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Public Policies and School Permanence in Primary Education in México: a Panel Data Analysis 2006-2013

Políticas públicas y permanencia escolar en la educación primaria en México

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Rubén Molina Martínez [1*]
Juan Manuel Villalpando Zorrilla [2]

Authorship Contribution Statement

Molina: Conceptualization, design, analysis, writing, interpretation, critical revision of manuscript, statistical analysis, supervision, final approval. Villalpando: Editing/reviewing, data acquisition, data analysis, drafting manuscript, securing funding, admin, technical or material support.

Abstract

This study seeks to determine the level of influence that per capita GDP and remittances have had on the permanence of primary school students who are in the correct grade according to their age in Mexico, through an econometric analysis of panel data. The analysis includes hard data from the period 2006 to 2013. The purpose is to generate information for decision-making in public policies that allow strengthening the school permanence of students.

Keywords: GDP per capita, primary education, public policies, remittances, school retention.

[1] Universidad Michoacana de San Nicolás de Hidalgo, México, ORC ID: 0000-0002-9840-6441, E-mail: rmolina@umich.mx
* Corresponding Author
[2] Universidad Michoacana de San Nicolás de Hidalgo, ORC ID: 0000-0003-2845-5202, E-mail: 8702165b@umich.mx

Introduction

The migration in México can be considered systematical and cultural, as well as traditional, and a problem of public policies (Chomsky, 2016). A massive flow of cash is obtained to our country (CONSIGNMENTS) sent by our fellow Mexican connationals who live abroad. Such resources cannot be considered an endogenous result, product of our national public policies, furthermore, a failure of those policies themselves. They represent an important income which have an impact in the consumption, the investment and savings, with major figures more than 22,500 million dollars annually (Banco de México, 2017).

It is well known that the social and economical development in the countries can be affected by the available level of goods and services, such as education, health and security , or the way they access to an income or employment and these, influence in the Index of Human Development (IDH by its acronym in Spanish), as an indicator of the United Nations Program for the Development (PNUD by its acronym in Spanish).

The influnce these incomes have in the students is fundamental in order for them to achieve better levels of education, as a good service that influences positivilely in the future income of the individuals and in the development of societies, as well as the power of human capital, (UNESCO, 2015a).

México is a country with a constant migration to The United States and Canada and this migrating behavior is recognized.

Considering the globalization of goods and services, and the human capital (Delors, 1996), the OECD and the UNESCO look for common purposes of convergency in the quality of the education in order to reach better results, and to achieve a high competency migration within a working market. That is why, Mexico adopts recommendations of these organisms concerning to educational and productive issues (OCDE, 2008).

By increasing the production and the income consumption is increased as well, the aggregate demand and the tax base. This allows to increase the public spending and guarantees services for the citizens, services like education and other social policies. Major incomes motivate the students population to stay in school and so to achieve better results. Considering the tendency of the migrating families to uncrease their income by sending more money, their children may be seen more motivated to stay in school until finishing the primary or secondary level of education (Banco de México, 2017).

The increase of consignments may have a negative effect due to that guarantees the permanence and stability in the job of the migrant provider overseas, consolidating in this form to the family disintegration. The children may continue in school, but seeing in the future the family disintegration overseas, their migration; losing their interest to get good grades at school (Aguilar Ortega, 2018).

The school permanence of the students considers that, the more students an educator has, the learnings decrease. It is complex to determine in what amount. Althought there are some tensions concerning to what could be the ideal number of students per educator, it is more feasible for instance the effective attention for 10 students instead of 20. It would be acomplished that, the fewer students, the better quality in the process of learning (UNESCO, 2015a).

The Interamerican Bank of Development agrees also that, a bigger number of sutents staying in school the learnig in the students population decreases and viceversa (BID, 2013). The difficulty stands on determine how much the number of students affects the educative results (Cordero, Crespo, & Pedraja, 2013). In addition, to consider that the permanence and the school promotion is an achievement, and a non permanence is a problem which implies promotion or failure, the same as desertion, due to this it would not be considered as an inscription at school age (Joaquín, 2001).

Families with members who attend to school assign resources for their children's education, no matter they are public schools. And these students obtain educative results influnced by those resources, being able to stablish as hard data on the models of analysis, through the GDP per capita and the consignments; allowing to determine with a bigger accuracy the level of influence such results have, as the permanence or the levels of learning.

