

ECONOMETRIC MODEL OF MANUFACTURING, INVESTMENT AND DEVELOPMENT IN 30 COUNTRIES OF ASIA-PACIFIC

GUISAN, Maria-Carmen*

AGUAYO, Eva

EXPOSITO, Pilar

Abstract

We analyse the evolution of economic development of countries of Asia and Pacific for the period 2000-2010, and present the estimation of a cross-section model of 30 countries in year 2010, in order to relate economic development with manufacturing and investment. We compare the results of Asia-Pacific with the estimation of similar equations with a World sample of 132 countries in the same year. The results are very alike and show the great importance of international cooperation to increase investment per head in low income countries in order to foster the degree of industrialization necessary for sustained development. Both domestic investment and foreign investment show positive impact on industrial production and industry shows a significant and positive impact on non industrial sectors.

JEL codes: I2, E2, O1, O5, O53, O56

Keywords: Asian countries, Asia-Pacific, Econometric models of International Development, Domestic Investment, Foreign Investment, Savings, Manufacturing

1. Introduction

We analyze the evolution of real value-added of manufacturing in 30 countries of Asia and Pacific for the period 2000-2010 and estimate some important relationships of economic development with a cross-section of those countries in year 2010.

In section 2 we present an international comparison of data for those countries in 6 areas: *Western Asia, South Western Asia, India and South, China and North East, Indochina and South Pacific*. The highest level of industrial value-added per capita corresponds to the area China and North East, and the lowest value to the area India and South. We find that many Asia-Pacific countries are below World average and that they have experienced little improvement in real value-added per capita for the period 2000-2010. We call attention on the convenience of fostering international cooperation in order to increase real value-added of industry per capita and foster economic development in many of those countries. Although a few countries may increase income per capita from tourism, or other sources, the question is that many countries need industrialization to alleviate poverty and foster development, and international cooperation would play an important role in this regards.

Section 3 presents the estimation of 4 equations with a cross-section sample of 30 countries of Asia-Pacific in year 2010, and compares the results with a World sample of 132 countries. In both cases we find an important an positive impact of domestic and foreign investment on industrial and non industrial real value-added. Finally section 4 presents the conclusions and we include an Annex with data and complementary information.

* Maria-Carmen Guisan, Professor of Econometrics, mcarmen.guisan@usc.es. Eva Aguayo and Pilar Exposito, Associate Professors of Econometrics. Faculty of Economics and Business Administration. University of Santiago de Compostela (Spain)

2. Manufacturing and development in 6 areas of Asia-Pacific, 2000-2010

Table 1 presents the evolution, for the period 2000-2010, of real value-added, per capita, of manufacturing, GDP, Investment and Savings. The variables are expressed in US Dollars (USD) at 2005 prices and Purchasing Power Parities, and have been calculated from World Bank statistics. The names of the variables are as follows:

QMH = Real value-added per inhabitant in Manufacturing

GDPH = Gross Domestic Product per inhabitant

IH = Gross Domestic Capital Formation per inhabitant

SH = Savings per inhabitants

Table 1. Manufacturing, Development, Investment and Savings in 6 areas of Asia-Pacific
(data in current Dollars per capita for years 2000 and 2010)

Nº	Area	QMH 00	QMH 10	GDPH 00	GDPH 10	IH 00	IH 10	SH 00	SH 10
7	Western Asia	1149	1262	10800	12237	2005	2172	2944*	2303
8	South Western Asia	513	646	3741	4836	1023	2475*	1208*	1824*
9	India and South	245	411	1635	2887	393	983	409*	975
10	China and N.East	1444	2648	5547	9606	1657	3671	1796*	4109
11	Indochina	708	1044	2555	4039	614	1169	717*	1257
12	South Pacific	1207	1278	5320	6978	1281	1882	1476*	2054

Source: Elaborated by Guisan(2014) from World Bank Statistics. Note: * updated on 30th June 2018.

Western Asia: The average value of manufacturing per inhabitant in year 2010 (1262) is higher than 1000 but below World average (1728). The highest levels of QMH in year 2010 correspond to Israel (4702), Saudi Arabia (2037), Kuwait (1498) and Lebanon (1136). Other countries of this area present values below 1000 in that year: Jordan, Syrian R. and Yemen. The average increase of QMH, for the period 2000-2010, has been low with only 11.3 USD per capita and year. Population of this area amounted to 92.6 million in year 2010.

