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Social Determinants, Conditions and Performance of Health Services in Latin American Countries, Portugal and Spain

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Abstract *Comparison can be an important resource for identifying trends or interventions that improve the quality of health services. Although Portugal and Spain have accumulated important knowledge in primary health care-PHC driven national systems, the Ibero-American countries have not been object of comparative studies. This paper presents an assessment using an analytical dashboard created by the Ibero-American Observatory on Policies and Health Systems. It discusses aspects that have stood out in monitoring the service systems of Argentina, Brazil, Colombia, Spain, Paraguay, Peru, and Portugal throughout the 21st century's first decade. Forty-five indicators and time series showing the highest completeness degree divided into social determinants, conditions and performance were analyzed. Three trends are common to almost all countries: overweight increase, negative trade balance for pharmaceutical products, and an increase in health system expenditure. This convergence trend reveals the need for changes in the way of regulating, organizing and delivering health services with public policies and practices that guarantee comprehensive care, including health promotion actions enabling systems sustainability.*

Key words *Health systems, Information technology, Latin America, Spain, Portugal*

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Introduction

What factors are important for a health system? And how to measure them? The search for answers to those questions has led the Ibero-American Observatory on Policies and Health (OIAPSS) to develop a dashboard for monitoring health systems. This is an initiative from the National Council of Municipal Departments, with support from the Ministry of Health of Brazil, for promoting information exchange in defense of public and universal health systems[1]. Its analytical dashboard is one of the main contributions and was developed in partnership with researchers from Argentina, Brazil, Colombia, Spain, Paraguay, Peru, and Portugal, and from Instituto de Comunicação e Informação Científica e Tecnológica from Fundação Oswaldo Cruz- ICICT/ Fiocruz[2,3].

Comparison is an important resource for identifying regional blocks or interventions to improve health services quality. Although they share common historical and cultural roots, Ibero-American countries have never been subject to this kind of study before. In addition, Portugal and Spain have accumulated important knowledge in primary health care-PHC driven national systems, which have been correlated with positive outcomes[4].

This work covers aspects which have been highlighted over the 21st century's first decade, a very favorable period to Latin America-LA countries due to their capacity to keep Gross Domestic Product-GDP growth rates, reducing their external vulnerability. Social expenditure has grown in the region, representing 19.1% of the GDP in 2012-2013, mainly due to income transfer programs. Education and health presented a smaller growth: education went from 3.7% to 5.0% of the GDP and health from 3.2% to 4.2%[5,6]. In Portugal and Spain, the 2008/2009 economic crisis effects resulted in a greater impact. Recession has reduced revenues, raised public deficit and increased unemployment. Fiscal austerity pacts resulted in unprecedented cuts in social programs, with strong repercussions in health policies[7].

Spain and Portugal have national systems characterized by universal coverage, decentralized organization on a territorial basis, financing from tax sources and there is residual private insurance. In Latin America, social insurance was the first and main way of social protection, and the lower income population has access to services in the public sector financed by tax resources. This kind of system is still prevailing in Argentina and Paraguay. Changes in legal framework and reforms were carried out in Brazil (*Sistema Único de Saúde*), Colômbia (*Sistema General de Seguridad Social en Salud*), and Peru (*Sistema Nacional Coordinado y Descentralizado de Salud*) turned to universal health care through different strategies.

Brazil went from social insurance to a universal national system model financed by tax sources; Colombia and Peru have opted for a progressive universal insurance with differences between contributory and subsidized schemes (implemented in Peru case in 2011, according to *Aseguramiento Universal in Salud-AUS* law). For various reasons, Latin American systems still present important segmentation in access and multiple mechanisms for financing, provision and services utilization[8]. Private insurance expanded significantly after the implementation of neoliberal reforms in the 80's and families' direct expenditures remain high[9].

Information is considered to be one of the *building blocks*[10] for systems performances. The OIAPSS dashboard proposes an integrated approach by interrelating social determinants, conditions and performance, besides incorporating critical points less explored[2].

Methodology

To develop a tool, which in this case would be used for information management, it is necessary to take into account three validity types: content (adequacy for the measurement goals), operational (viability, feasibility), and prediction (accuracy)[11]. These activities were developed through four stages performed in two seminars and four workshops in the period of 2011-2015.

These steps included: 1- consensus upon tool, themes, qualitative content of the categories, dimensions and indicators; 2- exploratory study and web design discussion; 3- databases and technical data sheets organization; 4- presentation of the results on a temporary site with a validation process by the countries.

The thematic for the first draft of the dashboard suggested in the OIAPSS development were distributed amongst researchers from different countries according to their expertise. The goal was to select the best indicators for the final dashboard. The following template guided the initial research: identification of key questions; literature critical review; relevance for the countries, distinguishing what is common or specific;

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datasheets with concepts and sources, identifying the possibility of historical series, as well as their comparability; suggestion of rapid estimates or qualitative approaches in the case of lack of information. This process was reviewed by external consultants (Brazilian experts in each area), after discussion and consensus upon the indicators initial list.