It seems relevant to determine the level of influence that the mixed incomes made up by GDP per capita and the consingments-have in the permanence of their children in schools. However, it is difficult to establish the destination of those incomes in specific entries as education or to establish amounts of those for their children to attend to school.

The school permanence is the result of a group of public policies which converge in the attention of multidimentional and multifactor social issues such as poverty in all its different levels, the access to goods and health services, security, water, electricity, drainage, education itself, employment, etc. Problems which give birth to others, as the migration, and it is intended to be relieved through the institutional public programs (UNESCO, 2015b).

The problem is settled in establishing the level of influence these family mixed incomes may have in the school permanence of their children in the school communities with a migrant influence, analyzed from the GDP per capita and the consingments altogether through hard data, a problem that arises others, like the migration, and its implications including moral issues (Chomsky, 2016).

The plained hypothesis as way of solution will be that, a bigger mixed of incomes in the families (GDP per capita + consignments) better levels of school permanence for their children will be reached.

The results will allow to determine the level of influence those resources have in the permanence and will be used as inputs in the proposals of public policies and its sector

focalization by the use of programs which allow to have better results in the enrollment indicators, promotion to the next grades, terminal efficiency, hope of schooling and a reduction in the dropout rate, with a major hope in schooling for the studying children in the families.

Methodology

The study variables: a) independent: GDP per capita and consignments, and; b) dependent: the school permanence, for the period 2006-2013; data base of Banco Mundial (World Bank), INEGI y de la SEP/INEE (Instituto Nacional para la Evaluación de la Educación, 2021; Educa, 2021; Fundación BBVA Bancomer, A.C., 2012; INEGI, 2014). The data of study include the available information for the research variables the ones added in anual periods by states entity, consisting of: a) GDP per capita; b) the Consignments, and; c) el percentage of population according to the ideal age to receive the primary education or the school permanence. This study data is shown on table 1.

The school variable permanence represented in a percentage of the students population in school age, implies that, the students keep their registration, their course and egress, no matter the result evaluated in qualifications; it is only valued their aroval and percentage of absortion to the next school cycle registration),keeping a compound percentage expressed considering their ideal school age according to the school grade. If the percentage decreases the next year, that will imply either that not ll of them were promoted or not all of them were registered to the next school grade and affects the school permanence. The percentage of variation implies either the defection or insertion to the next school year.

The decision of selecting the study period of 2006-2013 consisted in valuing the series with the most information. What it was obtained in those series of percentage of population in school age.

With the study data a panel with variable periods was designed and the periods were poured in the program Eviews for analysis through an econometric model. This allowed to combine the series in relation to the hypothesis of work relating the students permanence in school age, as a function of the GDP per capita and the consignments. Different aspects were evaluated, (fixed or random); the stationarity assumption (0,σ) with probability values (prop) near to 0.0000 (zero), a confidence level higher than 95% and its normal behavior for a Kurtosis nearly to 3.0; as well as its elasticities; with the purpose to validate the best results within the limits of approval I the series regressions.

The series were evaluated in a first moment at a level of integration zero *I(0)* validating its unitary roots and the stationarity. The stabilized series were evaluated through

logaritms, with either fixed or random effects, or in a combination of options. In each case, the evaluation with certain treatments implies to eliminate values in the series with the purpose to clean its behavior, which contributes a result with better acceptance, but it has an impact in the level of influence of the final coeficients with a minor value . This is explained in the phase of results.