South Western Asia: The average value of manufacturing per inhabitant in year 2010 (646) is very low. There is a great difference between the two countries included in this area, because Iran has a value of QMH in year 2010 (1368) much higher than that of Pakistan (338). The average increase of QMH, for the period 2000-2010, has been low with only 13.3 USD per capita and year (37.1 in Iran and 4.8 in Pakistan). Population of this area amounted to 247.6 million in year 2010 (74 in Iran and 173.6 in Pakistan).

India and South: The average value of manufacturing per inhabitant in year 2010 was only 411, the lowest of all the Asia-Pacific areas and clearly below World average (1728). The highest value, of this group of countries in year 2010, corresponded to Sri-Lanka (820) and the lowest to Nepal (75). The most populated countries of this area, India (1225 million people) and Bangladesh (148.7 million people), present low values of QMH, respectively, of 430 and 268. The average increase of QMH, for the period 2000-2010, has been low with only 16.6 USD per capita and year. Population of this area amounted to 1424 million people in year 2010.

China and North East: This area has the highest value of QMH (2648), among Asia-Pacific areas in year 2010, higher than World average. The increase for the period 2000-2010 has been important, with an average of 120.4 per capita and year. The highest

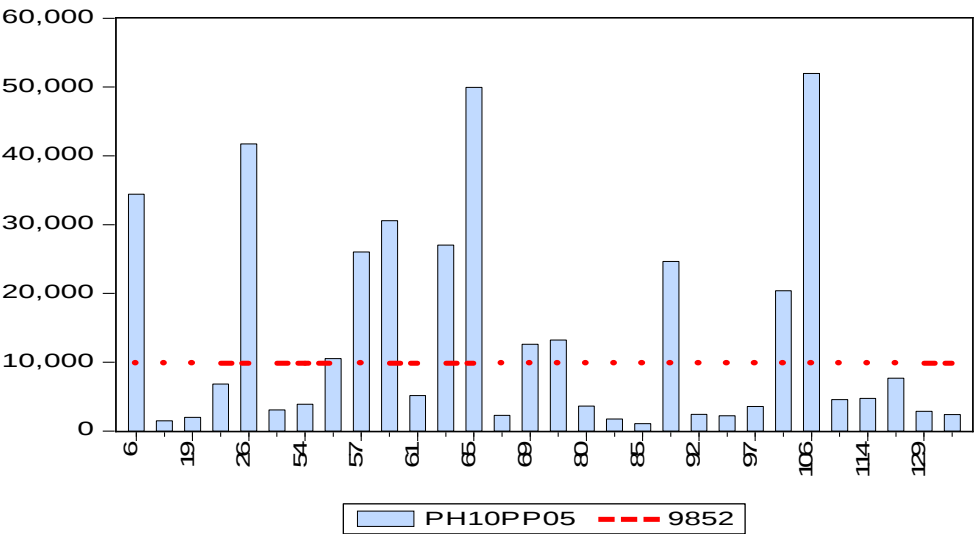
values, of countries in this area, of QMH in year 2010 correspond to South Korea (more than 8000), Japan (more than 5000) and China (around 2181). China has experienced a very high increase of QMH, for the period 2000-2010, with 132.9 per capita and year. Population of this area amounted to 1524 million in year 2010.

Indochina: The average value of QMH in year 2010 (1044) was slightly high than 1000 but below World average (1728). The highest value, of this area in 2010, corresponded to Thailand with 2609, while the other countries of this area showed values below 1000: Cambodia (315), Lao PDR (183), Myanmar (122) and Vietnam (489). The average increase of QMH, for the period 2000-2010, was 33.6 per capita and year, lower than that of China and North East but higher than the other areas of this study. Population of this area amounted to 224.4 million people in year 2010.

South Pacific: The average value of QMH in year 2010 (1278) was higher than 1000 but below World average. The highest values, of this area in year 2010, correspond to Singapore (more than 10000), and the group of New Zealand, Australia and Malaysia (more than 2500). The lowest values, of this area in year 2010, correspond to Indonesia (931), Philippines (748) and Papua-New Guinea (177). While in some countries, of this area, QMH has increased for the period 2000-2010, we notice that it has diminished in other cases, particularly in Australia (from 3760 to 2753). The average increase of QMH in the area, for the period 2000-2010, has been low, with only 7.1 USD per capita and year. Population of this area amounted to 400 million people in year 2010, being Indonesia the most populated countries of the area (around 240 million people).

