level, the degree to which RTAs that contain investment provisions can explain trade and investment flows. If RTAs that contain investment provisions are positively associated with trade and investment flows, then we can conclude that additional market access and investor protection are likely related to higher levels of trade and investment. In addition, positive coefficients would indicate that trade complements, more than it substitutes for, investment in the context of RTAs that contain substantive investment provisions.

Moreover, since some country pairs have also entered into a BIT, which may include various post-establishment protection and promotion rules, a dummy variable that indicates if the country pairs are party to a BIT is also included. Further, we test whether the combination of a RTA with investment provisions and a BIT affects FDI flows. This variable takes the value of 1 if the country pair is party to both a RTA with investment provisions as well as a BIT and 0 otherwise. In theory, a BIT should be expected to associate positively with FDI. However, the empirical literature is ambiguous, as both small positive and insignificant effects have been reported (see

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<sup>8</sup> Many scholars suggest that the inclusion of country fixed effects with a time dimension appropriately account for the price resistance terms derived by ANDERSON and van WINCOOP (2004). However, if some of the independent variables also vary by country and by period, the use of time-varying country fixed effects can “overcorrect” for the price resistance terms (see IMF 2004).

UNCTAD 1998, HALLWARD-DRIEMEIER 2003, EGGER and PFAFFERMAYR 2004).

### **4.3 The Index of Investment Provisions**

The index of investment provisions transforms the binary nature of the dummy variable created in the first model by first replacing the 1s of the dummy variable with the aggregate index and then taking the natural log. Because the index measures the relative depth or extensiveness of investment provisions across RTAs, this variable provides more nuanced estimates of the degree to which trade and investment flows can be explained by RTAs that include substantive investment provisions. What matters in the regression is not the actual score of the index, but the relative ranking across agreements. If the index of investment provisions relates positively with trade and investment flows, then we can conclude that additional market access and investor protection are probably related to higher levels of trade and investment. Similarly, a positive coefficient suggests that trade complements investment more than it substitutes for investment in the context of RTAs that contain substantive investment provisions.

### **4.4 Varying the Year of Entry Into Force**

In the different regressions presented, the year of entry into force of the RTA determines the change in the value of the index (from zero to the value found in Annex I). But it is difficult to assess when a RTA with substantive investment provisions begins to impact investment and trade flows. Before the agreement enters into force, the publicity surrounding the negotiations and subsequent signature can influence investment decisions. However, it could also be the case that FDI and trade flows will profoundly change only in the years after the entry into force.

To study whether the year of entry into force is relevant in the analysis, we have run two alternative specifications. The first tests the effect of both the dummy RTA index and the RTA index of investment provisions variables using the signature date of the agreement rather than the date of entry into force. One can argue that investors view the date of signature as a sufficient commitment to policy change and thus begin to trade and invest more than they would have absent a RTA with substantive investment provisions. The second alternative specification tests the impact of the dummy variable

and the RTA index variable without taking into account the year of the agreement. In this scenario, the index takes the value of the RTA during all of the years available, even before the entry into force of the agreement. One can argue that, at least for those countries that are not simply extending provisions that they have already granted to others (*i.e.*, a genuine deepening), the actual commitment to policy change occurs in the years spent negotiating the agreement (that is, in the period prior to entry into force).

#### **4.5 Analysis of the Impact of Different Categories of Investment Provisions**

The index of investment provisions has also been decomposed into three components using the same methodology as the aggregation of the categories (*i.e.*, a simple arithmetic average).

*lninv\_lib* describes the provisions related to investment liberalisation. It includes the right of establishment, pre-establishment limitations, market access in services, the free transfer of funds and the temporary entry and stay of key personnel.

*lninv\_protec* corresponds to the protection of investment. It consists of provisions on post-establishment non-discrimination in goods and services, the prohibition of performance requirements and ownership requirements, provisions on expropriation, fair and equitable treatment and state-investor dispute settlement.

*lninv\_prom* reflects the provisions on investment co-operation and promotion. It includes the last five categories of the index (investment co-operation, co-operation mechanisms, harmonisation of rules, asymmetries and future liberalisation).

We use these three core categories of investment provisions to test if a particular type of investment provision in RTAs affects trade and investment flows more profoundly.

## 4.6 The Results

The results from the trade models (see Table 1 in Annex III) show that about 91% of the variation in the data can be explained by the variables in the equation (that is, the “goodness of fit” is high). This is unsurprising given the proven robustness of the gravity model in explaining bilateral trade flows between countries and the inclusion of fixed effects. Because the investment models were run under a TOBIT specification, we report a pseudo R-squared<sup>9</sup> as a corresponding measure of “goodness of fit”. This measure indicates that about 68% of the investment flows in our model are accounted for by variables in the equation. Further, most of the explanatory variables in both models are significant and have coefficients within the established range in the literature<sup>10</sup>.

## 4.7 Dummy Variables

The estimates for the BIT dummy variable in the investment models are all insignificant. While this result is not out of line with the literature (see, for example, HALLWARD-DRIEMEIER 2003), this study departs from previous ones by testing the effects of RTAs and BITs concurrently. In part, the insignificance of the result could be due to the nature of the provisions. BITs focus on investment protection rather than investment liberalisation, and the empirical analysis presented below suggests that the category of provisions falling under the investment protection umbrella are not significantly associated with FDI flows.

The insignificance of the BIT variable could also be a function of coverage. RTAs with substantive investment provisions usually include provisions on services, including mode 3 services trade. And new investment rules may

9 We estimate the pseudo- $r^2$  value by calculating the  $r^2$  between the predicted and observed values, a better measure of fit for a TOBIT specification than the McFADDEN pseudo- $r^2$  that is generated automatically in many statistical packages.

10 The border variable was insignificant in the investment model. This is not unsurprising, however, as the literature suggests that the border variable is often highly correlated with some of the other gravity dummy variables, such as colonial relationship. The tariff variable is negative and significant in the trade model, but it is insignificant in the investment model. This result is intuitive – tariffs should negatively affect trade flows, but they have an ambiguous effect on investment flows depending whether trade complements investment more than it substitutes for investment. The coefficient for the sum of the logs of GDP did not result as one would expect as it is negative and significant in the trade model and insignificant in the investment model (we would expect a positive coefficient). However, in specifications that allow for the inclusion of the reporter and partner country GDPs separately, we find the expected sign for the coefficient. The nominal exchange rate variable is insignificant in both models, but it is likely that the country fixed effects are picking up some of the effect of the exchange rate and joint GDP variables. See LESHER and MIROUDOT (2006) for alternative specification and robustness checks.

matter more for services than for goods. The WORLD BANK's (2005) recent study on regionalism notes that a majority of the remaining restrictions on investment may be found in services and natural resources, rather than in goods. As a result, RTAs that include liberalisation mechanisms in services may be the most effective at boosting FDI.

Interestingly, the RTA dummy variables behave very similarly in both the trade and investment models. When the dummy variable that indicates the existence of a RTA with substantive investment provisions is added to the trade and investment equations, the percentage of variation explained by the data stays about the same, but the RTA dummy variables are statistically significant with positive coefficients. Thus, one could say that in this sample, the entry into force of a RTA with substantive investment provisions is positively related to trade and net positive FDI flows. The coefficient is higher in the FDI model (0.456) than it is in the trade model (0.190), which is intuitive as one would expect that investment provisions more profoundly affect investment flows than trade flows.