After the exploratory research, free access databases from international organizations were prioritized in order to ensure the continuity of the dashboard. The analytical comparison was performed when there was information available from at least three countries and the indicators represented an innovative approach.

The final model comprises the following thematic areas, dimensions, and sub-dimensions:

1. Social determinants – demographic (structure, dependency ratio); socioeconomic (income, employment, inequality, education); living conditions (nutrition, sanitation and access to potable water, violence, mental health, urban mobility);

2. Health Policy Social Construction – Legal framework;

3. Conditions – production complex (development and innovation, medicalization, technological incorporation, trade balance); financing (sectoral spending, public/private composition); PHC (labor force);

4. Performance – access (coverage, supply); effectiveness (Primary health care avoidable mortality, avoidable morbidity, programs markers); technical adequacy.

The final version available on the Observatory website allows the users to view 65 indicators and other complementary information about methodology (concepts, researchers and workshops reports, completeness degree analysis, and others)[12]. For the analysis in this paper, we have selected 45 indicators of which time series presented a greater completeness degree. Chart 1 summarizes sources, countries and periods. The results reveal the percentage variations in these periods, with the difference between the last and the first year of the series available for each indicator. They synthesize trends and describe how the evolution of the indicators happened. Data banks set, historical series and their graphical representations can be viewed on the OIAPSS portal[12]. Health policy social construction, to be accompanied initially by each country's legal framework, corresponds to a qualitative theme that is beyond the scope of this paper.

It is noteworthy that there are several quality degrees in information systems, and revisions and estimates updates also may have been applied in some of the data banks after the end of the research. For this reason, dimensions, sub dimensions and indicators should be considered approximate measures to be complemented by qualitative information and improved over time. As for indicators deriving from different sources, comparison must be limited to the observed trend, due to demographic structure influence on diseases prevalence and incidence.

Results

Social determinants: demographic, socioeconomic and living conditions

From 2000 to 2011, there was an increase in productive age population and a reduction in dependency rate in all Latin American countries. This rate is still greater than the one in Spain and Portugal, which have a more stable population structure.

Economic conditions show a GDP per capita growth particularly expressive in Latin America. Revenue growth was followed by a reduction in inequality, except for Spain and Peru, which had a small increase in the concentration of wealth. In LA the most significant declines occurred in Argentina and Brazil. However, it is noteworthy that these index values in Portugal and Spain arise from parameters much lower than those of Argentina – a country with the lowest concentrated income amongst Latin American countries studied. Colombia and Brazil are the countries with the greatest inequality amongst those analyzed. Population below poverty line has decreased, especially in Argentina, whose situation was already better. Colombia and Brazil also showed a significant reduction in percentage (57% and 36.5%).

A drop in unemployment in LA is seen mainly in Argentina (53%). In other countries, this decrease was lower, but the relevant fact is that in the 2008/2009 crisis and in post-crisis years these rates remained unchanged or declined slightly. In contrast, the unemployment rate in Spain and Portugal raised significantly, reaching 26% and 16% of the economically active population in 2013, which represents an increase of 255% and 118%, respectively.

Positive changes have been observed on the occupational structure of four of the five Latin American countries, with the decrease of low productivity informal workers. Informality de-

Chart 1. OIAPSS Dashboard Indicators, Periods and Available Sources.

Themes	Dimensions	Sub-dimensions	Indicators	Period Covered	Source
Social Determinants	**Demographic**	**Dependency Ratio**	Population total dependency ratio	2000-2011	World Bank
	Socio-economic	**Income**	% population below poverty line	2004-2010	World Bank
			GDP per capita (dollars at current prices)	2000-2013	WolrdBank – OECD.
		Work	% of informality	2000-2012	CEPAL
			Unemployment rate	2000-2013	CEPAL
		Inequality	GINI Index	2000-2010	World Bank
		Education	PISA: mathematical performance	2000, 2003, 2006, 2009	PISA-OECD
			PISA: reading performance	2000, 2003, 2006, 2009	PISA-OECD
			PISA: sciences performance	2000, 2003, 2006, 2009	PISA-OECD
	Living Conditions	**Nutrition**	% population aged 15 years and older overweighed	2002, 2005, 2010	WHO
		Sanitary Facilities	% of population with access to adequate sanitation facilities	2000-2012	WHO
			% of urban population with access to adequate sanitation facilities	2000-2012	WHO
			% of rural population with access to adequate sanitation facilities	2000-2012	WHO
		Water	% of population with access to adequate water supply	2000-2012	WHO
			% of urban population with access to adequate water supply	2000-2012	WHO
			% of rural population with access to adequate water supply	2000-2012	WHO
		Violence and Mental Health	Death rate for homicide	2000-2011	Eurostat – PAHO
			Death rate for suicide	2000-2010	WHO

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Chart 1. OIAPSS Dashboard Indicators, Periods and Available Sources.

