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DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN THE KINGDOM OF SAUDI ARABIA

Key Words

***Foreign Direct
Investment; Sectoral
distributions; Granger
causality;
Determinants; Activity
and returns; Socio-
political risk variables;***

Abstract

This paper investigates the determinants of FDI flows into the economy of the Kingdom of Saudi Arabia. The paper firstly discusses FDI with respect to overall trends, sources, and their regional, sectoral and sub-sectoral distributions. The paper then focuses on the determinants of FDI where the roles of market size, openness and international trade, wage rates, and country risk in attracting FDI to the KSA are investigated. Empirical methods used to gauge the issues include causality tests and conventional regression models where results generally show that activity GDP levels affect FDI in a robust, positive and significant way. Exports had a significant negative impact on the KSA's FDI, while the socio-political risk variables were mostly significant, and negative in their impacts on FDI inflows.

Introduction

The Kingdom of Saudi Arabia (KSA) possesses one of the largest economies in the Middle East and North Africa (MENA) region. Its Gross Domestic Product (GDP) reached 698.4 billion Saudi Riyals (SR) in the year 2001 and real GDP at 1999 prices was 640.4 billion up from 633 billion in 2000. The real GDP growth rate was 4.9% in the year 2000, and is estimated to be 1.20% in 2001. The major contributing sector is Mining and Quarrying with 185.6 billion SR in 2001 where the high-

est contribution in that sector comes from Crude Petroleum and Natural Gas (Ministry of planning, 2001).

The KSA's economy is heavily dependent on oil with oil revenues making up around 90-95% of total export earnings and around 35-40% of the country's GDP. This dependence on Oil led to pressures to diversify, liberalize and reform the economy. To achieve the desired liberalization and reform, policies focused on privatization and investment promotion. Private investment

was encouraged and the Kingdom turned to Foreign Direct Investment (FDI) as an appropriate vehicle that could revitalize its economy and diversify its productive base through its anticipated contributions to the Manufacturing and other sectors and hence to production, income and employment in the economy as a whole (Abdel-Rahman, 2001).

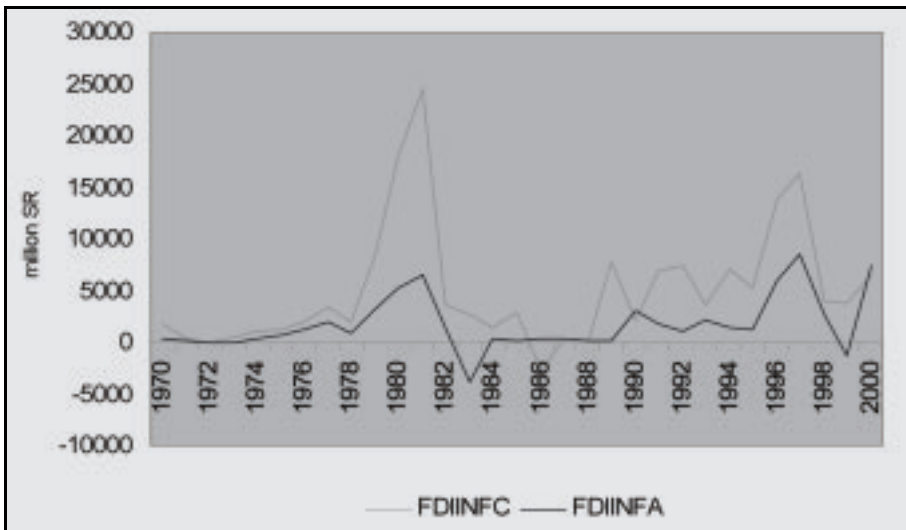
This paper investigates the role played by FDI in the economy of the KSA. Section 2 of the paper discusses FDI in the KSA in terms of its overall trends, types and distributions. Section 3 deals with some empirical aspects related to causality flows between FDI and related macroeconomic variables and to the determinants of both contracted and actual FDI. In this context the roles of

market size, economic integration via international trade, wage rates, returns and country risk in attracting FDI are investigated. A final section of the paper then concludes the study.

Foreign Direct Investment in the KSA

Table (A1) in the appendix provides data on contracted and actual - or realized - FDI inflows to the KSA. FDI data are obtained from the National Center of Economic and Financial Information (2002), United Nations Conference on Trade And Development (UNCTAD), and domestic KSA sources - in particular SAGIA database(2001). The data is provided for cumulative FDI for the period 1958-2000 and inflows are computed from the base. Fig (1) below illustrates the

Figure 1
FDI Inflows in the KSA



graphical performance of both contracted and realized FDI inflows through the sample period.

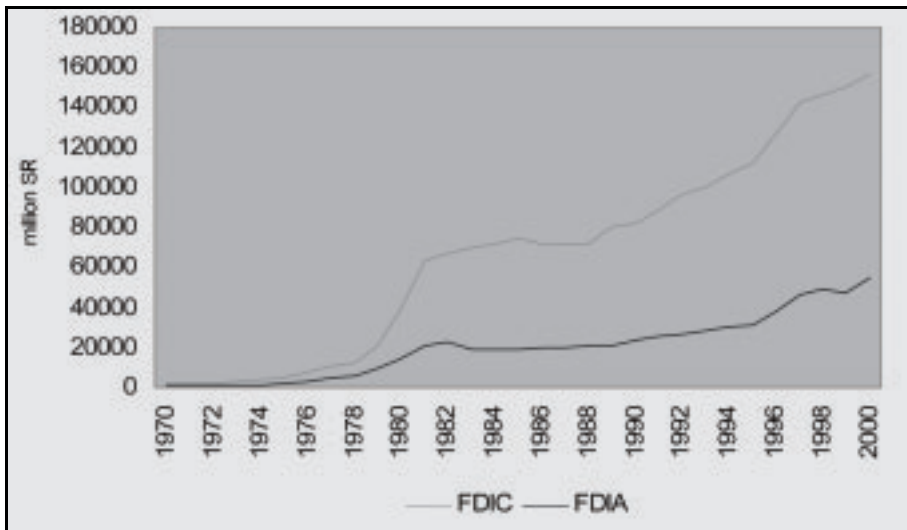
As can be seen from the data and figures, contracted FDI inflows (FDIINFC) had more pronounced fluctuations as compared to actual FDI (FDIINFA). A high peak of contracted FDI is detected in 1981 preceding the massive investments in the petrochemical industry and the establishment of the giant conglomerate Saudi Arabia Basic Industries Company (SABIC) that occurred in the early eighties. Actual inflows normally fell short of the contracted FDIs and were generally more stable since they were spread over a number of years. A slight upward trend in FDI inflows could also be observed to be