The following graphs present a comparison of 30 Asia-Pacific countries and World average for year 2010. We indicate the number of each country, accordingly to table A1 in the Annex. Graphs have been elaborated from WB(2014) statistics.

Graph 1. GDP per capita in Asia-Pacific countries and World average, year 2010
(USD at 2005 prices and PPPs)

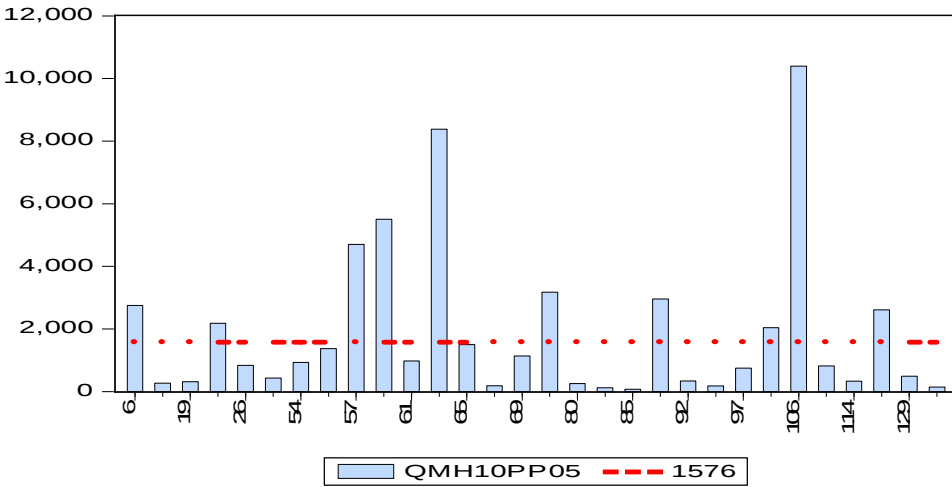


Note: number of each country corresponds to the list of 132 World countries included in Guisan(2014) and other studies (see Annex). Source: Elaborated from WB(2014) statistics.

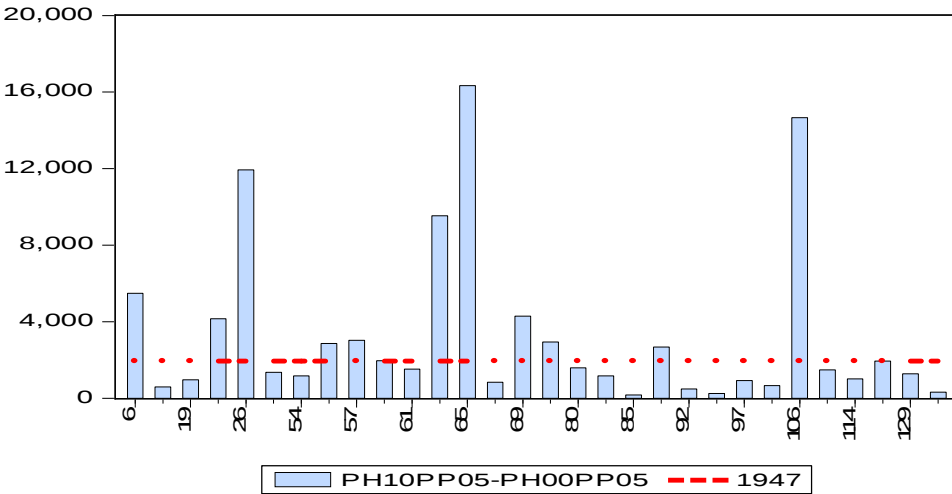
The highest values, in Graph 1, correspond to: 6 Australia, 26 China Hong-Kong, 57 Israel, 60 Japan, 64 Korea R., 65 Kuwait, 87 New Zealand, 103 Saudi Arabia and 106 Singapore.

The most outstanding countries, in graph 2 are: 57 Israel, 60 Japan, 64 Korea R. (South Korea) and 106 Singapore, while 25 China is slightly over World average and 53 India is below World average.