Tabla 1 Study data by state entity of the period 2006 to 2013

Federal entities in the Country	*8 year cycle*	*Remittances in millions of dollars*	*GDP per capita by entity (dls)*	*% de población según edad idónea para cursar la educación primaria*	*Federal entities in the Country*	*8 year cycle*	*Remittances in millions of dollars*	*GDP per capita by entity (dls)*	*% of the population according to the ideal age to att end primary education*
	Años	*REM*	*PIBper*	*PPIEP*		*Años*	*REM*	*PIBper*	*PPIEP*
Aguascalientes	2006	379.3879	13243.31667	13.7946976	Morelos	2006	587.9996	9297.761027	12.2185852
Aguascalientes	2007	373.0229	13790.41167	13.7033713	Morelos	2007	635.4012	9589.407303	12.0421872
Aguascalientes	2008	332.3338	13710.55145	13.5101504	Morelos	2008	622.5927	9259.165903	11.7824328
Aguascalientes	2009	282.2123	13992.58327	13.23258718	Morelos	2009	548.1218	9289.439645	11.4665974
Aguascalientes	2010	293.922	14461.40326	13.7033713	Morelos	2010	554.8597	9714.493838	12.0421872
Aguascalientes	2011	306.3223	16416.18268	12.4707	Morelos	2011	586.8152	11848.23005	11.05417
Aguascalientes	2012	332.6677	16553.60755	12.4707	Morelos	2012	561.2664	12024.66967	11.05417
Aguascalientes	2013	305.5995	17193.86275	12.24784	Morelos	2013	514.5054	12233.5928	10.91549
Baja California	2006	302.0644	14049.81452	11.9011478	Nayarit	2006	348.2416	6612.034579	12.7244037
Baja California	2007	334.5793	14033.80689	11.8206521	Nayarit	2007	375.1605	8922.332465	12.5675501
Baja California	2008	334.3168	13650.18844	11.6480584	Nayarit	2008	376.45	9132.9495	12.3285929
Baja California	2009	322.0639	13406.48317	11.40279666	Nayarit	2009	341.6296	8498.35723	12.02982858
Baja California	2010	347.9566	13495.52752	11.8206521	Nayarit	2010	337.3975	8687.797488	12.5675501
Baja California	2011	396.7528	16189.40216	11.30785	Nayarit	2011	356.3557	10834.57515	11.64452
Baja California	2012	464.8599	16083.34172	11.30785	Nayarit	2012	339.5175	10487.82943	11.64452
Baja California	2013	619.5818	16090.96399	11.11976	Nayarit	2013	321.0782	10785.54422	11.59132
Baja California Sur	2006	28.5343	13440.96646	11.7089913	Nuevo León	2006	342.5526	19943.55145	11.584256
Baja California Sur	2007	32.0066	14996.26493	11.6554375	Nuevo León	2007	327.065	25444.05944	11.6042457
Baja California Sur	2008	34.6967	15558.69525	11.5316622	Nuevo León	2008	323.7695	25676.03554	11.5142286
Baja California Sur	2009	31.9202	15614.95993	11.34276618	Nuevo León	2009	292.9915	24290.4058	11.32568117
Baja California Sur	2010	33.7455	15113.63841	11.6554375	Nuevo León	2010	283.9829	25887.3142	11.6042457
Baja California Sur	2011	36.6509	20949.48295	11.54645	Nuevo León	2011	308.9232	27577.81781	10.90815
Baja California Sur	2012	41.356	20117.82438	11.54645	Nuevo León	2012	340.0258	27768.99681	10.90815
Baja California Sur	2013	45.7586	20264.04808	11.44274	Nuevo León	2013	597.1524	27770.58845	10.78023
Campeche	2006	82.0086	18063.94566	12.8978342	Oaxaca	2006	1360.179	4853.582472	14.1822252
Campeche	2007	80.4144	15687.97729	12.6687125	Oaxaca	2007	1517.4084	6275.839802	13.8696395
Campeche	2008	72.7832	13502.60159	12.3454248	Oaxaca	2008	1522.2479	6208.394293	13.447907
Campeche	2009	55.8249	9856.363993	11.9606976	Oaxaca	2009	1298.4676	6001.189813	12.97007875
Campeche	2010	55.0554	9848.594869	12.6687125	Oaxaca	2010	1296.5389	6495.353802	13.8696395
Campeche	2011	57.8156	11886.87062	11.26434	Oaxaca	2011	1427.3849	7508.823742	12.39832
Campeche	2012	55.6208	10997.50109	11.26434	Oaxaca	2012	1366.2207	7871.531289	12.39832
Campeche	2013	54.9004	10028.58707	11.13476	Oaxaca	2013	1150.8675	7682.910263	12.20685
Coahuila	2006	275.3269	14686.74891	12.5887153	Puebla	2006	1482.5735	7616.077743	13.6037151
Coahuila	2007	293.2384	18741.4045	12.5384331	Puebla	2007	1617.5595	8630.422501	13.4506225
Coahuila	2008	278.3621	18209.53954	12.387101	Puebla	2008	1615.6722	8976.471936	13.2204026
Coahuila	2009	234.1676	16164.81035	12.15317797	Puebla	2009	1374.8834	8578.70808	12.93233093
Coahuila	2010	234.0096	17727.61272	12.5384331	Puebla	2010	1371.2222	9196.553524	13.4506225
Coahuila	2011	246.9692	21820.35945	11.52859	Puebla	2011	1469.6395	9954.404914	12.41998
Coahuila	2012	283.5093	22470.05498	11.52859	Puebla	2012	1403.2456	10225.75264	12.41998
Coahuila	2013	327.1924	22133.54821	11.35066	Puebla	2013	1334.5594	10224.21807	12.21524
Colima	2006	183.0994	10590.89404	11.7537982	Querétaro	2006	484.08	12716.43219	13.1229743
Colima	2007	199.663	12872.32888	11.6133639	Querétaro	2007	475.1102	15354.31366	12.91979
Colima	2008	184.663	13066.86474	11.4282295	Querétaro	2008	436.4024	16175.22122	12.6241833
Colima	2009	164.8044	12332.91014	11.20524392	Querétaro	2009	360.1548	15419.3635	12.26475628
Colima	2010	171.5183	13963.62294	11.6133639	Querétaro	2010	354.5331	16266.92137	12.91979
Colima	2011	183.8223	16039.12239	10.93893	Querétaro	2011	383.2961	19551.01413	11.82652
Colima	2012	180.17	15881.68833	10.93893	Querétaro	2012	378.5759	19984.14418	11.82652
Colima	2013	183.3043	16152.39828	10.85342	Querétaro	2013	411.5412	20550.02099	11.65938
Chiapas	2006	940.835	4219.408842	15.0005971	Quintana Roo	2006	99.5367	15272.12132	12.9207342
Chiapas	2007	921.152	5571.601576	14.7826243	Quintana Roo	2007	98.5211	17106.89462	12.7317672
Chiapas	2008	811.1219	6061.500525	14.4504287	Quintana Roo	2008	97.3466	16881.10183	12.4612596
Chiapas	2009	609.7331	5773.272037	14.0410949	Quintana Roo	2009	85.5718	16934.75437	12.12933636
Chiapas	2010	574.4554	6194.455143	14.7826243	Quintana Roo	2010	86.804	17306.13256	12.7317672
Chiapas	2011	594.8281	6863.028336	13.59384	Quintana Roo	2011	92.0756	19357.59814	11.40586
Chiapas	2012	572.7346	6794.089174	13.59384	Quintana Roo	2012	93.3216	19619.91353	11.40586
Chiapas	2013	501.85	6691.314012	13.32354	Quintana Roo	2013	100.837	20036.59856	11.39939