Since a dummy variable cannot by itself be interpreted in percentage terms, we use the method of transformation suggested by KENNEDY (1981)<sup>11</sup>. With this transformation, we estimate that the entry into force of a RTA with substantive investment provisions is associated with a 57.1% increase in FDI flows and a 20.8% increase in exports. To be sure, these estimates need to be treated with caution as dummy variables can also pick up some of the effect of other variables. But the sign and magnitude of these values tend to suggest that substantive investment provisions matter for both trade and investment, and that trade complements, more than it substitutes for, investment in the context of RTAs that contain substantive investment provisions.

#### 4.8 Index of Investment Provisions

In both the trade and investment models, the index of investment provisions variable was also positive and significant (0.014 and 0.034, respectively). These coefficients cannot be compared with those obtained for the dummy RTA index variables because the index has been transformed into a continuous variable that has been logged. The coefficient on the RTA index variable is also determined in some measure by the scale of the index

11 KENNEDY notes that the correct transformation of a dummy variable is given by the following formula:  $\hat{g} = \exp(\hat{c} - \frac{1}{2}\hat{V}(\hat{c})) - 1$ , where  $\hat{g}$  is the estimated coefficient of the dummy variable on the dependent variable (e.g., exports and FDI),  $\hat{c}$  is the coefficient on the dummy variable and  $\hat{V}$  is the variance of  $\hat{c}$ .



(which takes values between 0 and 1), but this does not affect the significance of the results. The model with the investment index shows no change in the pseudo- $r^2$  or log-likelihood statistics, providing some degree of comfort that the dummy variable in the previous regression is indeed capturing the impact of investment provisions. The estimates obtained using the more nuanced index approach suggest that agreements with relatively more investment provisions impact FDI flows more profoundly than agreements with fewer provisions.

The positive but modest relationship observed between the extensiveness of investment provisions and trade flows is in line with the literature. It indicates that trade and investment are complements rather than substitutes, reflecting more efficiency-seeking than market-seeking FDI. Not surprisingly, the investment index performs better in the investment model. The positive and higher coefficient indicates that RTAs with substantive investment provisions are likely associated with increases in FDI flows. Since the RTA index of investment provisions is a variable that ranks the different agreements, it is difficult to interpret the coefficient directly, and thus it is best to consider the sign and significance of the coefficient (positive and significant at the 0.1% level).

#### **4.9 The Year of Entry Into Force**

In the first specification – that is, where we test the date of signature rather than the date of entry into force – the coefficients in the FDI model on both the dummy variable and the RTA index perform better (i.e., higher and more significant coefficients) than when using the date of entry into force (see the detailed results in Table 2 in Annex III). In the trade model, however, the coefficients are smaller, although still positive and significant. In the second specification, which tests the effect of a RTA without taking into account the year that the agreement entered into force, the coefficients in the FDI model on both the dummy variable and the RTA index variable are smaller, although still positive, and have smaller t-statistics. In the trade model, the coefficients are about the same as those estimated in the models that use the date of entry into force.

In the investment context, the results suggest that the impact of a RTA with substantive investment provisions is a somewhat gradual process that is at least partly the result of investors anticipating policy change. In the trade context, the results indicate that the anticipation effect is less pronounced,

perhaps in part because investment decisions require more of a long-term perspective than the decision to trade. In this way, one would only expect to see changes in the behaviour of traders when the agreement enters into force. Further, the results of the second alternative specification suggest that countries tend to sign RTAs with substantive investment provisions with countries with whom they already significantly trade with and invest in. However, this is not true in all cases, as agreements between large developed partners and relatively smaller partners demonstrate (e.g., EC-Jordan).

#### **4.10 Different Categories of Investment Provisions**

The impact of the three categories of investment provisions appears to be quite different for trade than for FDI flows. As far as investment is concerned, the provisions on investment liberalisation are surprisingly not positively correlated with an increase in FDI (see Table 3 in Annex III). However, the provisions on investment promotion and co-operation show a positive and significant coefficient, although smaller than that obtained for investment liberalisation. It could be the case that because these provisions include future liberalisation, they are a part of the positive relationship found between the index and FDI flows.

The variable describing provisions on investment protection has a negative and significant coefficient. This implies that agreements with a high score in this category of provisions are not associated with higher FDI flows. As this category includes national treatment post-establishment, this result is somewhat surprising as it is usually considered to be an important provision. The analysis should of course be taken with caution as the interaction between the three variables may be influenced by the specification of the model. The three sub-components have a lower significance level than the aggregate index.

Turning to the trade model, a very different picture emerges. In contrast to the investment model, the provisions on investment protection matter the most. An interesting explanation could be that these provisions are more likely to influence efficiency-seeking investment. Investors attracted to a larger market or specific resources that could not be found in another country tend to accommodate any constraint or lack of equitable treatment in the host country, whereas investors seeking efficiency gains through off-shore production could select their host country among a list of potential candidates on the basis of protections that can be granted. The negative re-

relationship between provisions on investment liberalisation and trade flows could illustrate the trade-off between investment and trade for companies trying to serve foreign markets.

These results should not be taken too literally as showing the types of provisions that favour or discourage trade and investment. The results depend on the type (and number) of agreements containing the different categories of provisions.

## **5 Qualitative Analysis: The New Zealand-Singapore Closer Economic Partnership Agreement**

The index of investment provisions and the quantitative analysis provide insight into how investment provisions are incorporated in RTAs and how those provisions affect trade and investment flows. Another method of analysing investment provisions in trade agreements is to use a case study approach. This section presents a qualitative analysis of the New Zealand-Singapore RTA to analyse investment provisions in RTAs from a different perspective. The purpose of the case study is not to assess the quantitative relationship between the RTAs and trade and investment flows, but rather to take a more detailed look at the investment provisions.

The importance given to investment in the Agreement between New Zealand and Singapore on a Closer Economic Partnership (ANZSCEP) is already visible in the preamble where “trade and investment” are closely associated and quoted together in the list of reasons that motivated the agreement. Defined as a “closer economic partnership”, the agreement is fairly comprehensive and is a good example of “new regionalism” with provisions beyond trade liberalisation on topics such as investment. “Trade and investment” are mentioned five times in the preamble and three times in Article 1, which defines the objectives of the closer economic partnership.

### **5.1 The Investment Provisions**

Part 5 of the agreement sets the rules for investment in services. The supply of a service through commercial presence is included in the definition of trade in services (art. 16). Market access and national treatment are granted to sectors where specific commitments are made (art. 17 and 18). Following the GATS approach of a positive list with limitations on market access and

national treatment, each party has a schedule of commitments (in Annex 2) listing the sectors where commitments are undertaken and the limitations or conditions that apply. Part 5 has also GATS-like provisions on domestic regulation and professional qualifications. But contrary to the GATS, there is no most-favoured-nation (MFN) clause. However, the role of the MFN clause in a multilateral agreement such as the GATS differs from that found in many bilateral or regional agreements. The MFN clause in GATS ensures that all WTO members are treated equally. A bilateral MFN works differently by extending just to the bilateral partner any better treatment that is accorded to a non-party.