Graph 2. VAB of manufacturing, per capita, in Asia-Pacific countries and World average, year 2010 (USD at 2005 prices and PPPs)

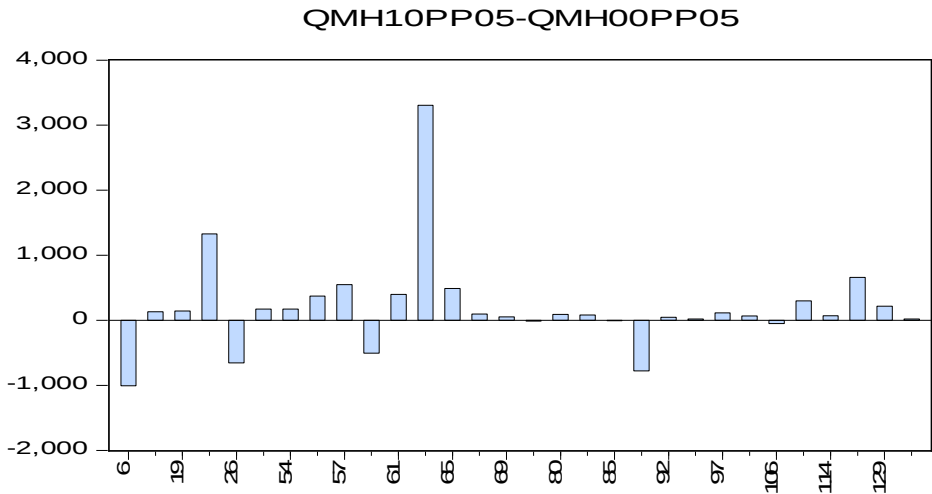


Graph 3. Increase of real GDP per capita in 2005-2010 in Asia-Pacific (data in USD at constant prices of year 2005 and Purchasing Power Parities)



In graph 3 we notice that only a few countries of Asia-Pacific have experienced a great increase of GDP per capita at constant prices in the period 2000-2010.

Graph 4. Increase of real VAB of Manufacturing per capita (QMH) in Asia-Pacific (data in USD at constant prices of year 2005 and Purchasing Power Parities)



The highest increase of QMH in the period 2000-2010 corresponded to Korea R. (South Korea) and China.

3. Econometric estimations with a sample of 30 Asia-Pacific countries in year 2010

Table 2 presents a comparison of estimated coefficients in the sample of 30 Asia-Pacific countries with a World sample of 132 countries.

Table 2. Comparison of estimation of coefficients in Asia-Pacific and World sample

	Coefficient of lagged value of Y		Coefficient of X1		Coefficient of X2	
	Asia-Pacific	World	Asia-Pacific	World	Asia-Pacific	World
Eq 1: QMH	0.9886	0.9694	0.2415	0.2569	-	-
Eq 2b: QNMH	1.2808	1.2127	0.8946	1.9193	-	-
Eq 3. IH	1.0258	1.0135	0.7979	0.7633	0.4606	0.3428
Eq. 4. SH	0.9341	0.9107	0.4110	0.3218	-	-

Coefficients are positive and significant, and the estimation results of Asia-Pacific countries are very alike to those of World sample. The results show that the explanatory variables have a significant coefficient in all the equations as we notice in the following results for Asia-Pacific and in the World sample in the Annex.

Equation 1 relates industrial real value-added per capita at constant prices, with its lagged value, the increase of Investment per capita and two dummies (D6 for Australia and D64 for Korea R.).

Equations 2a and 2b relates QNMH with its lagged value and the increase of QMH. Equation 2a does not include dummies while equation 2b includes several dummies to take account of special effects on some countries.

Equation 1. QMH in Asia-Pacific Countries, related with lagged value and increase of IH

Dependent Variable: QMH10PP05				
Method: Least Squares. Included observations 28				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QMH00PP05	0.988662	0.025976	38.06032	0.0000
IH10PP05-IH00PP05	0.241508	0.089551	2.696861	0.0126
D6 Australia	-1615.874	448.7110	-3.601145	0.0014
D64 Korea R	2770.509	446.0597	6.211073	0.0000
R-squared	0.981732	Mean dependent var		1902.150
Adjusted R-squared	0.979448	S.D. dependent var		2563.500
S.E. of regression	367.4998	Akaike info criterion		14.78289
Sum squared resid	3241347.	Schwarz criterion		14.97320
Log likelihood	-202.9604	Hannan-Quinn criter.		14.84107
Durbin-Watson stat	4.769461			

Equation 2a. QNMH in Asia-Pacific as function of lagged value and increase of QMH, without dummies