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	Años	*REM*	*PIBper*	*PPIEP*		*Años*	*REM*	*PIBper*	*PPIEP*
Chihuahua	2006	473.9306	15671.74556	12.3328126	San Luis Potosí	2006	714.4894	8796.163127	13.7565345
Chihuahua	2007	460.2178	13908.2642	12.2777423	San Luis Potosí	2007	778.3766	10706.95211	13.5846904
Chihuahua	2008	474.7904	13907.85848	12.1348515	San Luis Potosí	2008	760.7517	11213.48119	13.3128483
Chihuahua	2009	407.8249	13334.4051	11.91685264	San Luis Potosí	2009	626.76	10601.7077	12.96988389
Chihuahua	2010	397.8418	13456.16633	12.2777423	San Luis Potosí	2010	629.4701	11163.65438	13.5846904
Chihuahua	2011	419.2972	13785.20469	11.74896	San Luis Potosí	2011	700.7963	13597.86945	12.13264
Chihuahua	2012	466.8191	14514.38668	11.74896	San Luis Potosí	2012	738.6956	13816.8257	12.13264
Chihuahua	2013	519.2166	14969.36295	11.65535	San Luis Potosí	2013	707.0391	13848.38687	11.92628
Distrito Federal	2006	1490.3933	27687.01366	9.59450822	Sinaloa	2006	503.219	8143.235969	12.4407328
Distrito Federal	2007	1058.5616	28223.82852	9.48488933	Sinaloa	2007	522.9925	10970.72449	12.2782516
Distrito Federal	2008	1083.8623	28847.13199	9.31278643	Sinaloa	2008	487.6887	11508.3402	12.0221045
Distrito Federal	2009	965.8548	29794.38702	9.089771945	Sinaloa	2009	456.7455	11308.51092	11.70298716
Distrito Federal	2010	999.279	30991.2246	9.48488933	Sinaloa	2010	470.2196	11964.0491	12.2782516
Distrito Federal	2011	1151.9246	34543.60835	9.012137	Sinaloa	2011	511.8213	13155.52728	11.32678
Distrito Federal	2012	1013.5624	34735.64199	9.012137	Sinaloa	2012	501.2254	13472.60263	11.32678
Distrito Federal	2013	1394.5934	36087.71714	8.913291	Sinaloa	2013	502.9768	13742.54889	11.14457
Durango	2006	428.4959	9612.940788	13.5382532	Sonora	2006	325.9658	13260.92043	12.3589526
Durango	2007	453.0538	11127.40379	13.3930028	Sonora	2007	332.3411	14870.83274	12.3091342
Durango	2008	442.0012	11650.51828	13.1491751	Sonora	2008	310.9555	14758.45286	12.1626076
Durango	2009	374.7868	11468.31148	12.83164465	Sonora	2009	278.703	14427.68874	11.93645088
Durango	2010	379.1025	11931.03364	13.3930028	Sonora	2010	292.0197	15150.77923	12.3091342
Durango	2011	416.6195	13540.56691	12.144	Sonora	2011	326.9156	19513.86573	11.52301
Durango	2012	431.0896	13435.29187	12.144	Sonora	2012	326.7587	19855.74758	11.52301
Durango	2013	458.911	13786.16434	11.92564	Sonora	2013	341.1566	20402.29727	11.41063
Guanajuato	2006	2311.2033	7899.254442	13.8709772	Tabasco	2006	187.8389	7147.382196	13.0350744
Guanajuato	2007	2388.9958	10705.40808	13.7220501	Tabasco	2007	182.8242	21335.87038	12.8601527
Guanajuato	2008	2317.6678	10840.00559	13.4628545	Tabasco	2008	156.0173	27108.35535	12.6045415
Guanajuato	2009	1944.8707	10392.42905	13.1219182	Tabasco	2009	114.4117	23187.17713	12.28969907
Guanajuato	2010	1981.3321	11287.4529	13.7220501	Tabasco	2010	111.3427	26698.96219	12.8601527
Guanajuato	2011	2155.7864	12649.58938	12.28654	Tabasco	2011	111.7285	29147.37109	11.79206
Guanajuato	2012	2138.2954	12932.28523	12.28654	Tabasco	2012	111.2635	28473.06839	11.79206
Guanajuato	2013	2007.5824	13379.66266	12.07008	Tabasco	2013	117.1747	26030.81629	11.61257
Guerrero	2006	1455.7219	5752.081595	14.9491853	Tamaulipas	2006	496.727	11889.84389	11.9423508
Guerrero	2007	1489.5588	6956.775279	14.7074819	Tamaulipas	2007	516.6865	15441.16065	11.9121491
Guerrero	2008	1435.462	6827.709773	14.3379632	Tamaulipas	2008	500.5114	16353.62155	11.7821314