occurring since 1984 possibly due to the liberalization and opening-up efforts of the country. Table (A2) in the appendix provides data on cumulative contracted and realized FDIs whereas Fig (2) below illustrates graphically the performance of both contracted (FDIC) and realized (FDIA) cumulative FDI through the sample period.

Positive trends are clearly seen in both series with the common jump that have occurred in the early eighties because of the infusion of massive FDI into the petrochemicals sub-sector and the gradual increase throughout the nineties with some acceleration towards the end of the period.

Traditionally, FDI in the KSA mostly assumed one of three forms:

Figure 2
Cumulative FDI in the KSA



Joint ventures, Greenfield investments, and investments related to the Offset Programs. Joint ventures were the predominant form prior to a New Investment Law passed in 2000 and involved ventures jointly with KSA government institutions or KSA firms. Greenfield investments in KSA production, and distribution facilities were relatively new being spurred by the New Investment Law. Mergers and Acquisitions (M&A) by foreign companies are almost unknown. Joint ventures - the present predominant form - could theoretically be either Equity Joint Ventures (EJV) or Contractual Joint Ventures (CJV). Of these two forms EJVs seem to be the predominant form in KSA's FDI where the foreign side generally contributed equipment, industrial property rights including technology, and funds while the Saudi counterpart contributed land, plant, equipment and the local component of currency and funds. In addition to these forms, the KSA also instituted an Offset program with foreign partners, which was tied to its defense purchases. The Kingdom's first Offset program dates back to 1984 when the Peace Shield 1 Command and Control Program came to effect (Economic Bureau, 1998). However, rather than merely reducing the cost of imports, Saudi Arabia evolved Offset programs that focus more on developing and diver-

sifying its national economy to ensure long term growth. Indeed, the programs adopted by the Kingdom were largely of the indirect Offset forms.

In terms of sectoral distributions of FDI inflows in the KSA, the Manufacturing sector alone has attracted the lion's share of foreign investments while the remaining part was distributed among Construction and Services, Agriculture and Mining with a minimal share for the last two (Abdel-Rahman, 2003; Ministry of Industry and Electricity, 2000; Fadli, 2001). The total number of FDI ventures was 1798 in the year 2000 with numbers in Manufacturing constituting 55% of the total. This is followed by Construction with a percentage of 22% and Services being 19% of the total. In terms of actual capital the figures translate to SR 17209 million for Manufacturing constituting a share of 76% of the SR 22373 million total actual capital. This is followed by Services with a share of 20%, and Construction with just 4% of the total. The large share attributable to Manufacturing is due to the fact that most of foreign investment is concentrated in the heavy Petrochemical industry with 129 firms comprising the majority's share of total foreign investments in the KSA Manufacturing sector. Shares of partner's Contracted and Actual capital in total finances stayed roughly the same and were

highest for Mining and Construction respectively because of the relatively heavy foreign component in each.

In terms of sub-sectors of Manufacturing, the largest contribution of FDI total finance was in the Chemicals and Petroleum Products sub-sector with a 74.8% share of FDI in total investments of that industry indicating a heavy concentration of FDI in that activity despite its low share in terms of number of factories to the total. This is followed by Fabricated Metal Products and Machinery with an FDI financing share of 28.6%; Nonmetallic Products with a share of 25.3%; and Paper, and Printing and Publishing with a share in total financing of 24.5%. There is also evidence of disproportionate small contributions of industries of high foreign investment concentrations to employment in the Manufacturing sector overall. The Chemicals and Petroleum Products industry absorbed almost 75% of the total foreign financing available to the Manufacturing sector while contributing only 36% to total employment in that sector. On the other hand Basic Metal industries which attracted a 3% share of Manufacturing total FDI finances contributed a higher disproportionate 8% share to sectoral employment. Within the Manufacturing industries, the ratios tilt heavily towards the Chemicals and Petroleum Products sub-sector

since it absorbed 85.5% of total foreign finances. This is followed at a distance by Fabricated Metals and Nonmetallic Products with shares of 5% each. On the other hand 37.2% of total domestic finance was allocated to Chemicals and Petroleum products whereas the shares for the Fabricated Metals and Nonmetallic Products two sub-sectors were respectively 16.2% and 18.7%.

Inferences drawn from the above relate mainly to the disproportionate distributions of FDI between these industries and sub-sectors since despite the fact that the ratio of establishments with direct and indirect foreign investment is 14.3% only of the total number, their share in financing is more than half of total financing allocated to the Manufacturing industries in the KSA. FDI is also seen to be heavily concentrated in the Chemicals and Petroleum Products industries with a share of more than 85% of FDI inflows to the Kingdom. Fabricated Metal provides the industry with the highest provisions for investment opportunities in view of the fact that 26% of the national establishments and 38% of the foreign establishments are in this sub-sector. Lastly, it could be clearly discerned that most of FDI flows were in capital-intensive industries and their contribution to employment within sectoral opportunities was generally minimal.