Dependent Variable: QNMH10PP05				
Method: Least Squares. Included observations: 30				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QNMH00PP05	1.348139	0.032264	41.78521	0.0000
QMH10PP05-QMH00PP05	0.894631	0.566473	1.579300	0.1255
R-squared	0.972563	Mean dependent var		11614.38
Adjusted R-squared	0.971583	S.D. dependent var		13670.24
S.E. of regression	2304.453	Akaike info criterion		18.38742
Sum squared resid	1.49E+08	Schwarz criterion		18.48083
Log likelihood	-273.8112	Hannan-Quinn criter.		18.41730
Durbin-Watson stat	1.556356			

Equation 2b. QNMH in Asia-Pacific as function of lagged value and increase of QMH, with dummies

Dependent Variable: QNMH10PP05. Method: Least Squares. Included observations: 30				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QNMH00PP05	1.280839	0.015143	84.58029	0.0000
QMH10PP05-QMH00PP05	0.999713	0.138870	7.198917	0.0000
D26 Cn H-K	5291.114	701.5742	7.541774	0.0000
D57 Israel	-3353.844	613.5068	-5.466678	0.0000
D60 Japan	-3377.160	647.8402	-5.212953	0.0000
D65 Kuwait	6197.367	731.6624	8.470256	0.0000
D69 Lebanon	2151.343	552.3985	3.894549	0.0008
D103 Saudi Arabia	-4456.582	604.1852	-7.376187	0.0000
D106 Singapore	7223.049	677.6585	10.65883	0.0000
R-squared	0.998864	Mean dependent var		11614.38
Adjusted R-squared	0.998431	S.D. dependent var		13670.24
S.E. of regression	541.4788	Akaike info criterion		15.66981
Sum squared resid	6157184.	Schwarz criterion		16.09017
Log likelihood	-226.0471	Hannan-Quinn criter.		15.80429
Durbin-Watson stat	1.361974			

In equation 1 there is a positive and significant effect of the explanatory variables on QMH. In the regression excluding dummies, the coefficient of QMH would be slightly higher (0.30) and the goodness of fit would be lower (adjusted R-squared=0.9229 and S.E. 711).

In equation 2b we notice that including dummies improves the results, not only with increases the goodness of fit (with a higher value of Adjusted R-squared and a lower value of S.E. of regression), but also showing that the increase of QMH has a significant and positive impact con QNMH.

Equation 3 relates Investment per capita with its lagged value and the increase of domestic savings and net foreign investment. As indicator of net foreign flows we include the difference between IH and SH. Finally equation 4 relates Savings per capita with its lagged value and the increase of real production per capita ($PH=QHM+QHNM$).

Equation 3. Domestic Investment in Asia-Pacific related with lagged value, increase of Domestic Savings and Net Foreign Investment

Dependent Variable: IH10PP05. Method: Least Squares. Included observations: 25				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IH00PP05	1.025869	0.039287	26.11191	0.0000
SH10PP05-SH00PP05	0.797915	0.096587	8.261125	0.0000
IH10PP05-SH10PP05	0.460649	0.060203	7.651617	0.0000
R-squared	0.984883	Mean dependent var		2903.918
Adjusted R-squared	0.983509	S.D. dependent var		3411.601
S.E. of regression	438.1140	Akaike info criterion		15.11500
Sum squared resid	4222765.	Schwarz criterion		15.26127
Log likelihood	-185.9375	Hannan-Quinn criter.		15.15557
Durbin-Watson stat	0.476663			

Equation 4. Savings as a function of its lagged value and the increase of PH

Dependent Variable: SH10PP05. Method: Least Squares. Included observations: 25				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SH00PP05	0.934150	0.059650	15.66041	0.0000
PH10PP05-PH00PP05	0.410992	0.063009	6.522742	0.0000
R-squared	0.987272	Mean dependent var		3652.599
Adjusted R-squared	0.986719	S.D. dependent var		5342.141
S.E. of regression	615.6563	Akaike info criterion		15.75987
Sum squared resid	8717753.	Schwarz criterion		15.85738
Log likelihood	-194.9984	Hannan-Quinn criter.		15.78692
Durbin-Watson stat	3.110586			

4. Conclusions

The estimations show a positive, and significant, impact of manufacturing on non manufacturing development, both in Asia-Pacific and in the sample of 132 World countries. Domestic and Foreign investment show a positive impact on manufacturing. Savings show a positive impact on investment and economic development has a positive and significant impact on savings.