Themes	Dimensions	Sub-dimensions	Indicators	Period Covered	Source
Conditions	**Productive Complex**	**Development and Innovation**	Gross domestic expenditure on research and development (R&D)in health (millions of dollars – PPP)	2005-2011	OECD
			Health expenditure on R&D as percentage of gross domestic expenditure on R&D	2005-2011	OECD
			Private gross expenditure on R&D in health	2005-2011	OECD
			Public gross expenditure on R&D in health	2005-2011	OECD
			Total number of technological medical patents per applicant country	2000-2012	WIPO
			Total number of pharmaceutical patents per applicant country	2000-2012	WIPO
		Trade Balance	Trade balance in pharmaceutical products in millions of dollars	2008-2012	WTO
	Financing	**Sectorial Expenditure**	Health expenditure as percentage of gross domestic product (GDP %)	2000-2012	WHO
			Public health expenditure as percentage of total public expenditure	2000-2012	WHO
		Public/Private Composition	Private health expenditure as percentage of total health expenditure	2000-2012	WHO
			Out of pocket expenditure as percentage of private health expenditure	2000-2012	WHO
			Private insurance expenditure as percentage of private health expenditure	2000-2012	WHO
			Public health expenditure as percentage of total total health expenditure	2000-2012	WHO
Performance	**Effectiveness**	**Primare Care Avoidable Mortality**	Infant mortality rate	2000-2012	Millenium Indicators
			Under-five mortality rate	2000-2012	Millenium Indicators
			Maternal mortality rate	2000, 2005 and 2010	Millenium Indicators
			Proportional mortality for acute diarrheal diseases in under-five	2000-2010	World Health Organization
			Proportional mortality for acute respiratory diseases in under-five	2000-2010	World Health Organization
			Mortality rate for ischemic heart diseases	2000-2010	Eurostat - PAHO
			Mortality rate for cerebrovascular diseases	2000-2010	Eurostat - PAHO
			Mortality rate for diabetes mellitus	2000-2010	Eurostat - PAHO
			Neonatal mortality rate	2000-2011	Eurostat - PAHO
			Post-neonatal mortality rate	2000-2011	Eurostat - PAHO
		Avoidable Morbidity	% of children with low birth weight	2000-2011	PAHO – OECD
			AIDS incidence rate in population aged 15 to 49 years old	2000-2012	Eurostat - PAHO
			Follow-up rate for TB cases treatment	2007-2011	WHO
		Programs Markers	% success in Directly Observed Treatment of TB cases with positive sputum baciloscopy .	2000-2011	WHO

clined in Brazil and Argentina, and less expressively in Paraguay and Peru. In Colombia, there was practically no change and the rate remained high.

In all countries, there has been an increase in expected school years, being Argentina and Brazil cases similar to those in Portugal and Spain. Although educational scenario has experienced improvements, the analysis of *Programme for International Student Assessment-PISA* results shows a less favorable situation for the quality of education.

As for living conditions, a growth in overweight population above 15 years old is clearly stated, exceeding 50% in all countries. The largest increase was seen in Brazil (23%), Peru and Colombia (approximately 15%). Access to adequate sanitation facilities and water supply has improved in LA Argentina being the country with the best situation. Although Paraguay, Peru and Brazil presented a growth of approximately 59%, 55%, and 25%, respectively, about half of rural population still remained without adequate sanitation facilities at the end of the period studied.

Mortality for homicide presents a wide variation. Portugal and Spain demonstrate very low rates and amongst the countries in LA, Argentina reveals the lowest one. Besides a reduction between 2000 and 2011, Colombia and Brazil presented very high values – 53 and 26 per 100,000 in 2011, respectively. Whereas homicide rates reveal large differences between countries, the same does not apply to suicide. The highest rates were found in Argentina and Paraguay, Portugal and Brazil present a growth trend, although with lower rates in the series beginning year. In Portugal, there was an increase in both homicides and suicides. Table 1 illustrates these indicators variation.

Health services conditions factors: productive complex and financing

Research and development (R&D) indicators were obtained for Spain, Portugal and Argentina. Although the latter two show a significant gross expenditure growth in this activity (235% and 112%, respectively), values are on a much lower level than those of Spain, being private health expenditure almost always higher than public health expenditure. Despite differences in absolute values, percentage in total expenditure on R&D is not so different – in 2011, 13.3% in Argentina, 18.6% in Spain, and 14.2% in Portugal.

Spain and Brazil are the leaders in patent registration processes within the pharmaceutical industry. While in Brazil there was a growth of 58%, Spain's has more than tripled, jumping from 237 to 1,097%. Argentina's reduction of 15% also demands attention. In medical technologies area, Spain and Brazil presented the largest number of patent registration, with an increase of 147% and 10%, with Argentina presenting a decrease of around 50%.