Empirical Models of FDI in the KSA

This part of the study presents empirical models used to study causality flows between FDI and other important variables of the KSA economy and to econometrically gauge the determinants of FDI themselves.

Causality Flows

In this section, we examine causality flows between FDI, output, exports, costs in the form of wages, and domestic investments in the KSA economy within the relevant sample periods. Causality flows are determined by application of Pair-wise Granger techniques to the respective variables. Data on the additional variables - GDP, exports, and domestic investment - are obtained from Ministry of Planning (2001) sources and site.

Actual FDI and Output:

The relationship between actual FDI and output growth has been studied intensively in the literature. In the neo-classical growth models output growth is determined by the exogenous labor force growth and technological progress factors whereas FDI would have short-run effects only. The endogenous growth theory strand, on the other hand, studies the channels through which

FDI can result in long-run economic growth (Grossman and Helpman, 1991; Barro and Sala-i-Martin, 1995). One channel emphasized by Dunning (1993), Blomstrom *et. al.* (1996) and Borensztein *et al.* (1998) *inter alios*, works through a 'catch-up' process in the level of technology where FDI would result in capital accumulation in the host country hence encouraging the incorporation of new inputs and foreign technologies in the production function of the economy. A second channel works through knowledge transfers where FDI augments the level of knowledge in the host country through labor training and skill acquisition and through the introduction of modern management practices and organizational arrangements. This latter channel has been emphasized by de Mello (1997, 1999).

As far as causation between FDI and the relevant output variable is concerned, the directions may not be that clear-cut. The arguments above support an export-led economic growth hypothesis where FDI will result in export expansion and hence overall growth. But on the other hand it could be argued that activity in the economy as measured by output growth causes FDI inflows through market size effects to that economy which would establish causation in the opposite direction. Empirical studies

designed to detect the flow of causation between FDI and output growth abound. Examples of these are de Mello (1997) and Ericsson and Irondoust (2001). Table (1.a) presents the results with respect to the KSA where causality flows are detected with respect to actual FDI only and output is measured by the KSA's real GDP variable⁽¹⁾.

Table 1.a
Pair-wise Granger Causality Tests
Actual FDI and Output

Causality Flow	F-statistics	p-value
$FDI \nrightarrow GDP$	0.018	0.896
$GDP \nrightarrow FDI$	0.092	0.020

* $\nrightarrow$ Does not Granger cause.

The second column in the table contains the F-statistic of the Granger test and the last column the associated p-value. As can be seen from the table, the hypothesis that FDI inflows do not Granger-cause output (GDP) in the Saudi economy is accepted while that GDP does not Granger-cause FDI inflows is rejected at 5% level. Hence, it could be argued that while the KSA was successful in attracting FDI because of its overall economic performance, the FDI inflows may not as yet have impacted the KSA's economy in an appreciable way.

Actual FDI and Exports:

Inward FDI may increase host country productivity and exports; and pro-

ductivity growth in turn may affect exports positively. But on the other hand, it could be argued that exports are viewed as substitutes to FDI from host country perspective which would lead to a negative relationship between the two variables. Pfaffermay (1994) studied the relationship between FDI and export growth using Granger Causality techniques in the Austrian economy. Other studies included Aitken *et. al.* (1997) and Ericsson and Irandoust (2001) where results generally remained conflicting on the lines of causation. Table (1.b) below presents the results with respect to the KSA economy.

Table 1.b
Pair-wise Granger Causality Tests
Actual FDI and Exports

Causality Flow	F-statistics	p-value
$FDI \nrightarrow EXP$	1.150	0.333
$EXP \nrightarrow FDI$	5.024	0.015

* $\nrightarrow$ Does not Granger cause.

In this instance the hypothesis that FDI stocks do not Granger-cause exports (EXP) in the Saudi economy is accepted while that the level of exports does not Granger-cause FDI stocks is rejected at 5% level. Additional validation of this causation will be obtained in the regressions of FDI determinants where the nature of the relationship will also be established.

Actual FDI and Wages:

Wages are an important component of total costs especially in labor intensive manufacturing and hence is regarded as an important determinant of FDI where inflows could be discouraged by high wages in the host. Dunning (1993) and Kumar (1994), *inter alios*, argued that the lower the labor cost as measured by wages in the host, the more attractive the host becomes to inflows. But *a priori*, the relationship between FDI and wages could flow in the other direction since massive FDI inflows to the host country would result in higher wages through bidding for the services of the available labor factor and through higher incomes effect. Table (1.c) presents the results on the two variables where wages are measured by an index of real wages in the GCC countries because of the unavailability of an appropriate measure for the KSA.

Table 1.c
Pair-wise Granger Causality Tests
Actual FDI and Wages

Causality Flow	F-statistics	p-value
$FDI \nrightarrow WAGE$	0.931	0.546
$WAGE \nrightarrow FDI$	8.087	0.059

* $\nrightarrow$ Does not Granger cause.

In this case, the hypothesis that FDI inflows do not Granger-cause

wages in the Saudi economy is accepted while that of wages not Granger-causing FDI inflows is rejected at 6% level. It could thus be stated that wages in the KSA, as a major component of the cost of production, tend to cause FDI where the nature of causation would be established through the more elaborate regression models of the next section.

Actual FDI and Domestic Investment:

Early studies on the links between foreign direct investment FDI and domestic investment (DI) included van Loo (1977) on the Canadian economy. More recent studies include Aitken and Harrison (1999) and Kokko (1996) *inter alios* where the issue has been treated mainly within the crowding-out/crowding-in context. Table (1.d) presents the causality results with respect to the KSA.

