MANUFACTURING AND DEVELOPMENT IN COUNTRIES AND AREAS OF AMERICA, 2000-2010

GUISAN, Maria-Carmen*
AGUAYO, Eva

Abstract: We analyze the evolution of manufacturing and development in 22 American countries for the period 2000-2010, following our previous studies of the period 1980-1999. We find some advance in industrial development of several American countries for the period of study, but unfortunately we may notice stagnation and even diminution in some developing countries. Achievement of the Millennium Development Goals (MDGs) requires that international cooperation play a role to foster industrialization in many countries with a low level of manufacturing activities, given the positive impact of industry on non industrial development. The paper contributes to show empirical evidence in favour of Kaldor´s perspective on the positive role of industrialization.
Keywords: Kaldor, Industry, Manufacturing, American countries, Development for 2000-2010.
JEL codes:L6, N16, O14, O51, O54

1. Introduction

As seen in Guisan, Aguayo and Exposito(2001), Guisan(2014) and other studies, empirical evidence shows the great importance of Kaldor´s views on the positive impact of industrialization on economic development.

Regarding Latin American countries we have studied production by sector and development in other studies, for the period 1980-1999, and here we analyza the period 2000-2010, with special regard to the positive role of industrialization on economic development.

We analyze the evolution of 22 countries of America where there are two outstanding countries: Canada and the United States, with a high degree of industrial and non industrial development, as well as a few countries with industrial development around World average while other countries are clearly below. As seen in Guisan and Neira(2006), and other studies, investment and education are two main factors explaining the differences in economic development.

It is of uppermost importance to favour international cooperation addressed to improve industrialization in many American countries in order to provide a great impact on non industrial development. Guisan, Aguayo and Exposito(2005) analyze several ways of international cooperation including not only investment but also trade, transfers from abroad and other activities that foster industrial and non industrial development in low income countries.

* Maria-Carmen Guisan, Professor of Econometrics, mcarmen.guisan@usc.es. Eva Aguayo, Associate Professor fo Econometrics, eva.aguayo@usc.es, Faculty of Economics and Business Administration, University of Santiago de Compostela, Spain.

2. Manufacturing, Investment and Development in 4 Areas of America, 2000-2010.

Table 1 show the evolution of Manufacturing real value-added per capita (qmh), for the period 2000-2010, together with real Gross Domestic Product per capita (GDPH), investment per capita (IH) and Savings per capita (SH), in 4 areas of America, in comparison with other areas and with World average.

Table 1. Manufacturing, GDP, Investment and Savings, per inhabitant in 4 areas of America.(USD at Purchasing Power Parities of year 2005): evolution 2000-2010

Area	QMH 2000	QMH 2010	GDPH 2000	GDPH 2010	IH 2000	IH 2010	SH 2000	SH 2010
13. USA and Canada	6249	5617	38456	41594	7691	6511	5269	4801
14. Mexico & Central A.	1858	1764	9237	9848	2155	2344	2539	2172
15. SW:Andean America	1219	1217	7064	9181	1421	2089	2483	2189
16. SE America	1544	2442	8748	11921	1443	2117	1544	2442
Africa	278	282	2080	2638	413	620	733	578
Asia-Pacific	903	1443	4004	6333	1093	2115	2625	2315
America	3312	3052	19865	21908	3977	3811	3471	3094
Europe and Eurasia	3220	3191	17408	20828	3722	4151	4310	4195
World	1494	1728	7905	9852	1788	2403	2746	2422

Note: Data have been elaborated by Guisan(2014) from country data of World Bank(2014). In case of non available data, we have included our provisional estimations. QM is real value-Added in Manufacturing GDP is Gross Domestic Product, I is investment and S is savings. Data of IH in area 16 has been updated on 5th October of 2015.

Both IH and SH in the area of USA and Canada are high, in comparison with World average, while the other American areas were in year 2010 very close to World average. The evolution of the variables of table 1 shows a decrease of manufacturing per capita in two areas of America (areas 13 and 14 in Northern and Central America), stagnation in one area (area 15 in the South West) and increase in one area (area 16 in the South East).

Industrialization in areas of Latin America is close to World average and superior to Africa and Asia-Pacific average, but clearly below the area of USA and Canada and average of Europe and Eurasia.

In the next section we analyze the evolution of manufacturing in 22 countries of America.