All of them presented a negative trade balance for medicines. It is noteworthy that this deficit is growing in Latin America, but has a reduction trend in Spain and Portugal. Brazilian deficit was the highest: three times higher than in Spain and Portugal for 2012, the last series year. Graphic 1 below shows this indicator's trend. In 2012, countries presented the following total expenditure values on health as a GDP proportion: Argentina 5.0%, Brazil 8.2%, Colombia 6.9%, Spain 9.4%, Paraguay 10.3%, Peru 5.2%, and Portugal 9.7%. An increase trend in total health expenditure as percentage of GDP was noted in all of them, except for Argentina, which went from 9.2% to 5.0% (2000-2012). Colombia and Brazil growth was similar (17%), being less expressive in Peru and Portugal. The increase of 30.2% in Spain and of 27.5% in Paraguay is worth highlighting. Public resources proportion in financing increased in Argentina, Brazil and Paraguay.

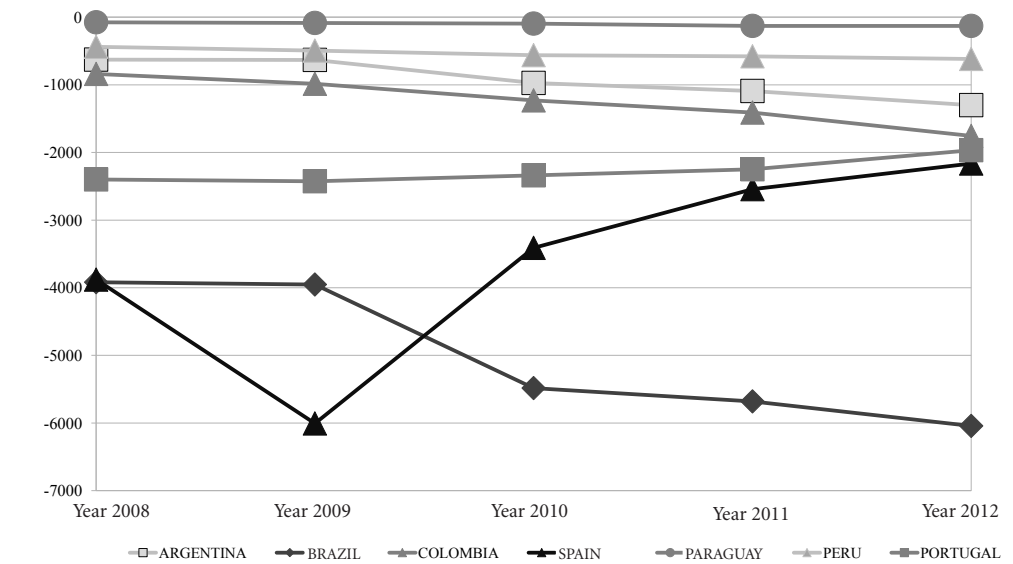
The proportion remained almost the same for Spain and decreased in Colombia, Peru and Portugal. In 2012, Colombia and Argentina – with a share of 76.1% and 59% in public resources financing – were the Latin American countries closer to Spanish and Portuguese rates. A different scenario is observed in Brazil and Paraguay, where public resources share is lower than private spending (around 44%).

The total public spending in health proportion represents the priority degree *vis a vis* other government expenditures. In this case, more unfavorable situations were observed in Brazil and Argentina: in 2012, the total government spending in health as a government expenditure proportion accounted for less than 7% and 8.7%, respectively. In the same year, Spain and Portugal's percentage were 14.1% and 12.8%. Colombia and Portugal presented a growth in private expenditure mainly due to out of pocket expenditure. In 2012, Brazil and Colombia presented the highest spending proportions with private insurance plans. Table 2 presents these indicators.

Table 1. Percentage Variation for Social Determinants.