Table 1.d
Pair-wise Granger Causality Tests
Actual FDI and Domestic Investment

Causality Flow	F-statistics	p-value
$FDI \nrightarrow DI$	0.505	0.422
$DI \nrightarrow FDI$	0.978	0.683

* $\nrightarrow$ Does not Granger cause.

where the hypothesis of no relationship between the two is accepted.

Thus preliminary evidence on the directions of causation between FDI and some relevant macroeconomic variables of the KSA economy has been obtained through these tests. Results were indecisive in some cases which could be attributable in part to the partial and restricted nature of the testing procedures which consider two variables at a time. In the next section we will proceed to develop a more general class of models which would use these variables within a more elaborate regression model establishing the nature, directions and significances of the postulated relationships.

Determinants of KSA's FDI

We proceed next to present regression models explaining KSA FDI in terms of their various determinants. Little systematic econometric work has been done in this regard on the KSA. In studies related to other countries conventional determinants of FDI inflows normally include variables related to the level and direction of activity in the host economy, the degree of macroeconomic stability and openness of the economy, plus the situation on the host's internal and external balances (Wang and Swain, 1995; Chein-Hsun, 1996). Host country socio-political characteristics such as government stability, the legal system, and the extent of corruption,

have also been suggested as explanations for differences in the extent of FDI inflows and stocks.

As far as the theoretical literature on the subject is concerned, the "market size hypothesis" stipulates that FDI is a function of the market size of the host. Davidson (1980), Moore (1998) and Braunerhjelm and Svensson (1996) suggest that the size of the country's market captures demand and scale effects. Bajo-Rubio and Sosvilla-Rivero (1994) and Loree and Guisinger (1995) argue that different types of FDI will be influenced to different degrees by the host market where market-oriented FDI may be more concerned with the market size than export-oriented FDI. Two types of variables are often used, either separately or jointly, as measures of market size in empirical models: the GDP variable and its rate of growth where they are stipulated to have a positive relationship to FDI. The growth rate has an effect since if the host country market expands more rapidly than home country markets, the host country market becomes more attractive and home country's firms become more willing to enter the host. Empirical support for this hypothesis could be cited in Ajami and BarNiv (1984) and Grosse and Trevino (1996) *inter alios*.

As regards the effects of costs on the decision to FDI, Aliber (1970) notes that if the cost of borrowing in the host country is higher, then foreign firms can have a cost advantage over their host country rivals and hence are in a better position to enter the host market via FDI. However, the argument in this case relies on an implicit assumption that foreign investors will raise all the funds they need in their overseas operations from abroad. This may be true for wholly owned subsidiaries but may be less so in explaining joint ventures where indigenous partners also contribute, as in the KSA where in this latter instance an inverse relationship is expected. Wages are also an important part of total costs, the argument being that the lower the labor cost in the host country, the more attractive the host country to FDI becomes. Thus a negative relationship is expected in this count, where a lower wage rate will lead to higher inward FDI.

Bilateral trade also plays an important role in the decision to FDI, since for an individual firm, exports and FDI are the two alternative entry modes into a host market. At an aggregate level, the impact of bilateral trade on FDI is not clear-cut. FDI may be negatively related to host

country exports in the short run as foreign entrants compete for exportable goods and services. Over the long run, however, a positive relationship between the two should materialize. Studies by Horst (1972) and Jeon (1992) indicate a negative relationship between imports and FDI in the host country because growing imports imply lower tariff/non-tariff trade barriers and therefore lead to a temporary fall in FDI.

As far as country risk is concerned, internal political, economic, and social instability in the host country and the unfriendly attitude of the host country's government increases the uncertainty for potential investors, and will thereby have a negative impact on FDI inflows. Thus the higher the degree of country risk, the lower will be inward FDI.

An estimable FDI function could thus assume the following form:

$$\begin{aligned} FDI &= f(X, Z) \\ &= f(GDP, GRGDP, EXPO, \\ &\quad IMPO, WAGE, RATE, DINV; Z) \end{aligned}$$

where X is a vector of economic determinants which would include the level of GDP and its growth rate (*GRGDP*); exports (*EXPO*) and imports (*IMPO*) or other measures of the degree of openness of the economy; and domestic investment (*DINV*) reflecting the investment climate in the

country. Other components of economic determinants include the wage rate (*WAGE*), and the return or cost of capital rate (*RATE*) as variables reflecting the costs of production in the host country where data for this latter variable are for 3-month interest rate on deposits obtainable from SAMA (2001) sources.

Z is a vector of risk variables where risks are mainly sociological, and political. Risk is measured by assigning risk points to a pre-set group of factors, termed the socio-political risk components. The subcomponents in the case of the KSA include government stability (*GOS*) which is a measure both of the government's ability to carry out its declared programs, and its ability to stay in office; socio-economic conditions (*SEC*) which cover a broad spectrum of factors ranging from infant mortality to housing, and generally measures the degree of public satisfaction with the government; the investment profile (*IVP*) which is a measure of the government's attitude to inward investment as determined by four sub-components which are respectively the risk to operations, taxation, repatriation, and labor costs; corruption (*CORP*) which is held to be a threat to foreign investment since it distorts the economic and financial environment, reduces the efficiency of government and business, and introduces an inherent instability into the political process;

law and order (*LOD*) where the two are assessed separately, with the Law sub-component being an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law; and bureaucracy quality (*BUR*) since the institutional strength and quality of the bureaucracy tends to minimize revisions of policy. The data on these variable were obtained from the International Country Risk Guide (ICRG) published by the PRS Group (PRS, 2000).

In our regressions we first used the individual risk components as regressors in combination with the various economic determinants but because of degrees of freedom problems, we resorted to use a composite risk rating regressor constructed from the individual components. The method of computing the composite socio-political risk ratings (*cpfr*) consists of simply summing the various political risk ratings where the highest overall rating indicates the lowest risk, and the lowest rating indicates the highest risk.