Looking at Annex 2, there is a difference in the way the two countries have listed their commitments in services. While Singapore's list is in the same format as a GATS schedule of commitments (with limitations according to the mode of supply with different columns for market access and national treatment), the New Zealand schedule innovates by adopting a "*sui generis* plain language approach". Horizontal limitations (that apply to all sectors) are first listed and then follows the list of sector-specific commitments, where a sentence will indicate the absence of limitations rather than the traditional "none" that can be found in a GATS schedule (which can be ambiguous). The objective of this "*sui generis* plain language" approach seems to be to facilitate the understanding of the schedule. For both countries the commitments in the ANZSCEP go beyond their GATS commitments.

In addition, the agreement foresees future liberalisation in services and provides for a review of the commitments at least every two years. The APEC objective of "free and open trade in services by 2010" is also clearly stated in article 20. The article even allows for a meeting to review the case of services sectors not fully liberalised by 2010 to find solutions beyond this date. It is clear that both New Zealand and Singapore crafted the services provisions with a liberalisation objective in mind.

It is in Part 6 of the agreement that the main provisions on investment can be found. Part 6 applies to all investments, including investment in services. However, art. 26 states that the definition of investment and provisions on MFN, national treatment and standard of treatment of Part 6 do not apply to the supply of services through commercial presence, as specific provisions for services are included in Part 5 described above. The provisions for non-services sectors are not limited to national treatment as in Part 5. Article 28 and 29 allow for, respectively, MFN and national treatment, both pre- and post-establishment. Investors can benefit from the better of MFN

or national treatment as the standard of treatment (art. 30). The rest of the provisions contained in Part 6 apply to investment in services as well as in goods. It includes in particular a state-investor dispute settlement by conciliation or by ICSID arbitration.

Annex 3 of the agreement contains a list of limitations to MFN and national treatment. The limitations are related in the case of New Zealand to the acquisition of farm land, fishing quotas, the existence of marketing boards or state enterprises in some sectors (and also the Overseas Investment Regime – see below). In addition to the same kind of limitations related to land ownership or sectors with state enterprises, Singapore lists a few sectors in which domestic companies can have more favourable treatment (economic incentives) and requires companies from all sectors to employ a local manager. An important point is that these limitations apply also to investment in services (mode 3). Annex 3 specifies that “Where a services sector is scheduled under Part 5, the terms, limitations, conditions and qualifications stated therein shall apply to investments in that sector.” For investment in services, the investment chapter thus adds a negative list to the positive list of sectors liberalised<sup>12</sup>. As in the case of services, the parties agree to review at least every two years the status of their limitations on investment in a view to reducing or removing them.

An interesting example of a limitation to national treatment listed by New Zealand in Annex 3 is related to the Overseas Investment Regime. Above a certain threshold, any foreign investment has to be approved by New Zealand. The Overseas Investment Office (formerly called the Overseas Investment Commission) reviews investments under a criterion of “national interest”. This restriction sheds light on the limitations of the index created in this study. As any agreement granting national treatment and MFN pre-establishment with a list of limitations, New Zealand-Singapore obtained 1.0 + 0.5 points in Columns 1 and 2 of Table 6. However, the index does not assess how limiting the restrictions described in the negative lists of the agreements are.

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12 It is interesting to note that agreements where investment in services is covered in a separate chapter on services and have in addition provisions on investment protection, are not agreements with two separate sets of investment rules for goods and services (another example of such an agreement is Thailand-Australia). The architecture adopted is that the investment chapter covers all investments. Only provisions on market access and national treatment, as well as provisions specific to trade in services (like domestic regulation and professional qualifications) are in the services chapter. Provisions on investment protection or state-investor dispute settlement, for example, are in the investment chapter, even when market access and national treatment for investment in services are dealt with in the services chapter. This can be understood as a consequence of the GATS approach taken in services. The GATS is an agreement on trade liberalisation: it has no provisions on investment protection or promotion.

The fact that any investment above a certain threshold has to be authorised by the New Zealand Overseas Investment Office could be an important limitation if this institution, for example, was very strict in its decisions or very protective of the New Zealand market. To improve the index, it could be suggested to apply a similar methodology to quantitatively assess to what extent the list of reservations is a barrier to FDI (it could be done in the present case by looking at the threshold that requires an authorisation). But the example of the New Zealand-Singapore agreement shows that this methodology would have not only to look at the provisions but also their implementation (the practice of the Overseas Investment Commission in this case). A much simpler and maybe stronger approach is to avoid any judgement on the content of the lists of reservations (or the positive lists of commitments) as it was done in Part I, with 0.5 points given to establishment with a positive or negative list of limitations.

In the case of New Zealand, the Overseas Investment Office does not seem to have a policy aimed at restricting investment. Only 3.7% of total applications were refused in 2004<sup>13</sup>, none from Singapore and none related to non-land investment. The office has been instituted to protect sensitive land (like foreshore, seabed, beds or rivers and lakes) and fishing quotas. No non-land investment application has been declined in the past 20 years. Reports from other countries on the investment climate in New Zealand indicate that the authorisation from the Overseas Investment Office is not a major obstacle to FDI<sup>14</sup>. Singapore has also restrictions regarding the foreign ownership of land, state enterprises and in certain sectors listed in Annex 3 of the RTA.

One benefit for Singapore in signing a trade and investment agreement with New Zealand is that by binding the investment regime, the threshold requiring consent from New Zealand cannot be reduced. However, the threshold has been augmented following the reform of the foreign investment regime in New Zealand in 2005. The Overseas Investment Act of 2005 has increased the threshold for acquisition of non-land business assets from NZD 50 millions to 100 millions for all countries.

In the index of investment provisions presented in Part 1, the New Zealand-Singapore agreement obtained a score of 0.500. The agreement is among the most extensive in terms of investment liberalisation, with pre- and post-

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13 Overseas Investment Commission (2005).

14 For example, "Doing Business in New Zealand: A Country Commercial Guide for US Companies", US & Foreign Commercial Service and US Department of State, 2006.

establishment national treatment for goods and services. The absence of a MFN clause in the services chapter is the reason why the agreement lies a little behind NAFTA. Provisions that are absent from the agreement are in the “investment regulation and protection” category. The New Zealand-Singapore RTA has no provisions prohibiting performance requirements<sup>15</sup>, no temporary entry and stay for key personnel and no reference to “fair and equitable treatment”. The other agreement signed by New Zealand that we have analysed, with Thailand, also lacks these three types of rules. However, these provisions can be found in more recent agreements signed by Singapore with other partners, for example in US-Singapore or Japan-Singapore.

## 5.2 Economic Analysis

As a small but dynamic city-state economy building on free trade, Singapore has signed many RTAs inside and outside of Asia. Not only the number of agreements signed by Singapore is impressive, but also their scope is noticeable, as most of them include provisions on services and investment liberalisation. Investment seems to be a determining factor in Singapore’s RTA strategy. It is not surprising as the economic success and rapid development of Singapore has been based on private foreign investment. Singapore and its small population may not offer an important market for foreign investors, but the country is seen as a hub to serve Asian economies. The country has excellent port infrastructure and good financial and business services, making it the “gateway to Asia”. As a consequence, Singapore has attracted many investments and ranked fifth in UNCTAD’s Inward FDI Potential Index in 2005. Outward investment is as important for a country with limited land and resources and Singapore outward FDI has increased in Asia (in particular in China).