Indicators- Social Determinants	Argentina			Brazil			Colombia			Spain			Paraguay			Peru			Portugal		
	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%
Dependency ratio	61.3	53.8	-12.1	53.8	47.1	-14.4	61.3	51.5	-15.9	47.1	47.1	0	75.4	61.3	-18.8	63.9	56.3	-12	47.1	49.3	4.7
% population below poverty line	3.1	0.9	-71	8.5	5.4	-36.5	15.8	6.8	-57	**	**		6.7	5.7	-14.9	6.1	4.1	-32.8	**	**	
GDP per capita (dollars at current prices)	9,329	14,715	57.7	3,694	11,208	203.4	2,503	7,825	212.6	14,413	29,117	102	1,531	4,402	187.5	1,949	6,659	241.7	11,399	21,035	84.5
% of informality	43	37.7	-12.3	45.6	37.3	-18.2	58.6	58.9	0.5	**	**		59.5	53.3	-10.4	63	57.1	-9.4	**	**	
Unemployment rate	15.1	7.1	-53	7.1	5.4	-23.9	17.3	10.6	-38.7	11.9	26	118.5	10	8.1	-19	7.8	5.9	-24.4	4.5	16	255.6
Gini index	51.1	44.5	-12.9	60.1	54.7	-9	58.7	55.9	-4.8	32	33.9	5.9	56.2	52.4	-6.8	50.8	52.4	3.1	36	35	-2.8
PISA: average performance in a Math scale	388	388	0	334	391	17.1	370	376	1.6	476	484	1.7	**	**		292	368	26	454	487	7.3
PISA: average performance in reading scale	418	396	-5.3	396	410	3.5	385	403	4.7	493	488	-1	**	**		327	384	17.4	470	488	3.8
PISA: average performance in sciences scale	396	406	2.5	375	405	8	388	399	2.8	491	496	1	**	**		333	373	12	459	489	6.5
% population aged 15 years and older over weighted	66.1	74.5	12.7	46.3	57.1	23.3	53.9	61.9	14.8	50.7	53.8	6.1	46.2	50.3	8.9	56.7	65.5	15.5	51.5	56	8.7
% of population with access to adequate sanitation facilities	91.7	97.2	6	74.6	81.3	9	74.6	80.2	7.5	100	100	0	58.5	79.7	36.2	63.2	73.1	15.7	97.7	100	2.4
% of urban population with access to adequate sanitation facilities	92.8	97.1	4.6	82.8	87	5.1	83.3	84.9	1.9	100	100	0	79	96.1	21.6	75.8	81.2	7.1	99.1	100	0.9
% of rural population with access to adequate sanitation facilities	82.5	99.4	20.5	39.5	49.2	24.6	52.2	65.7	25.9	100	100	0	33.1	52.5	58.6	28.9	44.8	55	96	100	4.2
% of population with access to adequate water supply	96.5	98.7	2.3	93.5	97.5	4.3	89.9	91.2	1.4	100	100	0	73.5	93.8	27.6	80.6	86.8	7.7	97.9	99.8	1.9
% of urban population with access to adequate water supply	98.1	99	0.9	97.6	99.7	2.2	97.2	96.9	-0.3	99.9	99.9	0	91.4	100	9.4	89.6	91.2	1.8	98.7	99.8	1.1
% of rural population with access to adequate water supply	81.1	95.3	17.5	75.7	85.3	12.7	71	73.6	3.7	100	100	0	51.2	83.4	62.9	56.4	71.6	27	97	99.9	3
Death rate for homicide	5.9	4.3	-27.1	31.3	26	-16.9	78.1	53.1	-32	1	0.7	-30	23.8	12.7	-46.6	**	**		0.9	1.2	33.3
Death rate for suicide	7.5	7.5	0	4.2	4.8	14.3	6.2	5.1	-17.7	6.5	5.6	-13.8	3.4	3.9	14.7	**	**		3.7	7	89.2

Source: Ibero-American Observatory on Policies and Health Systems Indicators dashboard[12].



Graphic 1. Trade Balance in Pharmaceutical Products (millions of dollars), 2008-2012.

Source: Ibero-American Observatory on Policies and Health Systems Indicators dashboard[12].

Health services performance

From 2000 to 2012, all countries reduced infant mortality, especially Brazil and Peru. Peru had the highest post-neonatal mortality rate, but Brazil and Paraguay reduced it by more than 50%.Under-five mortality decreased significantly, mainly in Brazil and Peru, but the gap between Portugal and Spain remains large. It is essential to point out Portugal's performance, with the lowest mortality rate for this group in 2012, and a higher reduction than in Spain.

Maternal mortality rates in Iberian countries are also much lower than in Latin America. In the last series year, although Brazil presented the lowest rate, it was still seven times higher than Portugal's and nine times than Spain's. The increase in this indicator in Argentina is striking, going from 63 to 76 per 100,000 women in fertile age, from 2000 to 2010.

Acute diarrhea as a cause of death in under-five is decreasing in LA but more significantly in Brazil. Although less pronounced, a decrease trend was also observed in mortality due to acute respiratory infection in most countries. Brazil had the largest reduction, and it is also important to note an increase in Argentina and Spain.

Mortality due to ischemic heart diseases and cerebrovascular diseases shows a decrease trend in Spain and Portugal. In LA, except for Argentina, there is a growth trend for ischemic heart diseases, and a reduction for cerebrovascular, mainly in Argentina (22.5%) and Colombia (15.1%). The highest mortality rates for diabetes mellitus are found in Paraguay and Brazil, with a higher mortality rate in Portugal when compared to Spain.

As for avoidable morbidity monitoring, Brazil and Colombia presented a higher proportion of low birth weight at the end of the series. Acquired Immunodeficiency Syndrome/AIDS decreased significantly in Portugal and Argentina. In Brazil, the country with higher incidence, the values increased from 17.4 to 20.9 cases per 100,000 inhabitants. Paraguay and Colombia also presented a significant increase. Except for Argentina, countries presented a TB Directly Observed Treatment/DOT proportion exceeding 70%. Table 3 shows these results.