The evolution for the period 2000-2010 has been positive in some countries but not enough in many developing countries of Asia-Pacific. To foster international cooperation

is very important for sustainable development and poverty alleviation. Countries with values of savings per head (SH) higher than Investment per head (IH), may contribute to foster QMH and QNMH in low income countries. A fair contribution to development should be based in mutual cooperation and not only in profit maximization. Globalization should be improved in order to foster development and quality of life in every country.

Bibliography:

ADB (2008). *Education and Skills: Strategies for Accelerated Development in Asia and the Pacific*, Asian Development Bank.

Barro, R., Lee, J.-W. (2012). Educational Attainment Database, <http://www.barrolee.com/>

Basu, A.M. (2002). "Why Does Education Lead to Lower Fertility? A Critical Review of Some of The Possibilities". Harvard Center for Population and Development Studies, Working paper, Vol.12-5.

Denison, E. (1967). *Why growth rates differ (postwar experience in nine western countries)*. With collaboration from J-P Poullicier. The Brookings Institution, Washington.

Guisan, M.C., (2004). "Human Capital, Trade and Development in India, China, Japan and other Asian Countries, 1960-2002: Econometric Models and Causality Tests," *Applied Econometrics and International Development*, Vol. 4(3), pages 123-139.¹

Guisan, M.C. (2006). "Industry, Foreign Trade and Development: Econometric Models of Europe and North America, 1965-2003" *International Journal of Applied Econometrics and International Development*, Vol.3-1, on line.²

Guisan, M.C. (2007). "Industry, Foreign Trade and Development: Econometric Models of Africa, Asia and Latin America, 1965-2003" *International Journal of Applied Econometrics and International Development*, Vol.4-1, pages 5-20, on line.²

Guisan, M.C. (2008). "Manufacturing and Economic Development: Intersectoral relationships in Europe, America, Africa and Asia-Pacific, 1999-2006," *Regional and Sectoral Economic Studies*, Vol. 8(2), pages 73-88.³

Guisan, M.C. (2009a). "Education, Health And Economic Development: A Survey of Quantitative Economic Studies, 2001-2009," *Regional and Sectoral Economic Studies*, vol. 9(1), pages 129-148.³

Guisan, M.C. (2009b). "Government Effectiveness, Education, Economic Development and Well-Being: Analysis of European Countries in Comparison with the United States and Canada, 2000-2007", *Applied Econometrics and International Development*, Vol. 9-1.¹

Guisan, M.C. (2009c). "Indicators of Social Well-Being, Education and Gender Equality and World Development: Analysis of 132 Countries", *International Journal of Applied Econometrics and Quantitative Studies*, Vol. 6-2, pp.5-24.²

Guisan, M.C. (2014). "World Development, 2000-2010: Manufacturing and Investment in 21 Areas". *Regional and Sectoral Economic Studies*, Vol. 14-2³

Guisan, M.C., Aguayo, E., Exposito, P. (2001a). "Economic Growth and Cycles: Cross-country Models of education, Industry and Fertility and International Comparisons". *Applied Econometrics and International Development*. Vol. 1-1, pp. 9-38.¹

Guisan, M.C., Aguayo, E. and Exposito, P. (2001b). Education and World Development in 1900-1999. A General View and Challenges for the Near Future. *Applied Econometrics and International Development* Vol. 1-1, pp.101-110.¹

Guisan, M.C. & Exposito, P. (2001). "Economic Development of African and Asia-Pacific Areas in 1951-99," *Applied Econometrics and International Development*, Vol. 1(2), pages 101-125.¹

Guisan, M.C. & Exposito, P., (2002). "Economic Growth and Cycles in Asia and Africa in the 20th Century," *Review on Economic Cycles*, Vol. 5(1), December.

Guisan, M.C. & Exposito, P., (2003). "Education, Industry, Trade and Development of Asia-Pacific countries in 1980-99," *Applied Econometrics and International Development*, Vol. 3(2), 117-142.¹

Guisan, M.C., Exposito, P., (2004). "Employment And Real Income of Agriculture in India, China and OECD Countries: Econometric Models And Evolution 1950-2000," *The IUP Journal of Applied Economics*, ICFAI Press, vol. 0(5), pages 7-17, September.