Singapore is negotiating free trade agreements with countries with whom it has very limited trade flows, such as Jordan and Egypt (REITER 2004). The rationale for such RTAs could be in investment opportunities, not only from Singaporean firms, but more likely for subsidiaries of multinationals established in Singapore. This is also the case in the ANZSCEP. The New Zealand-Singapore bilateral trade and investment relationship is of a different nature than the other “North-South agreements” listed in Annex I. While

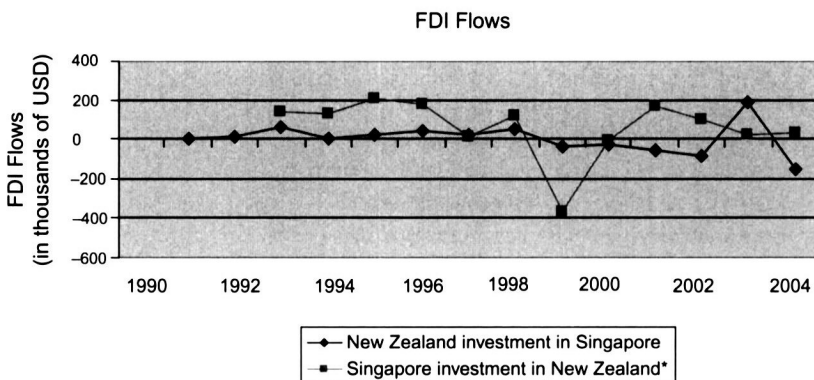
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15 The New Zealand-Singapore agreement thus relies on other international agreements, such as TRIMs, to circumscribe rules related to performance requirements.

under the WTO definition we have classified Singapore as a “South country”, the ANZSCEP sets rules for a real two-way investment relationship. Investment flows from the two countries are of the same range but FDI flows from Singapore to New Zealand tend to be higher, as seen in Figure 2, where there are only two years where the investment flows from New Zealand to Singapore are higher.

FDI flows show no major break after the signature or the entry in force of the ANZSCEP. As FDI determinants are various, Figure 2 cannot give a clear account of the impact of the RTA on investment flows, especially for a relatively recent agreement. Moreover, 2002–2004 was a period of world decline in FDI flows. The quantitative analysis presented in Section 4 includes variables and fixed effects that can isolate the impact of the RTA on FDI flows. LESHER and MIROUDOT (2006) include an analysis of the trade creation and trade diversion effects of the ANZSCEP. The results suggest that the agreement has increased FDI flows but this result is not confirmed in the absence of a strong significance of the coefficient. The results also hint at investment diversion. But again the coefficients are not significantly different from zero. As Singapore is likely to be a “hub” or a “platform” for New Zealand investments in Asia, investment diversion would be the expected outcome. New Zealand companies investing in Singapore can benefit from the broad network of trade agreements signed by Singapore and export (or invest) through their Singaporean subsidiaries.

**Figure 2:** FDI flows between New Zealand and Singapore (1991–2004)



*Source:* UNCTAD FDI data. Mirror data reported by New Zealand to UNCTAD.



While there is no significant impact of the ANZSCEP on investment flows between the two countries, it should be mentioned that the quantity of investment is not the only interesting variable. For New Zealand, investment in Singapore is also about productivity growth and technology enhancement. New Zealand has established in Singapore its first overseas technology centre in 2002. The mission of the New Zealand Technology Centre (NZTC) is to assist companies in commercialising their technologies and doing business internationally. It is another dimension of the “hubbing strategy” that would be reflected in a “qualitative” assessment of FDI flows rather than a quantitative study as proposed here.

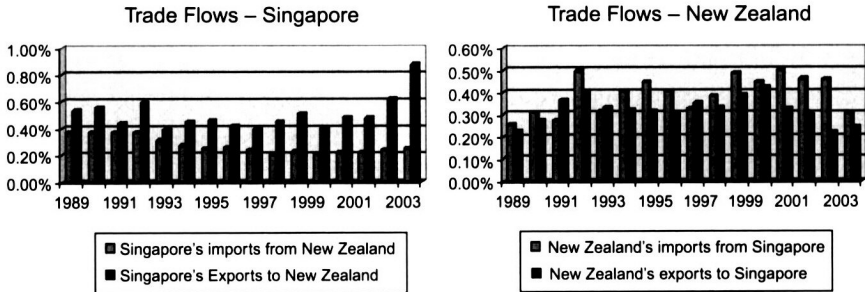
Singapore’s exports to New Zealand have notably increased since the entry into force of the trade agreement (Figure 3). Data are less conclusive for New Zealand’s exports. In the econometric analysis found in LESHER and MIROUDOT (2006), there is a significant result for the trade impact of the New Zealand-Singapore RTA. The agreement has a significant trade diverting impact. As investment from New Zealand to Singapore is likely to be of the efficiency-seeking type rather than market-seeking, this result is surprising. The RTA should create more trade between the two countries in the context of a “hubbing strategy” for New Zealand companies. It is as surprising for Singapore’s exports to New Zealand, which have steadily increased as shown in Figure 2. The increase is explained by other determinants than the investment provisions of the RTA. As investment from Singapore in New Zealand is mainly in hotels, house construction, computer retailing and the leisure industry<sup>16</sup>, a substitution between trade and investment is a possibility. But it would have to be confirmed by further analysis.

The New Zealand-Singapore trade and investment relationship has taken a new turn with the entry into force of the Trans-Pacific Strategic Economic Partnership in 2006. This agreement between four APEC members (Brunei, Chile, New Zealand and Singapore) builds on the ANZSCEP and solidifies the objectives of trade and investment liberalisation in the Asia-Pacific region formulated in the Bogor Declaration (1994). The agreement has an open accession clause and is based on APEC’s Best Practices for FTAs/RTAs, which encourage countries to go beyond WTO commitments and to explore commitments in areas not covered by the WTO, such as investment.

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16 Investment New Zealand (2003).

**Figure 3:** Trade flows between New Zealand and Singapore (as a percentage of GDP)



Source: COMTRADE and WDI.

However, the investment chapter of the Trans-Pacific SEP remains to be negotiated (the agreement foresees the beginning of the negotiation no later than two years after the date of entry into force). The agreement signed on 3 June 2005 only covers investment in services in the services chapter. This chapter confirms the ambition of building on the ANZSCEP and going beyond through a lock-in of the commitments between New Zealand and Singapore (now extended to Chile<sup>17</sup>) and a negative list approach instead of the positive list that was used in ANZSCEP. Exporters (and investors) are free to use either the provisions of the Trans-Pacific SEP or of the ANZSCEP (which remains in force). On services, the Trans-Pacific agreement adds MFN treatment and additional national treatment commitments in sectors not scheduled in the ANZSCEP<sup>18</sup>. As a concrete example of the benefits of the MFN clause, service providers from New Zealand thus obtain the same commitments as those negotiated in the US-Singapore RTA that entered into force in 2004.