Table 2. Percentage Variation of Conditions Indicators*.

Conditions - Indicators	Argentina			Brazil			Colombia			Spain			Paraguay			Peru			Portugal		
	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%
Health gross domestic expenditure on ic research and development (R&D) (millions of dollars - PPP)	288	611	112.2	**	**		**	**		3,329	3,733	12.1	**	**		**	**		176	591.1	235.9
Health expenditure on R&D as percentage of gross domestic expenditure R&D	14.9	13	-12.8	**	**		**	**		18.2	18.6	2.2	**	**					10	14	40
Private gross expenditure on R&D	122	222	82	**	**		**	**		1,508	1,405	-6.8	**	**		**	**		54.4	184.9	239.9
Public t gross expenditure on R&D	85.6	168	96.3	**	**		**	**		713	1,495	109.7							**	**	
Total number of technological medical patents per applicant country	53	26	-50.9	206	227	10.2	18	26	44.4	210	520	147.6	**	**		1	3	200	9	33	266.79
Total number of pharmaceutical patents per applicant country	32	27	-15.6	122	193	58.2	1	13	1200	237	1,097	362.9	**	**		**	**		41.5	129	210.8
Trade balance in pharmaceutical products in millions of dollars	-627	-1,302	107.7	-3,920	-6,043	54.2	-840	-1,756	109	-3,879	-2,164	-44.2	-75	-130	73.3	-437	-619	41.6	-2,399	-1,967	-18
Health expenditure as percentage of GDP	9.21	5.02	-45.5	7.03	8.26	17.5	5.91	6.93	17.3	7.21	9.39	30.24	8.1	10.3	27.5	4.83	5.18	7.2	9.14	9.74	6.6
Public health expenditure as percentage of total public expenditure	17.6	8.7	50.3	4.8	6.86	68.1	19.3	18.8	15.4	13.2	14.1	6.9	17.7	11.5	-35.3	14.1	13.9	-1.56	14.5	12.8	-11.4
Private health expenditure as percentage of total health expenditure	46.1	41.1	-11	59.7	55.7	-6.7	20.7	23.8	15.4	28.4	28.3	-0.4	60.1	55.5	-7.7	43.6	45	3.12	32.3	36	11.5
Out of pocket as percentage of private health expenditure	63	65.5	3.9	63.6	48.3	-24	59	60.9	3.2	83.1	79.7	-4	86.6	91.4	5.5	83.4	79.2	-5.1	70	76.2	8.8
Private insurance expenditure as percentage of private health expenditure	30.7	25.9	-15.4	34.3	49.4	44	41	39.1	-4.6	13.7	29.3	50.4	13.4	8.6	-35.6	12.8	10.3	-19.9	10.2	14.4	41.8
Public health expenditure as percentage of total health expenditure	53.9	59	9.4	40.3	44.3	10	79.3	76.1	-4.6	71.6	71.7	0.2	39.9	44.5	11.6	56.4	55	-2.4	67.8	64	-5.5

Source: Ibero-American Observatory on Policies and Health Systems Indicators dashboard[12].
*periods available for time series vary according to indicator, as specified in Table 1;**without information on the selected database.

Discussion

The results that refer to social determinants are correlated to the analyses of the virtuous combination between economic development and the reduction of inequality, which have marked the first decade of the 21st century Latin America[13]. After 20 years of recession and crises, these countries have sustained high growth rates, less unemployment and informality, and the reduction of inequality and extreme poverty. Although each country had a variation in type and extent for these achievements, the association between economic progress and better wealth distribution is an uncommon fact in the region's history[5].

According to Pinto[5], the major compounding factors were: demographic transition, Chinese economic expansion, the reduction in neoliberal policies, and the increase of income transfer programs. China has become the greatest buyer of raw material from South American and African countries, which led to an increase of commodities prices. Economic shifts positively affected external accounts, facilitating an expansive fiscal policy, expenditure on infrastructure and social policies.

However, in countries like Brazil and Colombia there is a gap between economic growth and infrastructure improvements, which deserves a more careful observation, considering the importance of these investments to a higher quality of life. In Brazil, water supply and waste collection scenarios are related to an increase in dissemination risks and a higher incidence of infections by arboviruses (dengue, Zika virus, Chikungunya fever)[14,15], in addition to the exponential increase of sylvatic yellow fever cases[16].

Data on demographic transition bring interesting points for discussion about development. There was a growth in LA's population from 15 to 64 years, establishing a situation called "demographic bonus", a continent common trend[6]. To take the best out of this phenomenon, it is necessary to generate jobs and improve education. Besides the improvement in access to basic education, quality problems persist – in comparison with Spain and Portugal, the biggest gaps are exactly in mathematics and sciences fields.