The above model was estimated by OLS for the period 1984-2000 over which the data are jointly available for all variables appearing in the regressions. Economic variables are taken in logarithmic forms and denoted by lower-case letters. Results are given in table (2a) below for contracted FDI (*fdic*):

Table 2a
Determinants of Contracted FDI
Static Formulation

$$fdic_t = \beta_0 + \beta_1 gdp_t + \beta_2 grgdp_t + \beta_3 expo_t + \beta_4 impo_t + \beta_5 wage_t + \beta_6 rate_t + \beta_7 dinv_t + \beta_8 cpfr_t + \varepsilon_t$$

Variable	Coefficients			
<i>C</i>	-5.897	-6.329	-6.771	-13.155
<i>gdp</i>	2.855 (10.583)	2.901 (13.939)	2.953 (17.813)	2.937 (7.349)
<i>grgdp</i>	0.001 (0.308)	-	-	-
<i>expo</i>	-1.011 (-8.208)	-1.013 (-8.827)	-1.037 (-10.715)	-0.906 (-3.966)
<i>impo</i>	-0.059 (-0.528)	-0.040 (-0.460)	-	-
<i>wage</i>	-0.176 (-2.002)	-0.185 (-2.386)	-0.188 (-2.563)	-0.253 (-1.446)
<i>rate</i>	0.206 (4.495)	0.205 (4.814)	0.209 (5.213)	0.263 (2.785)
<i>dinv</i>	-0.600 (-4.376)	-0.615 (-5.121)	-0.644 (-6.656)	-
<i>cpfr</i>	0.015 (4.014)	0.015 (5.472)	0.015 (5.947)	0.007 (1.272)
R^2	0.990	0.990	0.990	0.933
$\bar{R}^2$	0.977	0.980	0.982	0.895
$\hat{\sigma}$	0.028	0.026	0.025	0.060
F	75.634 [0.000]	99.261 [0.000]	128.427 [0.000]	24.993 [0.000]
d	3.004	2.853	2.876	1.488

where R^2 is the coefficient of determination, $\bar{R}^2$ is its adjusted version, $\hat{\sigma}$ is the standard error of the regression, d is the Durbin-Watson statistic and figures in parentheses are t-ratios

while those in squared brackets are p-values.

The fit of the estimated equations was quite good. Results obtained were consistent and robust. Coefficients

were mostly significant and possessed the expected signs and magnitudes. The activity level GDP variable had the expected positive and significant relationship to the level of contracted FDI variable. The response to GDP was clearly elastic with coefficients almost equal to 3. The GDP growth rate was an insignificant determinant. The trade variables exerted negative influences on contracted FDI, but imports were non-significant as determinants. Exports had a consistent negative relationship throughout the trials. The elasticity coefficient on the exports was almost unitary. The result of a negative relationship between exports and FDI may seem contrary to the *a priori* expectations since it would imply a substitute relationship between the two from host country perspective. But exports are mainly from Oil in the case of the KSA and anecdotal evidence shows that when oil revenues were high in the Kingdom, there was generally less urge to attract FDI and vice versa. In addition to that, the negative relationship could be considered as a confirmation of the hypothesis that exports and FDI are viewed as alternative entry modes by foreign firms seeking to relocate. Wages had the expected negative effect on contracted FDI while the returns variable had the positive

significant effect. Domestic investment - the measure for the overall investment climate in the Kingdom - proved to have a negative effect suggesting that it might have captured some “offsetting influence” or “crowding-out” effects on FDI with the latter contracts tending to rise during periods of falling domestic investments and vice versa (Kokko, 1996; Aitken and Harrison, 1999; UNCTAD, 1999; Abdel-Rahman, 2001). These effects apparently outweigh the “investment climate” factor that the domestic investment variable was intended to capture. The risk variable exerted its positive influence on FDI in an indication of the fact that the higher the score, the lower the risk and hence the higher the contracted FDI into the Kingdom.

Table (2b) lists results for contracted FDI in dynamic partial adjustment form.

Results were largely similar in directions and magnitudes to those obtained under the previous static formulations. The GDP activity variable was significant, though with slightly lesser magnitudes as compared to the static forms throughout. The growth rate of GDP was again not a significant determinant of KSAs contracted FDI. Exports exerted their offsetting negative influence on in-

Table 2b
Determinants of Contracted FDI
Dynamic Formulation

$$fdic_t = \beta_0 + \beta_1 gdp_t + \beta_2 grgdp_t + \beta_3 expo_t + \beta_4 impo_t + \beta_5 wage_t + \beta_6 rate_t + \beta_7 dinv_t + \beta_8 cpfr_t + \beta_9 fdic_{t-1} + \varepsilon_t$$

Variable	Coefficients			
<i>C</i>	-6.005	-6.228	-6.147	-7.941
<i>gdp</i>	2.410 (8.347)	2.430 (9.790)	2.427 (10.619)	1.800 (4.963)
<i>grgdp</i>	0.001 (0.205)	-	-	-
<i>expo</i>	-0.898 (-8.322)	-0.898 (-9.080)	-0.895 (-10.101)	-0.676 (-4.601)
<i>impo</i>	-0.002 (-0.023)	0.008 (0.117)	-	-
<i>wage</i>	-0.158 (-2.298)	-0.162 (-2.714)	-0.162 (-2.926)	-0.157 (-1.467)
<i>rate</i>	0.173 (4.507)	0.173 (4.911)	0.172 (5.297)	0.151 (2.426)
<i>dinv</i>	-0.462 (-3.764)	-0.469 (-4.306)	-0.465 (-4.792)	-
<i>cpfr</i>	0.013 (4.067)	0.012 (5.656)	0.012 (6.103)	0.006 (2.070)
<i>fdic₋₁</i>	0.235 (2.234)	0.236 (2.465)	0.233 (2.735)	0.508 (4.157)
<i>R</i> ²	0.995	0.995	0.995	0.979
<i>R</i> ²	0.986	0.988	0.990	0.963
<i>σ</i> [^]	0.022	0.020	0.019	0.036
<i>F</i>	112.485 [0.000]	150.587 [0.000]	200.323 [0.000]	61.384 [0.000]
<i>d</i>	2.640	2.538	2.538	2.284

tended FDI and imports were largely insignificant. Wages were negative and significant as expected. The short-run interest rate had the positive sign and was consistently significant. Domestic investments were negative in support of the indication that the