3. Manufacturing and development in 22 countries of America

As seen in Guisan, Aguayo and Exposito(2001), and in other studies, it is usually very important to foster manufacturing in order to achieve sustainable development in other economic sectors. Countries with low levels of industrial production (both in the domestic market and in foreign countries), usually have a low level of non industrial development.

Table 2 shows the evolution of manufacturing production in the domestic market of 22 countries of America, and we may notice the great difference on the level of economic development between industrialized countries and less industrialized countries.

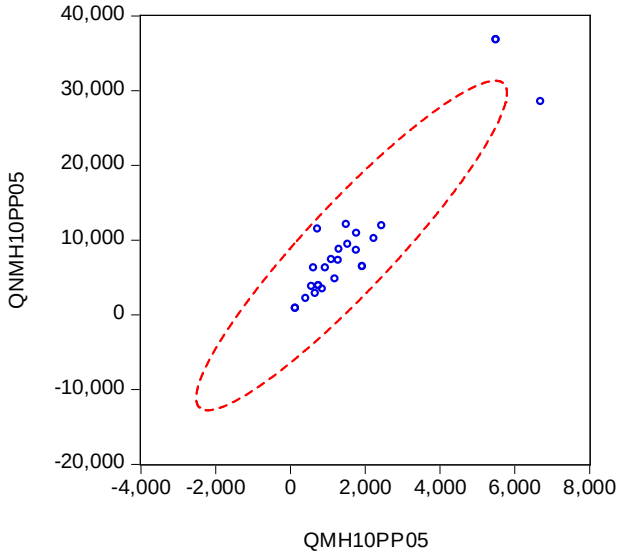
Table 2. Manufacturing, Development and Population in countries of America, 2000-2010: QMH, GDPH, QNMH in USD at 2005 prices and PPPs, Population in thousand.

Country name	QMH 2000	QMH 2010	GDPH 2000	GDPH 2010	QNMH 2000	QNMH 2010	POP 2000	POP 2010
Argentina	1544	2442	10292	**14363**	8748	11921	36896	40412
Bolivia	534	565	3563	4350	3029	3784	8317	9929
Brazil	1347	1307	7921	**10056**	6574	8749	173858	194946
Canada	6171	6692	32477	**35223**	26306	28531	30770	34126
Chile	1781	1496	10475	**13596**	8694	12100	15412	17114
Colombia	965	1102	6433	8479	5468	7377	42120	46295
Costa Rica	2029	1764	8117	**10377**	6088	8613	3929	4659
Dominican R.	1289	1929	4957	8387	3668	6458	8265	9927
Ecuador	1043	936	5491	7201	4448	6265	12306	14465
El Salvador	1244	1196	4974	5981	3731	4785	6280	6193
Guatemala	832	858	3963	4292	3131	3434	11166	14389
Haiti	163	137	1190	996	1027	860	7939	9993
Honduras	667	669	2898	3519	2231	2850	6424	7600
Jamaica	633	619	5758	6883	5125	6264	2589	2702
Mexico	2414	2239	12071	**12441**	9657	10202	97966	113423
Nicaragua	296	418	2115	2613	1819	2195	4959	5789
Panama	815	732	8149	**12206**	7334	11474	2950	3517
Paraguay	618	757	3792	4648	3174	3891	5470	6454
Peru	950	1283	5586	8555	4636	7272	25952	29076
Uruguay	1241	1772	8862	**12655**	7621	10883	3342	3357
USA	6257	5499	39108	**42297**	32851	36798	282224	309349
Venezuela	1913	1536	9564	**10973**	7651	9437	24311	28834
America	**3312**	**3052**	**19865**	**21908**	16553	18856	813445	912549
World (132)[*1]	1494	1728	7905	9852	6411	8124	5863730	6647073

Note: Data have been elaborated by Guisan and Aguayo, in this study, from country data of World Bank(2014). In case of non available data, we have included our provisional estimations. QMH is real Value-Added in Manufacturing per head, GDP is Gross Domestic Product per head, QNMH is real Value-Added in non Manufacturing per head, I is investment per head and S is savings per head. Data of IH in area 16 has been updated on 5th October of 2015. *[1] World(132) is the set of 132 countries of the study by Guisan, Aguayo and Exposito(2001). Data of QMH, GDPH, QNMH, IH and SH in US Dollars at 2005 Purchasing Power Parities (PPPs).