Violence and mental health are significant living conditions indicators, especially in Latin America. The understanding of this phenomenon is multifactorial and should take into account individual factors as well as social and community[6]. Even though this indicator has decreased, the permanence of high rates of homicide in Brazil and Colombia is striking. Unlike the favorable socioeconomic scenario that characterized Latin America, Portugal and Spain were severely affected by the crisis with high unemployment and cuts in social policies. It is interesting to note that the trend found for violence and mental health indicators in Portugal precedes the worst years of the crisis, pointing out the importance of continuous monitoring.

Overweight increase can be observed in all countries. Obesity has been recognized as a pandemic disease, but it is necessary progress to control it. This implies intersectoral actions with agricultural policies, industrial production and food advertisement regulation, healthy food environments and nutrition education activities[17]. According to an UN Report[18], the discussion should focus on poor nutrition as an issue that affects all the countries, in one or more of its main modalities. Addressing universal health systems challenges, Temporão[19] shows the inter-relation between demographic, epidemiological, food, technological, cultural, organizational, economic, scientific and innovation transitions, pointing out its implications for health and for these systems.

Another common trend relates to health production complex, more specifically with medicines utilization issue. All countries present a negative trade balance for pharmaceutical products. This dependence pattern is more severe in Latin America, particularly in Brazil. Authors[20] dealing with this issue have shown the fragility of Brazilian production, although the country occupies the seventh position in the sales global ranking.

The pharmaceutical industry has development, innovation activities and marketing with strong interaction with scientific institutions as main competitive tools. But the activities most developed technologically lie in core countries, and only the drugs final production are located in peripheral countries (depending on their market size)[6]. A negative dynamic for these countries arises– at the same time that access is expanded, technological dependence increases with risks to the system's financial sustainability[21].

In the Brazilian case, Gadelha et al[20] discuss the importance of policies to transform positively the production and innovation structure in the country: investments in science and technology would be needed, as well as combining technological development with the needs of the health care system. The authors mentioned some countries, such as France and Nordic countries,

Table 3. Percentage Variation of Performance Indicators*.

Indicators- Performance	Argentina			Brazil			Colombia			Spain			Paraguay			Peru			Portugal		
	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%	Start	End	%
Infant Mortality rate	18	12.7	-29.4	29.1	12.9	-55.7	21.3	15.1	-29.1	5.4	3.8	-29.6	27.1	18.8	-30.6	30.4	14.1	-53.6	5.7	2.9	-49.1
Under-five mortality rate	20.2	14.2	-29.7	33.1	14.4	-56.5	25.2	17.6	-30.2	6.5	4.5	-30.8	32.7	22	-32.7	39.7	18.2	-54.2	7.4	3.6	-51.4
Maternal mortality rate	63	76	20.6	85	68	-20	130	85	-34.6	5	6	20	120	110	-8.3	160	100	-37.5	11	11	0
Proportional mortality for acute diarrhea in under-five	2	2	0	9	3	-66.7	5	4	-20	1	1	0	8	5	-37.5	5	4	-20	**	**	**
Proportional mortality for acute respiratory diseases in under-five	7	10	42.9	12	7	-41.7	11	10	-9.1	2	3	50	14	11	-21.4	11	10	-9.1	4	4	0
Mortality rate for ischemic heart diseases	57.3	48	-16.2	58.6	59.5	1.5	66.6	75.3	13.1	126.5	85.8	-32.2	36.9	50	35.5	21.9	22.8	4.1	119.3	79.6	-33.3
Mortality rate for cerebrovascular diseases	60.8	47.1	-22.5	63.3	59.1	-6.6	41.8	35.5	-15.1	124.2	74.6	-39.9	55.5	49.6	-10.6	24.3	22.5	-7.4	297.2	153.4	-48.4
Mortality rate for diabetes mellitus	24.1	19.9	-17.4	26.3	32.6	24	19.7	18.1	-8.1	30.5	24	-21.3	29	37.6	29.7	11.6	14	20.7	42.1	47	11.6
Neonatal mortality rate	10.9	7.6	-30.3	17.5	10.7	-38.9	-	-	-	2.8	2.1	-25	11	11	0	13	8	-38.5	3.4	2.4	-29.4
Post-neonatal mortality rate	5.7	4.1	-28.1	9.9	4.6	-53.5	-	-	-	3.6	3.2	-11.1	9.2	4.5	-51.1	9	8	-11.1	3.7	2.3	-37.8
% of children with low birth weight	8	7.2	-10	8.1	8.5	4.9	7.6	9	18.4	6.5	7.8	20	6	6.3	5	8.4	6.9	-17.9	**	**	**
AIDS incidence rate in 15- 49 years old	6.6	3	-54.5	17.4	19.7	13.2	1.3	3.1	138.5	26	26	0	1.2	5.1	325	4.4	3.3	-25	10.3	3.3	-68
Follow-up rate for TB cases treatment	31	25	-19.4	48	46	-4.2	37	33	-10.8	19	14	-26.3	48	45	-6.3	126	95	-24.6	32	26	-18.8
Success proportion in Directly Observed Treatment (DOT) of TB cases with positive baciloscopy	47	52	10.6	71	76	7	80	77	-3.8	70	73	4.3	66	78	18.2	90	74	-17.8	79	80	1.3

Source: Ibero-American Observatory on Policies and Health Systems Indicators dashboard[12].
*periods available for time series vary according to indicator, as specified in Table 1;**without information on the selected database.

in which health systems are integrated with industrial and technological policies, combining universal access and national competitiveness.