The Trans-Pacific SEP will offer to investors of New Zealand and Singapore new opportunities to further invest in the Pacific region, including through their respective subsidiaries. In that sense, the signature of the ANZSCEP before the entry into force of other RTAs in the Asia-Pacific region gives a specific role to the two countries as investment platforms. Sequencing matters in the determination of FDI flows.

17 The chapter does not apply to Brunei, which has two more years to finalise its commitments.

18 Tax-related services, contact lens practitioners, real estate, aircraft repair and maintenance services, selling and marketing of air transport services, specialty air services and a range of international and non-transportation air services.

## 6 Conclusion

Policymakers are increasingly thinking critically about the impact of the wide-ranging and comprehensive RTAs that are being created under the rubric of new regionalism. This paper presents the findings of work on the quantification of investment provisions in RTAs as a means to analysing their relationship with trade and investment flows. The paper classifies the investment provisions that countries have included in RTAs, briefly reviews how other researchers have assessed the economic consequences of investment provisions in RTAs and presents the findings of original empirical work that analyses the relationship between substantive investment provisions and trade and investment flows. A case study complements the quantitative work.

Several patterns emerge from the analysis of investment provisions in RTAs. In general, it is somewhat surprising that the average index score for North-South RTAs with substantive investment provisions was the highest, above the averages for both North-North and South-South RTAs. Yet the average index score for the South-South category was higher than one might think, with a difference of only 0.021 compared to the average score for North-South RTAs. It also appears that the approach used to incorporate investment provisions in North-South RTAs is a function of past experience as well as how far “new” countries are willing to go in following the model favoured by the northern partner.

Among countries, one observes differences in the extensiveness and purpose of investment provisions in agreements signed by North American countries, Japan, Australia and New Zealand in contrast to European economies (EC and EFTA countries). Agreements that include rules on establishment, non-discrimination for all kinds of investments (not only mode 3 trade in services), investment regulation and protection, as well as state-investor dispute settlement, are found more often in the first group. The Asia-Pacific region clearly belongs to the first group of countries where there is a firm goal of widely liberalising both trade and investment.

The agreements of the second group often limit provisions on investment to services, reiterating GATS commitments and foreseeing further liberalisation in the future. However, not all EC and EFTA agreements follow this pattern, such as EC-FYROM and EFTA-Singapore, which also have a high index score. This is at least partly due to the fact that many EC countries have concluded BITs with many of their RTA partners which may contain

some of these provisions. In the case of EFTA, the agreement with Singapore represents a new generation of agreements with more liberal investment provisions, showing a convergence with the dynamic of Asian regionalism.

While other studies have analysed the increase in trade following the entry into force of a RTA, this paper focuses on the impact of investment provisions. The quantitative analysis suggests that investment provisions in RTAs are positively associated with both trade and investment flows. Moreover, the coefficients indicate that they matter more for FDI flows than for trade flows. This dual positive effect indicates that investment may be more efficiency-seeking than market-seeking, thus acting more as a complement to, rather than a substitute for, trade in the context of RTAs.

Further, the study incorporates a dummy variable that represents whether the country pairs are party to a BIT. This variable was included in all of the FDI models, and the coefficient was insignificant. This suggests that either the investment provisions in RTAs impact trade and FDI flows more profoundly, or that the combination of substantive investment provisions and provisions liberalising other parts of the economy work together to more significantly impact trade and investment flows. This result indicates that the impact of the same investment provisions may be different in a trade agreement relative to a BIT. However, the variable that assesses the interaction between the BIT and RTA index dummies shows a positive and significant coefficient, suggesting a complementary relationship between BITs and RTAs.

As illustrated by the New Zealand-Singapore Closer Economic Relationship, investment provisions in RTAs have appeared in very innovative agreements that have strongly influenced the evolution of regionalism, especially in the Asia-Pacific region. From an investment perspective, these RTAs tend to go beyond commitments in WTO agreements. In a trade context, the content of the schedules, where sectoral coverage is explicitly defined, represents the best way to compare the commitments in the RTAs relative to those made in the WTO. However, the study reinforces that all of the types of investment provisions included in the index matter for trade and investment, a result also obtained in the regression analysis of the separate categories of provisions.

RTAs are complex agreements that coalesce with underlying economic and political conditions to impact the national, regional and global economy.

The policy environment in which a RTA operates is a critical component to facilitating, or hindering, the positive effects that a RTA can have on an economy. Effective implementation also matters. Nonetheless, the results presented in this paper have important policy implications for countries at all levels of development. At its core, the results suggest that substantive investment provisions in RTAs matter for trade and, to an even greater extent, for FDI flows. This is good news for developing countries, particularly since North-South agreements tend to include the most extensive investment provisions, and FDI can be an important stimulus for development.

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## ANNEX I

## RTAs included in the study &amp; index of the extensiveness of investment provisions

RTA	Year into force	Index	RTA	Year into force	Index
<b>North-South</b>			<b>South-South</b>		
Mexico – Japan	2005	0.760	Chile – Mexico	1999	0.720
Canada – Chile	1997	0.720	Mexico – Northern Triangle	2001	0.720
EC – FYROM	2001	0.720	Mexico – Uruguay	2004	0.680
NAFTA	1994	0.680	Republic of Korea – Chile	2004	0.680
EC – Jordan	2002	0.640	Central America – Dominican Republic	2002	0.660
Thailand – Australia	2005	0.640	Chinese Taipei – Panama	2004	0.640
United States – Chile	2004	0.640	Panama – El Salvador	2003	0.640
United States – Singapore	2004	0.640	Mexico – Bolivia	1995	0.580
EFTA – Singapore	2003	0.600	Mexico – Columbia - Venezuela	1995	0.580
Japan – Singapore	2002	0.580	Mexico – Costa Rica	1995	0.580
Thailand – New Zealand	2005	0.580	Mexico – Nicaragua	1998	0.580
New Zealand – Singapore	2001	0.500	CARICOM – Dominican Republic	1999	0.560
EFTA – Mexico	2001	0.480	MERCOSUR	1991	0.560
EC – Chile	2003	0.460	ASEAN (AIA & AFSA)	1992 /95 /98	0.540
Singapore – Australia	2003	0.460	CARICOM – Cuba	2002	0.500
EC – Mexico	2000	0.440	CEDEAO (ECOWAS)	1990	0.500
EC – Morocco	2000	0.420	CARICOM	1973 /97 /01	0.460
EC – South Africa	2000	0.420	Singapore – India	2005	0.460
EC – Tunisia	1998	0.420	UEMOA (WAEMU)	2000	0.420
EC – Egypt	2004	0.380	CEEAC (ECCAS)	1985	0.360
EFTA – Chile	2004	0.380	COMESA	1994	0.360
EC – Israel	2000	0.360	Andean Community	1988 /98	0.320
United States – Jordan	2001	0.260	Gulf Cooperation Council	1981	0.320
PATCRA	1977	0.200	Bolivia – Chile	1993	0.280
<b>Average</b>		<b>0.516</b>	<b>Average</b>		<b>0.495</b>
<b>North-North</b>					
EC (Treaty of Rome)	1958	0.780			
US – Australia	2005	0.620			
EFTA (2002)	2002	0.560			
EEA	1994	0.520			
EC – Bulgaria	1995	0.420			
EC – Romania	1995	0.400			
Australia – New Zealand	1989	0.240			
<b>Average</b>		<b>0.506</b>			