Guisan, M.C., Exposito, P., (2005). "Industry and Foreign Trade in India, China and OECD countries: an analysis of causality, 1960-2002," *International Journal of Applied Econometrics and Quantitative Studies*, Vol. 2(3), pages 5-16.²

Guisan, M.C., Exposito, P., 2006. "Production by sector in China, India and OECD Countries, 1985-2005," *Regional and Sectoral Economic Studies*, vol. 6(2).³

Guisan, M.C., Exposito, P., (2008). "An Econometric Model of Industry, Foreign Trade, and Economic Development In Philippines, 1990-2006," *Applied Econometrics and International Development*, Vol. 8(2), pages 193-208.¹

Guisan, M.C.,Exposito, P.(2010).“Health Expenditure, Education, Government Effectiveness and Quality of Life in Africa and Asia”, *Regional and Sectoral Economic Studies*, Vol. 10-1.²

Guisan, M.C., Exposito, P. (2012). “Investment, Poverty And Development In Asia-Pacific Countries: Econometric Models And Evolution, 2000-2010”, *Applied Econometrics and International Development* Vol. 12-1. pp-155-164.¹

Guisan, M.C., Exposito, P. (2015). “Manufacturing and Development In Countries and Areas of Asia-Pacific, 2000-2010”. *Regional and Sectoral Economic Studies*, Vol. 15-2.

Guisan, M.C., Cancelo, M.T., Exposito, P., (2007). "Desarrollo Economico De China, India Y Paises Limitrofes, 1990-2005," *Estudios Economicos de Desarrollo Internacional*, Vol. 7(2), 5-24 (Spanish with English Summary).⁴

Guisan, M.C., Neira, I.(2006). “Direct and Indirect Effects of Human Capital on World Development, 1960-2004”, *Applied Econometrics and International Development* Vol. 6-1, on line.¹

Ravallion, M. and Shaohua, C. (1996). What can new survey data tell us about recent changes in distribution and poverty? *World Bank Policy Research Working Paper* 1694.

WB(2014). World Development Indicators. World Bank, on line.

¹ <http://www.usc.es/economet/aeid.htm>

² <http://www.usc.es/economet/jjaeqs.htm>

³ <http://www.usc.es/economet/rses.htm>

⁴ <http://www.usc.es/economet/eedi.htm>

Annex 1.

Table A1. Data of GDP per capita (PH) and Population (POP) in 30 Asia-Pacific countries, 2000-2010 (PH in USD at 2005 prices and Purchasing Power Parities; POP in thousand)

Number		PH00PP05	PH10PP05	POP00	POP10
6	Australia	28926	34411	19153	22299
9	Bangladesh	901	1488	128916	148692
19	Cambodia	1009	1968	12744	14139
25	China	2664	6816	1262645	1338300
26	Hong Kong,cn	29785	41713	6665	7068
53	India	1718	3073	1015923	1224615
54	Indonesia	2714	3880	206265	239870
55	Iran, I. Rep.	7667	10526	63664	73973
57	Israel	22991	26023	6289	7624
60	Japan	28613	30573	126870	127451
61	Jordan	3632	5157	4755	6047
64	Korea, Rep.	17489	27027	47008	48875
65	Kuwait	33603	49934	2190	2736
67	Lao PDR	1452	2288	5279	6201
69	Lebanon	8328	12621	3398	4227
75	Malaysia	10271	13214	22997	28401
80	Mongolia	2029	3620	2398	2756
83	Myanmar	582	1749	47724	47963
85	Nepal	905	1075	24431	29959
87	New Zealand	21975	24649	3858	4368
92	Pakistan	1931	2411	138080	173593
94	Papua NG	1963	2217	5299	6858
97	Philippines	2637	3560	75766	93261
103	Saudi Arabia	19716	20374	21484	27448
106	Singapore	37304	51966	4018	5077
111	Sri Lanka	3068	4555	19359	20860
114	Syrian Arab R	3725	4741	16813	20447
117	Thailand	5729	7673	61438	69122
129	Vietnam	1597	2875	78523	86928
130	Yemen, Rep.	2064	2380	17937	24053

Source: Elaborated from WB(2014) statistics

Data of IH and SH, for each country, are included in Guisan and Exposito(2012). Data of QHM and QHNM, for each country are included in Guisan and Exposito(2015).

Annex 2. Estimation of equations 1 to 4 with a sample of 132 countries, for comparison with Asia-Pacific results.

The list of countries included in the sample is the same that appears in Guisan(2014). Data are expressed in US Dollars (USD) at 2005 prices and Purchasing Power Parities. Data have been elaborated from WB(2014). The sample includes 132 countries but there are some problems of missing data and the regressions may exclude a few ones.