Except for Argentina, all countries followed this global trend of increasing their expenditure on health. After analyzing this indicator, inconsistencies have been noted, suggesting the need of a database review in this country. From 1998 to 2003, these expenditures annual average growth was higher (5.7%) than the world economy growth (3.6%)[6], reinforcing previous discussion about systems' sustainability as pointed by other authors[22].

Expenditure growth as a GDP proportion does not necessarily mean better performance or quality, for this reason the health financing indicators should be analyzed in an integrated way. GDP percentage reflects sectoral spending relative priority, while *per capita* expenditures (an indicator that needs to be incorporated into the dashboard) relate with domestic product extent and the population size. Considering this, besides Paraguay's high health expenditure as a GDP proportion in the last series year, its per capita expenditure is one of the lowest due to its economy size (PPP US$ 571.7 in 2012). Latin American countries show relevant differences in *per capita* expenditures when compared with Spain and Portugal. In Brazil and Argentina, the countries with the highest values, spending was less than half of those observed in Iberian countries (US$1,257 and US$1,133 versus $2,984 and $2,624 in 2012)[23].

It was difficult to separate redistributive expense (tax resources) from the available financing indicators, which overestimates public spending in Argentina, Colombia, Peru and Paraguay. Brazilian low public expenditure is confirmed, which contradictsthe constitutional goals of a universal system, a fact that has been emphasized in numerous studies[24,25]. While there was a growth in government expenditure on health[26], public expenditure was still lower than that in the private sector in 2012.

Despite these financial difficulties, Brazil's good performance in regards to women and children's health is clearly stated. There is a coincidence between this data and studies that have been pointing a relationship of these findings with the Family Health Strategy. This program started in 1994 and became a national policy for health care reform. In 2017, the program's coverage was around 60% of the population, with more than 40,000 family health teams working at Primary Health Care Centers (*Unidades Básicas de Saúde*)[27]. Notwithstanding some obstacles in its development, researches have demonstrated positive results in reducing inequalities for health services utilization[28], under-five mortality[29], and primary health care avoidable hospitalizations[30].

Conclusion

The dashboard developed by OIAPSS offers a set of information and opens up numerous analytical possibilities. Some of them concern specific issues that need to be discussed in each country's context. For example, the results less favorable found in Argentina for maternal and child health indicators, and the mortality rates increasing for homicide and suicide in Portugal prior to the crisis on the European continent. In Brazil and Colombia, it would be interesting to monitor the gap identified between economic growth and sanitation improvements and access to potable water, as well as homicide high rates, which suggest that violence can be an important marker of social development in these and in other countries.

In LA, unlike the 1980's to 1990's years known as the "Lost Decade", the most recent period has been referred to as "Golden Decade". However, good times seem to have come to an end. Brazil, for example, has collapsed economically and politically since 2015. As a result, an extremely restrictive fiscal policy arose, with the approval of a Constitutional Amendment[31] that blocks Federal Government primary expenditure for 20 years, with serious repercussions on public policies[32]. Therefore, ensuring these indicators are monitored becomes crucial.

Three trends are common to almost all countries: overweight increase, negative trade balance for pharmaceutical products, and an increase in health system expenditure. Services response capacity is influenced by a number of factors, which are: sustainability level in terms of essential inputs, financing conditions and political-institutional framework. For this reason, the technological dependence issue focuses more acutely in Latin American countries. One of the main challenges lies in the countries governments' capacity to play an effective role as a regulator, reinforcing their power as buyers and qualifying management. Without such a change, it will be difficult to impose limits to commercial interests and private accumulation that tend to overshadow collective interests critically.

One of the main thoughts brought by this convergence trend is the need to ensure changes

to organize services with a comprehensive care, incorporating intersectoral and health promotion actions. Although there is sufficient evidence on primary care advantages for coordinated and efficient care, during crisis or adjustment scenarios these policies implementation suffers great kickback, as occurred in Portugal and Spain. Unlike in LA, the socioeconomic scenario shows signs of recovery in these countries, and a follow-up is important to determine whether the trend will be reversed.

This common scenario exposes the challenge of reconciling sustainability and quality in societies with a consumption culture as a solution strategy. In other words, the development of universal systems in LA does not only mean expanding coverage and care consumption, but it entails an effort to ensure a timely access, without neglecting social development and public policies that can promote health.

Collaborations

EM Conill coordinated the research, the text writing and review, DR Xavier participated in research, analysis, and text writing and review, SF Piola in the analysis and review, SF Silva, HS Barros and E Báscolo in research and review.

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