## ANNEX II

## Countries in the dataset

Afghanistan	Côte d'Ivoire	Lebanon	Samoa
<b>Albania</b>	<b>Denmark</b>	Lesotho	San Marino
Algeria	Djibouti	Liberia	Saudi Arabia
Angola	Dominica	Libyan Arab Jamahiriya	Senegal
Antigua and Barbuda	Dominican Republic	<b>Lithuania</b>	Seychelles
Argentina	Ecuador	Luxembourg	Sierra Leone
Armenia	<b>Egypt</b>	Macedonia (former Yugoslav Rep. of)	<b>Singapore</b>
Aruba	El Salvador	Madagascar	Slovakia
<b>Australia</b>	Equatorial Guinea	Malawi	Slovenia
<b>Austria</b>	<b>Estonia</b>	<b>Malaysia</b>	Solomon Islands
Azerbaijan	Ethiopia	Maldives	Somalia
Bahamas	Fiji	Mali	<b>South Africa</b>
Bahrain	<b>Finland</b>	Malta	<b>Spain</b>
Bangladesh	<b>France</b>	Marshall Islands	Sri Lanka
Barbados	French Polynesia	Mauritania	Sudan
Belarus	Gabon	<b>Mauritius</b>	Suriname
<b>Belgium and Luxembourg</b>	Gambia	<b>Mexico</b>	Swaziland
Belize	Georgia	Mongolia	<b>Sweden</b>
Benin	<b>Germany</b>	<b>Morocco</b>	<b>Switzerland</b>
Bermuda	Ghana	Mozambique	Syrian Arab Republic
Bhutan	Greece	<b>Namibia</b>	Tajikistan
Bolivia	Grenada	Nepal	Tanzania, United Rep. of
Bosnia and Herzegovina	Guatemala	<b>Netherlands</b>	<b>Thailand</b>
Botswana	Guinea	<b>New Zealand</b>	Togo
Brazil	Guinea-Bissau	Nicaragua	Tonga
<b>Bulgaria</b>	Guyana	Niger	Trinidad and Tobago
Burkina Faso	Haiti	<b>Nigeria</b>	<b>Tunisia</b>
Burundi	Honduras	<b>Norway</b>	Turkey
Cambodia	<b>Hong Kong</b>	Oman	Turkmenistan
Cameroon	<b>Hungary</b>	<b>Pakistan</b>	Uganda
<b>Canada</b>	<b>Iceland</b>	Palau	Ukraine
Cape Verde	India	Panama	United Arab Emirates
Cayman Islands	Indonesia	<b>Papua New Guinea</b>	<b>United Kingdom</b>
Central African Republic	Iran	Paraguay	<b>United States of America</b>
Chad	Iraq	Peru	Uruguay
<b>Chile</b>	<b>Ireland</b>	<b>Philippines</b>	Uzbekistan
<b>China</b>	<b>Israel</b>	<b>Poland</b>	Vanuatu
<b>Chinese Taipei</b>	<b>Italy</b>	<b>Portugal</b>	Venezuela
Colombia	Jamaica	Puerto Rico	Viet Nam
Comoros	<b>Japan</b>	Qatar	Yemen
Congo	<b>Jordan</b>	<b>Romania</b>	Zambia
Costa Rica	Kenya	Russian Federation	Zimbabwe
<b>Croatia</b>	Kuwait	Rwanda	
<b>Cyprus</b>	Lao People's Democratic Rep.	Saint Lucia	
<b>Czech Republic</b>	Latvia	Saint Vincent and the Grenadines	

*Note:* All countries are partner countries; countries in bold are both reporter and partner.

## ANNEX III

### Technical Aspects of the Estimates Provided in the Quantitative Analysis

This annex provides detail on the variables, different specifications of the gravity model used in the quantitative analysis section and results of the regressions described in the main text.

#### The variables

*Bilateral exports (exports)*: This is the dependent variable in the trade model, and is measured as the value of bilateral exports in thousands of USD from reporter country  $i$  to partner country  $j$  in year  $t$ . Exports are preferable to imports in this specification because we are testing how investment provisions affect outflows. The data on exports comes from the United Nations Statistical Division Commodity Trade Database (Comtrade) for the period 1990–2004.

*Bilateral outward FDI flows (fdi)*: This is the dependent variable in the investment model, and is measured as the bilateral net FDI outflows from reporter country  $i$  to partner country  $j$  in year  $t$ . The data on bilateral positive net outflows comes from UNCTAD's FDIStat Database (2005) for the period 1990–2004<sup>1</sup>.

*Distance (dist)*: The distance variable represents transportation costs and other types of "friction" between the two trading countries. Distance is measured between the most populous cities<sup>2</sup> in reporter country  $i$  and partner country  $j$  according to the "great circle" method, which uses geographical co-ordinates to measure distance. Data comes from the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). The expected coefficient is negative.

*Language (comlang\_off)*: The language variable takes a binary – i.e., dummy – form to represent whether or not the reporter country  $i$  and partner

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1 The UNCTAD dataset is supplemented with mirror data from the OECD International Direct Investment Statistics Yearbook for the following country pairs: Mexico-Canada, Canada-Mexico, Morocco-EC and Egypt-EC.

2 While the most populous cities are usually capital cities, there are several countries in which this is not the case: Australia, Benin, Bolivia, Brazil, Canada, Germany, Ivory Coast, Kazakhstan, Nigeria, South Africa, Tanzania, Turkey and the United States.

country  $j$  share a common official language. The variable takes a value of 1 if country  $i$  and country  $j$  share a common official language and 0 otherwise. Data comes from CEPII. The expected coefficient is positive.

*Border (contig)*: This variable also takes a dummy form and represents whether or not reporter country  $i$  and partner country  $j$  share a border. The variable takes a value of 1 if the countries are contiguous and 0 otherwise. Data comes from CEPII. The expected coefficient is positive.

*Colonial relationship (col45)*: This variable is a dummy variable that takes a value of 1 if reporter country  $i$  and partner country  $j$  have had a colonial relationship since 1945 and 0 otherwise. A colonial relationship is defined as a relationship in which a country has considerable control over another country's government or the evolution of its institutions. Data comes from CEPII. The expected coefficient is positive.

*Bilateral tariff rate (tariff)*: This variable represents the average applied bilateral tariff rate between reporter country  $i$  and partner country  $j$  in year  $t$ . This variable acts as a proxy for trade liberalisation and is a corollary to the index of investment provisions in the models. Data comes from UNCTAD's Trade Analysis Information System (TRAINS) database (2005). The expected coefficient is negative for trade and ambiguous for FDI because tariffs can either encourage market-seeking and "tariff jumping" FDI or discourage efficiency-seeking FDI.

*Market size (sumlngdp)*: This variable represents the joint market size of reporter country  $i$  and partner country  $j$  in year  $t$ . The variable is created by calculating the sum of the logs of the two individual country's GDP as measured in current USD. One expects a larger country to trade (and invest) more than a smaller country in absolute terms; thus, one can say that trade (and investment) is attracted to larger countries via gravity. Data comes from the World Bank's World Development Indicators Database.