Guerrero	2009	1200.2611	6468.441086	13.88925242	Tamaulipas	2009	414.9636	14378.41741	11.56514356
Guerrero	2010	1201.4816	6827.009701	14.7074819	Tamaulipas	2010	402.2969	14841.28924	11.9121491
Guerrero	2011	1262.3572	7883.99873	13.11811	Tamaulipas	2011	445.2998	16726.56703	11.17536
Guerrero	2012	1231.0101	7803.270125	13.11811	Tamaulipas	2012	485.4869	16517.2233	11.17536
Guerrero	2013	1205.2596	7975.279486	12.87735	Tamaulipas	2013	709.283	16481.05356	11.11424
Hidalgo	2006	982.8468	6141.537134	13.1068191	Tlaxcala	2006	270.6837	5503.771094	13.2102723
Hidalgo	2007	1092.2258	9263.69118	12.9162787	Tlaxcala	2007	303.3016	6818.744835	13.0979196
Hidalgo	2008	960.9702	9522.356246	12.6573472	Tlaxcala	2008	305.2063	6976.319497	12.9172661
Hidalgo	2009	752.0659	8645.67319	12.35320692	Tlaxcala	2009	258.8598	6867.973048	12.67998068
Hidalgo	2010	715.5117	9266.318715	12.9162787	Tlaxcala	2010	258.5201	7199.628996	13.0979196
Hidalgo	2011	762.6617	11076.99571	11.87373	Tlaxcala	2011	274.546	8532.834516	12.27175
Hidalgo	2012	721.4882	11422.98984	11.87373	Tlaxcala	2012	253.2368	8602.29634	12.27175
Hidalgo	2013	630.1407	11240.7466	11.70759	Tlaxcala	2013	217.0694	8687.975061	12.08876
Jalisco	2006	1975.475	10299.77597	12.5797896	Veracruz	2006	1680.7816	6684.544666	12.7217336
Jalisco	2007	1996.6607	13033.05037	12.4869878	Veracruz	2007	1775.7294	9170.509737	12.5342907
Jalisco	2008	1914.7938	13331.57442	12.3048518	Veracruz	2008	1618.3088	9498.274392	12.2660708
Jalisco	2009	1695.0918	12780.94103	12.04940573	Veracruz	2009	1296.3027	8938.574353	11.94633925
Jalisco	2010	1755.5694	13335.29466	12.4869878	Veracruz	2010	1237.4372	9456.728487	12.5342907
Jalisco	2011	1895.7864	15375.76182	11.57764	Veracruz	2011	1273.0864	12593.734	11.12061
Jalisco	2012	1883.5055	15486.36955	11.57764	Veracruz	2012	1176.0097	13017.52404	11.12061
Jalisco	2013	1755.0156	15887.63908	11.43498	Veracruz	2013	1027.6556	12757.1226	10.92882
México	2006	2079.1478	7731.668394	12.1297996	Yucatán	2006	122.0784	8662.068165	12.0884074
México	2007	2167.0181	8820.418725	12.0411486	Yucatán	2007	136.7516	10356.99002	11.912487
México	2008	2066.7034	9039.080434	11.8937228	Yucatán	2008	136.1225	10613.36107	11.6513688
México	2009	1700.7687	8943.431137	11.69736247	Yucatán	2009	109.9358	10891.49453	11.33099093
México	2010	1637.5501	9661.659006	12.0411486	Yucatán	2010	112.6927	11352.60072	11.912487
México	2011	1658.3755	10789.20843	11.47484	Yucatán	2011	117.809	13489.11942	10.79558
México	2012	1563.7836	10806.66115	11.47484	Yucatán	2012	119.1935	13524.27428	10.79558
México	2013	1432.9979	10980.62612	11.30799	Yucatán	2013	125.4273	13802.88417	10.66532
Michoacán	2006	2503.6922	6047.57158	13.4622397	Zacatecas	2006	667.7248	6125.538674	13.4747718
Michoacán	2007	2435.8051	8630.819873	13.2408663	Zacatecas	2007	687.4149	7887.127527	13.3092914
Michoacán	2008	2448.8623	9179.121777	12.9274171	Zacatecas	2008	681.5508	8353.690542	13.0573426
Michoacán	2009	2132.2835	8289.810677	12.5540835	Zacatecas	2009	573.2955	8613.848574	12.7395358
Michoacán	2010	2144.5021	8541.429359	13.2408663	Zacatecas	2010	581.7119	9547.233999	13.3092914
Michoacán	2011	2245.0563	9940.543965	11.85948	Zacatecas	2011	625.4528	15050.75975	12.08119
Michoacán	2012	2209.3559	9726.765037	11.85948	Zacatecas	2012	654.4501	14820.74809	12.08119
Michoacán	2013	2048.7233	9902.903908	11.70292	Zacatecas	2013	633.8002	12913.72369	11.92647