In table 2 there are 10 American countries with production per head higher than 10000 USD, over World average, in year 2010. In descending order: USA, Canada, Argentina, Chile, Uruguay, Mexico, Panama, Venezuela, Costa Rica and Brazil. Between 5000 and 10000 USD per head appear 6 countries, in descending order: Peru, Colombia, Dominican R., Ecuador, Jamaica and El Salvador. The lower values, below 5000, correspond, in descending order to: Paraguay, Bolivia, Guatemala, Honduras, Nicaragua and Haiti.

Graph 1. Manufacturing and Non Manufacturing in America, year 2010
(USD per head at 205 prices and PPPs)



Note: Elaborated by Guisan and Aguayo, from data of table 2.

The evolution of manufacturing for the period 2000-2010 was not positive in many Latin American countries, with stagnation in several cases (Bolivia, Brazil, Guatemala, Haiti, Honduras and Jamaica), diminution in other cases (Chile, Costa Rica, El Salvador, Haiti, Mexico, Panama and Venezuela). In other countries there was a clear increase (Argentina, Colombia, Dominican Republic, Nicaragua, Paraguay, Peru and Uruguay).

The advancement to achieve the Millennium Development goals has been not enough, for the period 2000-2010, in several cases and thus more initiatives to foster manufacturing, investment and other ways of international cooperation, as seen in Guisan, Aguayo and Exposito(2015) are of uppermost importance.

In the Annex we include a report of our Association published by Guisan(2012).

4. Conclusions

The main purpose of this study has been to evaluate the real evolution of manufacturing and development in 22 countries of America during the period 2000-2010. We find that the average of America experienced a diminution in domestic manufacturing per head, from 3312 USD at 2005 PPPs in year 2000 to 3052 in year 2010.

In spite of the high levels of the United States and Canada, and the evolution around World average of many Latin American countries, we find poverty and lack of industrialization in many countries, particularly in those with manufacturing values below World average (1728 USD, in year 2010, at 2005 PPPs)

The main causes of the low values of manufacturing are related with the educational level of population and with the circumstances that do not favour investment. It is of uppermost importance to diminish financial risk, through national and international guarantees, in order to favour international investment and other ways of cooperation to development.

Bibliography:

Arvin, B. M. and Lew, B. (2015). *Handbook on the Economics of Foreign Aid*. Edward Elgar Publishing Ltd.[1]

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

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 Genre 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: Production, Investment and Savings in 21 Areas of America, Africa, Asia-Pacific, Europe and Eurasia”. *Regional and Sectoral Economic Studies*, Vol. 14-2[3]

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., Aguayo, E., Exposito, P. (2015). Cross-Section Models of Manufacturing, Investment And Development In 30 Asia-Pacific Countries For 2000-2010, *Applied Econometrics and International Development*, Vol. 14-2.

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., Neira, I.(2006**).** “Direct and Indirect Effects of Human Capital on World Development, 1960-2004”, *Applied Econometrics and International Development* V.6-1.[1]

WB(2010). World Development Indicators. World Bank, on line.

[1] http://www.usc.es/econmet/aeid.htm [2] http://www.usc.es/econmt/ijaeqs.htm
[3] http://www.usc.es/econmet/rses.htm [4] http://www.usc.es/econmet/eedi.htm

Journal published by the EAAEDS: http://www.usc.es/econmet/eaat.htm

Annex 1: Report published by Guisan, M.C. (2012) in the blog in English, of our Association: https://euroamericanassociation.blogspot.como.es

Economic development and real production per capita, and by sector, for the period 1980-1999 in American countries is analysed in two articles by M.C. Guisan and E.Aguayo, free downloadable at the journal Website:

Education, Industry,Tradeand Development of American Countries in 1980-99

Economic Development ofAmerican and European Areas in 1951-99

Those articles published in the journal *Applied Econometrics and International Development* show an estimated average annual increase of real Value-Added per head of 1.20%. Regarding the period 2000-2010 the average annual increase has been lower, around 0.69%, in a set of 22 American countries.

Regarding production by sector, with data calculated from World Bank Indicators, we find the following diferences, between both periods of time, in rates of annual increase of real Value-added per head, in a set of 22 American countries:

Agriculture: a light increase, from 0.80% for 1980-1999 to 0.96% for 2000-2010

Industry and Building: a decrease, from 1.62% for 1980-1999 to -0.71 for 2000-2010

Services: a light increase, from 1.07% for 1980-1999 to 1.11% for 2000-2010

Total: a decrease, from 1.20% for 1980-1999 to 0.69% for 2000-2010

Importance of Industry and its effects on Services: We emphasize that the positive evolution of Services depends, at a great extent, on the positive evolution of industry. Industrial stagnation or decline leads to limitations in the capacity of expansion of services, and to generate negative effects due to strong external trade deficits.