“crowding-out” effect may have outweighed the “investment climate” one for the KSA. Risks proved also to be significant determinants in dynamic form and the adjustment coefficients were also significant.

Table 3a
Determinants of Actual FDI
Static Formulation

$$fdia_t = \beta_0 + \beta_1 gdp_t + \beta_2 grgdp_t + \beta_3 expo_t + \beta_4 impo_t + \beta_5 wage_t + \beta_6 rate_t + \beta_7 dinv_t + \beta_8 cpfr_t + \varepsilon_t$$

Variable	Coefficients			
C	-12.714	-12.554	-18.276	-20.199
<i>gdp</i>	3.213 (4.741)	3.076 (5.320)	3.547 (6.359)	3.682 (7.840)
<i>grgdp</i>	0.011 (1.314)	0.012 (1.670)	-	-
<i>expo</i>	-1.066 (-3.447)	-1.009 (-3.757)	-0.967 (-3.269)	-1.015 (-3.782)
<i>impo</i>	0.184 (-0.660)	-0.264 (-1.261)	-0.105 (-0.507)	-
<i>wage</i>	-0.336 (-1.524)	-0.331 (-1.591)	-0.445 (-2.053)	-0.461 (-2.242)
<i>rate</i>	0.404 (3.516)	0.409 (3.785)	0.412 (3.454)	0.427 (3.849)
<i>dinv</i>	-0.163 (-0.474)	-	-	-
<i>cpfr</i>	0.019 (2.024)	0.019 (2.100)	0.007 (1.1155)	0.007 (1.151)
R ²	0.954	0.953	0.934	0.932
$\bar{R}^2$	0.894	0.906	0.884	0.894
$\hat{\sigma}$	0.071	0.067	0.074	0.071
F	15.721 [0.002]	20.168 [0.000]	18.848 [0.000]	24.596 [0.000]
d	2.520	2.508	1.710	1.940

Table (3a) lists results for actual FDI (*fdia*) in static form.

Results on actual - or realized - FDI were rather similar to those on the contracted FDI variable in terms of patterns of significance, directions and size of effects. The responses to the level GDP variable remained po-

sitive and significant and the response was indeed more elastic as compared to the case of the contracted measure suggesting that realizations of FDI may be accelerated during periods of high economic activity in the Kingdom. The trade variables exhibited the same pattern of behavior as in the contracted case with exports posses-

sing a consistent negative and unitary-elastic relationship to actual FDI while imports were largely insignificant. Wages again had the expected negative effect on actual FDI, though at lower significance magnitudes. Returns retained their positive significant impact while domestic investment turned to be non-signifi-

cant in this instance. Risk variables exerted their positive influence on actual FDI but also at lower significance levels as compared to their contracted measure counterpart.

Table (3b) lists results for actual FDI (*fdia*) in dynamic partial adjustment form.

Table 3b
Determinants of actual FDI Dynamic Formulation

$$fdia_t = \beta_0 + \beta_1 gdp_t + \beta_2 grgdp_t + \beta_3 expo_t + \beta_4 impo_t + \beta_5 wage_t + \beta_6 rate + \beta_7 dinv + \beta_8 cpfr_t + \beta_9 fdia_{t-1} + \varepsilon_t$$

Variable	Coefficients			
<i>C</i>	-8.651	-9.195	-12.563	-15.289
<i>gdp</i>	2.110 (1.422)	2.284 (2.382)	2.402 (2.546)	2.728 (2.824)
<i>grgdp</i>	0.013 (1.449)	0.012 (1.658)	0.009 (1.392)	-
<i>expo</i>	-0.748 (-1.513)	-0.803 (-2.405)	-0.811 (-2.449)	-0.761 (-2.186)
<i>impo</i>	-0.233 (-0.798)	-0.205 (-0.946)	-	-
<i>wage</i>	-0.251 (-1.010)	-0.263 (-1.210)	-0.297 (-1.399)	-0.376 (-1.736)
<i>rate</i>	0.317 (2.019)	0.327 (2.447)	0.329 (2.482)	0.328 (2.345)
<i>dinv</i>	0.075 (0.165)	-	-	-
<i>cpfr</i>	0.017 (1.692)	0.018 (1.959)	0.014 (1.731)	0.006 (1.003)
<i>fdic₋₁</i>	0.361 (0.840)	0.317 (1.032)	0.394 (1.342)	0.347 (1.126)
<i>R</i> ²	0.960	0.960	0.954	0.941
$\overline{R}^2$	0.888	0.906	0.908	0.897
$\hat{\sigma}$	0.073	0.066	0.066	0.070
<i>F</i>	13.368 [0.005]	17.945 [0.001]	20.690 [0.000]	21.316 [0.000]
<i>d</i>	2.320	2.324	2.310	2.009

The fits of the individual equations remained good as judged by the relatively high R^2 and $\bar{R}^2$ measures.