Equation a1. QMH as a function of its lagged value and increase of investment in 128 countries of the World in year 2010.

Dependent Variable: QMH10PP05. Method: Least Squares. Included observations: 128				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QMH00PP05	0.969436	0.018886	51.33115	0.0000
IH10PP05-IH00PP05	0.256855	0.053049	4.841825	0.0000
R-squared	0.924802	Mean dependent var		1748.471
Adjusted R-squared	0.924205	S.D. dependent var		2105.470
S.E. of regression	579.6558	Akaike info criterion		15.57825
Sum squared resid	42336111	Schwarz criterion		15.62281
Log likelihood	-995.0079	Hannan-Quinn criter.		15.59635
Durbin-Watson stat	1.866932			

Equation a2. QNMH in 132 countries of the World as function of lagged value and increase of QMH, with dummies

Dependent Variable: QNMH10PP05. Method: Least Squares. Included observations: 132				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
QNMH00PP05	1.212686	0.009806	123.6633	0.0000
QMH10PP05-QMH00PP05	1.919305	0.173911	11.03616	0.0000
R-squared	0.990577	Mean dependent var		10044.67
Adjusted R-squared	0.989627	S.D. dependent var		10911.97
S.E. of regression	1111.380	Akaike info criterion		16.95788
Sum squared resid	1.47E+08	Schwarz criterion		17.24180
Log likelihood	-1106.220	Hannan-Quinn criter.		17.07325
Durbin-Watson stat	1.693496			

Fixed effects	Coefficient	Std. Error	t-Statistic	Prob.
D8 Azerbaijan	5320.274	1112.367	4.782838	0.0000
D21 Canada	-4372.081	1149.116	-3.804733	0.0002
D26 Colombia	7821.877	1144.958	6.831585	0.0000
D42 Finlandia	6761.891	1189.052	5.686791	0.0000
D45 Germany	-4075.282	1145.766	-3.556817	0.0005
D62 Kazakhstan	3583.748	1114.285	3.216186	0.0017
D65 Kuwait	7968.268	1164.832	6.840700	0.0000
D93 Panama	2738.478	1113.589	2.459146	0.0154
D103 Saudi Arabia	-3307.796	1125.376	-2.939281	0.0040
D106 Singapore	9101.231	1141.732	7.971423	0.0000
D113 Switzerland	-5831.551	1164.511	-5.007726	0.0000

The table of fixed effects presents the coefficients of dummies for different intercepts in several countries that showed significant effects. A negative coefficient of country dummies in this equation may indicate that instead of increases of QNMH in the domestic market, the effect of increases in QMH may affect to foreign investments. A positive coefficient implies that there are other important factors, besides QMH, that contribute to increase QNMH (energy sector, international trade, tourism or other ones), and it may also be due, in some cases, to a higher effect than average on QNMH.

Equation a3. Investment per capita in the World sample

Dependent Variable: IH10PP05				
Method: Least Squares				
Sample (adjusted): 1 131				
Included observations: 114 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IH00PP05	1.013489	0.017022	59.54110	0.0000
SH10PP05-SH00PP05	0.763342	0.052265	14.60510	0.0000
IH10PP05-SH10PP05	0.352782	0.042140	8.371749	0.0000
R-squared	0.954325	Mean dependent var		2580.759
Adjusted R-squared	0.953502	S.D. dependent var		2575.706
S.E. of regression	555.4083	Akaike info criterion		15.50325
Sum squared resid	34241105	Schwarz criterion		15.57525
Log likelihood	-880.6851	Hannan-Quinn criter.		15.53247
Durbin-Watson stat	1.681056			

Equation a4. Savings per capita in the World sample

Dependent Variable: SH10PP05				
Method: Least Squares				
Sample (adjusted): 1 131				
Included observations: 114 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SH00PP05	0.910673	0.029241	31.14357	0.0000
PH10PP05-PH00PP05	0.321771	0.033902	9.491261	0.0000
R-squared	0.944002	Mean dependent var		2780.234
Adjusted R-squared	0.943502	S.D. dependent var		3613.034
S.E. of regression	858.7952	Akaike info criterion		16.36633
Sum squared resid	82603276	Schwarz criterion		16.41433
Log likelihood	-930.8806	Hannan-Quinn criter.		16.38581
Durbin-Watson stat	1.782911			