Although some countries have experienced a positive evolution of industrial production per head, **the average of 22 American countries has decreased.** Industrial development should be improved in American countries given its positive direct and indirect effects on economic development.

Regarding industrial development, among 22 American countries in year 2010. we find, in Dollars at 2000 prices and exchange rates:

1) First group: the highest values of industrial value-added per head in Industry correspond to the USA, Canada, Trinidad and Tobago, with more than 6000 Dollars of year 2000 per capita.

2) A second group, within 2000 and 3000 Dollars of year 2000 per capita, includes: Argentina, Uruguay and Venezuela.

3) A third group within 1000 and 2000 Dollars of year 2000 per capita consiste of: Brazil, Chile, Costa Rica and México

4) Between 500 and 1000 Dollars of year 2000 per head: Colombia, Dominican Republic, Ecuador, El Salvador, Jamaica, Panama and Peru.

5) Below 500 Dollars of year 2000 per capita: Bolivia, Guatemala, Honduras, Nicaragua and Paraguay.

This set of 22 countries consists of all American countries with more than one million population in year 2010, but two countries without available data for sectoral value-added at the source of data (World Development Indicators of World Bank on line on 3rd April of 2012). In the cases of Cuba and Haiti, without available data at the WDI search on 3rd April 2012, we find that, accordingly to other sources, Cuba would be included in the third group, with around 1038 Dollars of industrial real value-added per capita, and Haiti would be included in group 5, below 500 Dollars per capita.

Annex 2. Report published by M.C.Guisan (2018), at entry 32, of the blog of our association, in Spanish: https://economiaydesarrollointernacional.blogspot.com.es

Comentarios en español a los gráficos 1 y 2 incluidos en la entrada 32 del Blog.

El gráfico 1 muestra el valor del Producto Interior Bruto por habitante de 20 países de América Latina y el Caribe en el año 2015 (expresado en Dólares a precios y Paridades de Poder de Compra del año 2011), en comparación con la media mundial.

El orden de los países es el siguiente:

1. Argentina, 2. Bolivia, 3.Brazil, 4.Chile, 5.Colombia, 6.Costa Rica, 7.Dominican R., 8. Ecuador, 9.El Salvador, 10.Guatemala, 11.Haiti, 12.Honduras, 13.Jamaica, 14.México, 15.Nicaragua, 16.Panama, 17.Paraguay, 18.Peru, 19.Uruguay, 20.Venezuela. RB

Destacan, por encima de la media mundial (14770) los siguientes países: 1.Argentina (con un valor de 19101), 4.Chile (22537), 14.México (16668), 16.Panamá (20674) y 19.Uruguay (19831). Estos valores están todavía muy alejados de los más de 42000 Dólares per cápita de Canadá y los más de 52000 de los Estados Unidos.

El gráfico 2 muestra el incremento del PIB per cápita en el período 2010-2015, expresado en Dólares a precios y Paridades de Compra de 2015, en comparación con la media mundial de incremento de 1590 Dólares en dicho quinquenio.

Observamos que 7 de los 20 países han tenido un incremento en el período 2010-2015 superior al incremento medio mundial de 1590 Dólares por habitante, pero en varios países el incremento ha sido mucho menor que la media mundial.

En el artículo del Volumen 15.1 de la revista Regional and Sectoral Economic Studies se incluyen datos de la evolución de la industria manufacturera en estos países, y se recomienda un impulso a la industria con objeto de favorecer el desarrollo de otros sectores y el aumento del PIB por habitante, en el siguiente artículo, disponible gratuitamente en la Web de la revista, y en la base internacional Ideas.Repec:

Manufacturing and Development in Countries and Areas of America, Guisan, M.C., Aguayo, E.

Revista RSES en la Web de la Asociación de Estudios Euro-Americanos de Desarrollo económico:

http://www.usc.es/economet/aea.htm

Otros enlaces a entradas de nuestros blogs sobre economía y desarrollo de América:

En español:

https://economiaydesarrollointernacional.blogspot.com.es/2012/08/22-produccion-sectorial-y-desarrollo-en.html

En inglés:

World Economic Development and International Cooperation: 19. Economic Development, Industry and Production by Sector in American Countries, 1980-2010

Regional and Sectoral Economic Studies: http://www.usc.es/economet/eaat.htm