Results were somewhat parallel to those obtained for the contracted FDI case and the ones obtained under the previous static formulations, but with somewhat diminished magnitudes and significance levels. The GDP activity variable retained its significance while the growth rate of GDP stayed non-significant as a determinant of KSAs actual FDIs. Exports kept their offsetting negative influence on FDI and imports were again largely insignificant. A different result was obtained on wages where they turned out to be non-significant in the different trials attempted on this variable. The short-run interest rate kept its performance with the positive sign throughout and was consistently significant. Domestic investments were non-significant now and they are reported for only one trial in the table. Risks possessed their positive signs but lost their significance at the conventional levels. The dynamic adjustment terms were significant and at higher magnitudes as compared to the contracted FDI case.

In summary, it is seen that GDP levels (*gdp*) affected FDI both in their contracted and actual forms positively, significantly and in a robust fashion through the alternative static and dy-

namic specifications attempted. The GDP growth rate (*grgdp*) exercised a positive - but largely insignificant - role on the FDI measure. Trade factors - exports (*expo*) and imports (*impo*) - were negative but had conflicting performances in terms of significance with the import variable being largely non-significant. Domestic investments proved to be negative determinants on the contracted FDI with the indication of a possible "crowding-out" effect in that regard. The socio-political risk variable (*cpfr*) proved a significant determinant for the attempted trials with the sole exception of the actual dynamic case. The lagged FDI variable was significant in the dynamic trials for both the contracted and actual FDIs.

Conclusion

The Kingdom of Saudi Arabia (KSA) faces both short and long-term pressures to lessen its dependence on the major source of its income which is Oil, and to liberalize and reform its economy. To achieve the desired restructuring, liberalization and reform, the Kingdom adopted policies of privatization and investment promotion, and within that context the Kingdom turned to FDI as an appropriate vehicle that could revitalize the economy and diversify its productive base.

This paper investigated the flows of FDI to the economy of the KSA and the various determinants which

govern its performance. FDI in the KSA was discussed in terms of overall trends including types and distributions. FDI in the KSA was seen to be predominantly of the Joint Venture forms while Greenfield investments are expected to accelerate after the imposition of a New Investment Law permitting these kinds of investments. As for distributions of FDI, it was seen that the Manufacturing sector attracted the lion's share while the remaining part was distributed among Construction and Services. The large share attributable to Manufacturing is due to the fact that most of foreign investment is concentrated in the heavy Petrochemical industry comprising the majority's share of total foreign investments in the KSA Manufacturing sector. In terms of sub-sectors of Manufacturing, the largest contribution of FDI total finance was in the Chemicals and Petroleum products sub-sector despite its noted low share in terms of number of factories to the total. There was also evidence of disproportionate small contributions of industries of high FDI concentrations to employment in the Manufacturing sector overall.

The paper then focused on some empirical issues involving causality flows and the determinants of both contracted and actual FDI. Within this regard, the roles of market size, economic integration via interna-

tional trade, wage rates, and country risk in attracting FDI were investigated. Empirical methods used to gauge the issues were causality tests on FDI and related variables of the KSA economy plus conventional regression models on the determinants of FDI themselves.

Causality tests supported the rejection of various hypotheses including the rejection of the conjecture that GDP does not Granger-cause FDI inflows, and that the level of KSA exports does not Granger-cause FDI stocks.

As far as the regression determinants were concerned the results obtained showed that GDP levels affected FDI both in their contracted and actual forms positively, significantly and in a robust fashion through the alternative specifications tried. The GDP growth rate exercised a positive - but largely insignificant - role on FDI. Exports and Imports were negative but had conflicting performances in terms of significance with the export variable proving to be a significant negative determinant of KSA's FDI. This was attributable to the fact the host country may be viewing FDI and exports - which are largely Oil in nature - as substitutes. Domestic investments proved to be negative determinants on the contracted FDI with the indication of a

possible “offsetting” or “crowding-out” effect in that regard. The socio-political risk variable proved mostly significant, thus validating the conjecture that with lower risk, FDI tended to increase for the Kingdom

Overall then, it could be argued that the determinants of FDI inflows

to the KSA economy are economic and socio-political in nature and relate in particular to levels of activity in the economy plus variables relating to the cost-returns structures, degree of openness of the economy, and the macroeconomic environment in the country.

APPENDIX

Table A1
KSA FDI Inflows
Millions of SR

	Contracted Capital			Actual Capital		
	Partner	Saudi	Total	partner	Saudi	Capital
1970	97.21	390.78	1737.99	41.96	71.29	425.75
1971	120.50	207.54	328.04	56.85	127.59	184.44
1972	13.63	8.16	21.79	11.04	6.97	18.01
1973	138.62	319.42	458.04	36.01	51.91	87.92
1974	438.51	573.43	1011.94	137.45	186.02	323.47
1975	506.60	815.27	1321.87	281.17	384.66	665.83
1976	955.02	1044.22	2000.24	534.36	709.54	1244.90
1977	1607.86	1797.65	3405.51	953.36	956.11	1909.47
1978	829.01	1089.49	1918.50	453.45	512.53	965.98
1979	2729.88	5824.31	8554.19	1194.92	2088.37	3283.29
1980	8933.61	9080.08	18013.69	2699.98	2631.42	5331.40
1981	12009.53	12524.68	24534.21	3177.34	3332.41	6509.75
1982	1455.73	2145.45	3601.18	690.23	834.10	1524.33
1983	178.05	2614.99	2793.04	-2211.34	-1646.70	-3858.04
1984	324.92	1116.77	1441.69	121.70	177.15	298.85
1985	741.41	2110.76	2852.17	85.20	156.80	242.00
1986	-1464.27	-1269.83	-2722.20	-414.10	766.49	355.36
1987	21.00	333.55	353.55	-62.37	516.58	453.21
1988	-51.81	202.63	150.82	5.08	265.39	270.47
1989	3996.05	3735.89	7730.04	136.35	120.20	256.08
1990	1032.63	1150.59	2183.22	1586.58	1581.51	3168.09
1991	2517.81	4394.93	6912.74	744.41	1031.60	1776.01
1992	4799.81	3893.48	7443.29	260.67	1054.15	1002.32
1993	772.29	2846.57	3618.86	605.76	1496.10	2101.86
1994	2485.33	4573.98	7059.31	318.02	1186.37	1504.39
1995	2381.20	2852.25	5223.45	449.21	871.47	1318.18
1996	5855.55	7917.02	13772.57	2076.09	3838.93	5915.02
1997	7227.84	9101.91	16329.75	3881.97	4664.65	8546.62
1998	1857.72	2207.23	4064.95	1283.15	1516.13	2799.28
1999	2041.26	1690.66	3731.92	200.58	-1406.27	-1205.69
2000	3118.93	3379.40	6579.33	3345.70	3982.19	7364.89