*Joint GDP per capita (sumlngdppc)*: This variable represents the joint GDP per capita of reporter country  $i$  and partner country  $j$  in year  $t$ . To calculate this variable, we add the logs of the two individual country's GDP per capita as measured in current USD. The expected coefficient is ambiguous. Data on GDP and population comes from the World Bank's World Development Indicators Database.

*Nominal exchange rate (nomer)*: This variable represents the nominal bilateral exchange rate of reporter country  $i$  and partner country  $j$  in year  $t$ . This variable is calculated as the yearly average nominal bilateral exchange rate in year  $t$ . The variable controls for fluctuations in nominal prices between the bilateral pairs and is expected to have a negative coefficient. Data comes from the International Monetary Fund's International Financial Statistics Database.

*Exchange rate volatility (ervol)*: This variable represents a measure of exchange rate volatility between reporter country  $i$  and partner country  $j$ . In line with the literature, it is calculated by taking the first difference of the natural log of the bilateral nominal exchange rate and then computing the standard deviation. The variable is a 5-year moving average using monthly data. The expected coefficient is negative. Data comes from the International Monetary Fund's International Financial Statistics Database.

*RTA with investment provisions (dummy\_rtai)*: This is a dummy variable that takes a value of 1 if reporter country  $i$  and country  $j$  are party to a RTA with substantive investment provisions and 0 otherwise. Data comes from the analysis performed by the authors.

*Bilateral investment treaty (dummy\_bit)*: This is a dummy variable that takes the value of 1 if reporter country  $i$  and partner country  $j$  are party to a bilateral investment treaty in year  $t$  and 0 otherwise. The variable was created by the authors based on data provided by UNCTAD.

*RTA index with investment provisions (index\_rtai)*: This variable was constructed in two stages. First, the ones of the dummy variable that indicates if reporter country  $i$  and country  $j$  are party to a RTA with substantive investment provisions were replaced with the value of the aggregate index created in the Part I (the value is zero otherwise). Second, 0.000001 was added to all values before taking the natural log (one cannot take the natural log of zero). Data comes from the analysis performed by the OECD Secretariat.

*Reporter country fixed effects ( $\Sigma\alpha_i$ )*: This term represents the sum of all of the fixed effects variables that control for omitted variables that vary by reporter country  $i$ .

*Partner country fixed effects* ( $\Sigma \gamma_j$ ): This term represents the sum of all of the fixed effects variables that control for omitted variables that vary by partner country  $j$ .

*Time fixed effects* ( $\Sigma \lambda_t$ ): This term represents the sum of all of the fixed effects variables that control for omitted variables that vary by year  $t$ .

*Error term* ( $\epsilon$ ): This term represents the residual error.

## The mathematical specifications of the models

### *Base models*

(a) Trade:

$$\ln(\text{exports}_{ijt}) = \beta_0 + \beta_1 \ln(\text{dist}_{ij}) + \beta_2(\text{contig}_{ij}) + \beta_3(\text{col45}_{ij}) + \beta_4(\text{comlang\_off}_{ij}) + \beta_5 \ln(\text{tariff}_{ijt}) + \beta_6(\text{sumlngdpi}_{ijt}) + \beta_7(\text{sumlngdppc}_{ijt}) + \beta_8 \ln(\text{nomer}_{ijt}) + \beta_9(\text{ervol}_{ijt}) + \sum \alpha_i + \sum \gamma_j + \sum \lambda_t + \epsilon_{ijt}$$

(b) Investment:

$$\ln(\text{fdi}_{ijt}) = \beta_0 + \beta_1 \ln(\text{dist}_{ij}) + \beta_2(\text{contig}_{ij}) + \beta_3(\text{col45}_{ij}) + \beta_4(\text{comlang\_off}_{ij}) + \beta_5 \ln(\text{tariff}_{ijt}) + \beta_6(\text{sumlngdpi}_{ijt}) + \beta_7(\text{sumlngdppc}_{ijt}) + \beta_8 \ln(\text{nomer}_{ijt}) + \beta_9(\text{ervol}_{ijt}) + \sum \alpha_i + \sum \gamma_j + \sum \lambda_t + \epsilon_{ijt}$$

### *RTA dummy variable models*

(a) Trade:

$$\text{Base model} + \beta_{10}(\text{dummy\_rtai}_{ijt})$$

(b) Investment (single dummy variable):

$$\text{Base model} + \beta_{10}(\text{dummy\_rtai}_{ijt}) + \beta_{11}(\text{dummy\_bit}_{ijt})$$

(c) Investment (interaction term):

$$\text{Base model} + \beta_{10}(\text{dummy\_rtai}_{ijt}) + \beta_{11}(\text{dummy\_bit}_{ijt}) + \beta_{12}(\text{dummy\_rtai}_{ijt} * \text{dummy\_bit}_{ijt})$$

### *RTA index of investment provisions models*

(a) Trade:

$$\text{Base model} + \beta_{10} \ln(\text{index\_rtai}_{ijt})$$

(b) Investment:

$$\text{Base model} + \beta_{10} \ln(\text{index\_rtai}_{ijt}) + \beta_{11}(\text{dummy\_bit}_{ijt})$$

**Table 1:** Summary of the regression results – Trade & FDI models

	Dependent variable: Exports			Dependent variable: FDI					
	Base model	Investment index	Investment dummy	Base model	Investment index	Dummy BIT	Investment dummy & dummy BIT	Investment index & dummy BIT	Interaction dummy bit & rta
Distance	-0.964*** (-63.85)	-0.936*** (-57.83)	-0.936*** (-57.84)	-0.956*** (-24.67)	-0.886*** (-21.43)	-0.957*** (-24.56)	-0.886*** (-21.37)	-0.887*** (-21.35)	-0.896*** (-21.48)
Border	0.225*** (4.66)	0.234*** (4.88)	0.234*** (4.89)	0.145 (1.29)	0.158 (1.42)	0.145 (1.30)	0.159 (1.43)	0.159 (1.42)	0.169 (1.51)
Colonial relationship	1.213*** (24.75)	1.221*** (24.95)	1.221*** (24.96)	1.088*** (8.58)	1.104*** (8.72)	1.088*** (8.58)	1.103*** (8.71)	1.104*** (8.72)	1.102*** (8.71)
Common official language	0.420*** (15.19)	0.429*** (15.54)	0.429*** (15.54)	0.502*** (6.79)	0.525*** (7.10)	0.501*** (6.78)	0.524*** (7.08)	0.525*** (7.09)	0.517*** (6.97)
Tariff	-0.183*** (-10.42)	-0.151*** (-7.88)	-0.151*** (-7.90)	0.003 (0.06)	0.086 (1.81)	0.003 (0.06)	0.085 (1.80)	0.085 (1.81)	0.074 (1.56)
Joint market size	-0.583*** (-3.11)	-0.555*** (-2.96)	-0.555*** (-2.96)	-0.704 (-1.38)	-0.642 (-1.26)	-0.709 (-1.39)	-0.650 (-1.27)	-0.648 (-1.27)	-0.640 (-1.25)
Sum of GDP per capita	1.217*** (6.32)	1.196*** (6.22)	1.196*** (6.23)	1.153 (2.20)	1.119 (2.13)	1.158 (2.20)	1.126 (2.15)	1.124 (2.14)	1.120 (2.13)
Nominal exchange rate	-0.017 (-1.66)	-0.019 (-1.84)	-0.018 (-1.85)	-0.019 (-0.72)	-0.024 (-0.91)	-0.019 (-0.71)	-0.024 (-0.90)	-0.024 (-0.90)	-0.023 (-0.84)
Exchange rate volatility	-0.314** (-2.73)	-0.315** (-2.73)	-0.315** (-2.74)	-0.798** (-2.91)	-0.810** (-2.96)	-0.796** (-2.90)	-0.808** (-2.94)	-0.807** (-2.94)	-0.814** (-2.97)
Dummy variable for BITs						0.011 (0.18)	0.011 (0.19)	0.012 (0.20)	-0.028 (-0.44)
Dummy variable for investment provisions			0.190*** (5.36)				0.456*** (4.83)		0.358*** (3.41)
Index of investment provisions		0.014*** (5.24)			0.034*** (4.76)			0.034*** (4.76)	
Interaction between BIT and RTA									0.341* (2.16)
Number of obs.	9027	9027	9027	7258	7258	7258	7258	7258	7258
Adjusted R-squared	0.915	0.915	0.915						
Pseudo R-squared				0.684	0.684	0.684	0.684	0.684	0.684
Log likelihood				-14120.9	-14109.6	-14120.9	-14109.3	-14109.6	-14107.0