* “Contracted” is for authorized capital, “actual” is for the paid-up components of capital. “Partner” and “Saudi” refer to the contribution of each in joint ventures, “Total” is for total capital stock.

* Source: National Center for Financial and Economic Information (2002), Ministry of Finance and National Economy and Saudi Arabian General Investment Authority (SAGIA) (2002).

Table A2
KSA Cumulative FDI
Millions of SR

	Contracted Capital			No. Of Ventures	Actual Capital		
	Partner	Saudi	Total		Partner	Saudi	Total
1970	210.66	496.02	1956.68	79	98.31	114.75	525.56
1971	331.16	703.56	2284.72	98	155.17	242.33	710.00
1972	344.79	711.72	2306.51	110	166.21	249.30	728.01
1973	483.40	1031.15	2764.55	126	202.22	301.21	815.93
1974	921.91	1604.58	3776.49	157	339.68	487.22	1139.40
1975	1428.51	2419.85	5098.36	251	620.85	871.88	1805.23
1976	2383.52	3464.08	7098.60	397	1155.21	1581.42	3050.13
1977	3991.38	5261.73	10504.11	673	2108.56	2537.54	4959.60
1978	4820.39	6351.22	12422.61	924	2562.01	3050.07	5925.58
1979	7550.28	12175.52	20976.80	1155	3756.93	5138.44	9208.87
1980	16483.88	21255.61	38990.49	1396	6456.91	7769.86	14540.27
1981	28493.41	33780.29	63524.70	1538	9634.25	11102.27	21050.02
1982	29949.14	35925.74	67125.88	1682	10324.48	11936.37	22574.35
1983	30127.19	38540.73	69918.92	1759	8113.14	10289.67	18716.31
1984	30452.11	39657.50	71360.61	1800	8234.83	10466.83	19015.16
1985	31193.52	41768.26	74212.78	1757	8320.03	10623.63	19257.16
1986	29729.24	40498.44	71490.58	1684	7905.93	11390.12	19612.52
1987	29750.24	40831.99	71844.13	1482	7843.57	11906.69	20065.73
1988	29698.43	41034.62	71994.95	1401	7848.65	12172.08	20336.20
1989	33694.48	44770.51	79724.99	1333	7985.00	12292.28	20592.28
1990	34727.11	45921.10	81908.21	1263	9571.58	13873.79	23760.37
1991	37244.92	50316.03	88820.95	1279	10315.99	14905.39	25536.38
1992	42044.72	54209.52	96264.24	1308	10576.66	15959.54	26538.70
1993	42817.02	57056.08	99883.10	1354	11182.42	17455.64	28640.56
1994	45302.34	61630.07	106942.41	1371	11500.44	18642.01	30144.95
1995	47683.54	64482.32	112165.86	1409	11949.65	19513.48	31463.13
1996	53539.09	72399.34	125938.43	1448	14025.73	23352.42	37378.15
1997	60766.93	81501.25	142268.18	1498	17907.70	28017.07	45924.77
1998	62624.65	83708.48	146333.13	1554	19190.85	29533.20	48724.05
1999	64665.91	85399.14	150065.05	1663	19391.43	28126.93	47518.36
2000	67784.84	88778.54	156644.38	1798	22737.13	32109.12	54883.25

* “Contracted” is for authorized capital, “actual” is for the paid-up components of capital. “Partner” and “Saudi” refer to the contribution of each in joint ventures, “Total” is for total capital stock.

* Source: National Center for Financial and Economic Information (2002), Ministry of Finance and National Economy and Saudi Arabian General Investment Authority (SAGIA) (2002).

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الملخص

محددات الاستثمار الأجنبي المباشر في المملكة العربية السعودية

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جامعة الملك سعود

يدرس هذا البحث محددات الاستثمار الأجنبي المباشر في اقتصاد المملكة العربية السعودية. ويقوم البحث بتقصي أداء الاستثمارات الأجنبية المخططة والفعلية، ومصادرها، وتوزيعاتها القطاعية، ثم يتناول محددات هذه الاستثمارات؛ حيث يتم التركيز على الدور الذي تقوم به متغيرات أساسية مثل حجم السوق، والانفتاح التجاري، ومعدلات الأجور، والمخاطر في استقطاب التدفقات للمملكة. وتتضمن الطرق التطبيقية المستخدمة اختبارات السببية، ونماذج الانحدار؛ حيث تفيد النتائج بمعنوية مستوى الناتج المحلي الإجمالي وتأثيره الموجب، والصادرات ذات التأثير السالب، إضافة إلى متغيرات المخاطر السياسية – الاجتماعية ذات التأثير السالب على الاستثمار الأجنبي المباشر في المملكة.

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