Notes: Time and country fixed effects are not reported. All trade regressions were run with robust standard errors under heteroskedastic conditions. Values of t-statistics are in parentheses. Values marked (\*\*\*), (\*\*), and (\*) are significant at the 0.1%, 1% and 5% levels, respectively.

The use of fixed effects in a gravity model framework has created some controversy among researchers. There has been much discussion about the inclusion of country fixed effects, whether country fixed effects should include a time dimension (MÁTYÁS 1997), and if country pair fixed effects provide greater robustness than individual country fixed effects terms (ANDERSON and FERRANTINO 2004, CHENG and WALL 2005). To test the robustness of the results in the quantitative section, we estimated the trade and investment models with two different fixed effects specifications: country fixed effects with a time dimension and country pair fixed effects (see LESHER and MIROUDOT 2006).

We also use alternative regression techniques to test the robustness of our results. Because the FDI data is calculated on a net basis, and thus can take negative values, we use a TOBIT specification to estimate the FDI model. We estimate the same regressions with OLS. Although coefficients are slightly changed, we do not observe a significant bias and the coefficient of the investment index remains unchanged. To check for omitted variable

bias, we calculated RAMSEY'S regression specification error test (RESET) for the OLS estimations in the trade and FDI models. The results indicate that a misspecification and/or non-linearities may exist (*i.e.*, omitted variables may be present). We therefore used an alternative approach – the fixed effects POISSON regression (see LESHER and MIROUDOT 2006 for detailed results).

On balance, these alternative specifications and regression techniques confirm the robustness of the analysis presented in the study since the coefficient on the index of investment provisions is always positive and significant.

**Table 2:** Analysis of the investment index and dummy coefficients according to the year of reference

Dependent variable: Infdl		Coefficient	t	Std error	R-Squared	-
Dummy variable for investment provisions	Date of entry into force	0.456***	5.10	0.0894	0.6840	57.2%
	Date of signature	0.482***	5.40	0.0893	0.6841	61.4%
	For all years	0.322***	3.63	0.0886	0.6835	37.4%
Index of investment provisions	Date of entry into force	0.034***	5.03	0.0068	0.6839	-
	Date of signature	0.036***	5.35	0.0068	0.6841	-
	For all years	0.024***	3.64	0.0067	0.6835	-
Dependent variable: Inexports		Coefficient	t	Std error	R-Squared	-
Dummy variable for investment provisions	Date of entry into force	0.190***	5.36	0.0354	0.9174	20.8%
	Date of signature	0.123***	3.52	0.0350	0.9172	13.0%
	For all years	0.199***	5.59	0.0355	0.9174	21.9%
Index of investment provisions	Date of entry into force	0.014***	5.24	0.0027	0.9174	-
	Date of signature	0.009***	3.43	0.0026	0.9172	-
	For all years	0.014***	5.48	0.0027	0.9174	-

*Notes:* All regressions were run with time and country fixed effects and robust standard errors under heteroskedastic conditions. Values marked (\*\*\*), (\*\*) and (\*) are significant at the 0.1%, 1% and 5% levels, respectively. The  $t$  statistic represents an interpretation in percentage terms of the coefficient of the dummy variable using the method suggested by KENNEDY (1981).



**Table 3:** Econometric analysis of the impact of different categories of investment provisions

Dependent variable:	lnexports	lnfdi
Indist	-0.935*** (-57.43)	-0.889*** (-21.58)
contig	0.202*** (4.31)	0.186 (1.74)
col45	1.190*** (24.09)	1.139*** (9.67)
comlang_off	0.436*** (15.94)	0.518*** (7.17)
tariff	-0.164*** (-8.44)	0.096* (1.97)
sumlngdp	-0.540** (-2.88)	-0.631 (-1.27)
sumlngdppc	1.181*** (6.14)	1.108* (2.18)
lnnomer	-0.019 (-1.90)	-0.024 (-0.85)
ervol	-0.319** (-2.77)	-0.807** (-2.67)
inv_lib	-0.080*** (-4.63)	0.111** (2.62)
inv_protec	0.119*** (6.24)	-0.101* (-2.23)
inv_prom	-0.027*** (-4.55)	0.024* (2.01)
Number of obs.	9027	7258
R-squared	0.9178	0.6841

*Notes:* Time and country fixed effects are not reported. All trade regressions were run with robust standard errors under heteroskedastic conditions. Values of t-statistics are in parentheses. Values marked (\*\*\*), (\*\*), and (\*) are significant at the 0.1%, 1% and 5% levels, respectively.

**Autoren – Authors****PD Dr. Heribert Dieter**

Forschungsgruppe Globale Fragen  
Stiftung Wissenschaft und Politik  
Ludwigkirchplatz 3–4  
10719 Berlin  
*heribert.dieter@swp-berlin.org*

**Prof. Dr. Richard Higgott**

University of Warwick  
CV4 7AL Coventry, UK  
*richard.higgott@warwick.ac.uk*

**Riad Al-Khouri**

Director of MEBA wll, Amman  
POB 9446 Amman  
11191 Jordan  
*MEBA@batelco.jo*

**Sebastien Miroudot**

Trade and Agriculture Directorate  
OECD  
2 rue Andre Pascal  
75775 Paris Cedex 16  
*sebastien.miroudot@oecd.org*

**Molly Lesher**

Trade and Agriculture Directorate  
OECD  
2 rue Andre Pascal  
75775 Paris Cedex 16  
*molly.lesher@oecd.org*

**Prof. Dr. Joachim Scheide**

Institut für Weltwirtschaft  
Düsternbrooker Weg 120  
24105 Kiel  
*joachim.scheide@ifw-kiel.de*