Source:Own elaboration based on the Banco Mundial (World Bank), del INEGI and l INEE.

Results

Consideraning the relation between variables concerning to those supposed by the UNESCO and the OCDE, that propose a major investment and educational spending to improve the results of indicators in the achievement of school performance, major scholarship and better educational coverage, we can set the hypothesis that involves the permanence of the students in school age.

Although the directionality of the expenses and investment could differ concerning to the educational field conditioning the growth of the budget based on the results of the development in a long term period, both entities agree on that the expenses and investment must be increased in this sector. The expenses and investment must be increased in the educative sector in the order of 8% of the GDP of the countries, close to the average of those countries with better results and indicators in the development and education in order to reach the goals.

H_0: To a higher GDP per capita and higher consingments more school permanence in students in primary school age will be attending to school.

Variables will be, the school permanence expressed in percentage of students being attending to primary level; the GDP per capita and the consignments in dollars; dissagregated by state entity, with the following nomenclature:

Variables	*Nomenclatura (Eviews)*	*Condición*
Percentage of students in school permanence	*alprimxent*	Dependiente *(y)*
GDP per capita by entity	*pibper*	Independiente *(x1)*
Remittances by entity	*rem*	Independiente *(x2)*

The percentage of students staying in school will be a function of GDP per capita and remittances. Series evaluated: *alprimxent = f (pibper, rem)*

It is considered a relationship with positive effects: a higher income in the families a major school permanence. In the econometric model would be expected to have a positive effect on the increasing percentage in students due to the increase in the GDP per capita and the consignments. To verify the stationarity we evaluated the unitary roots by variables.

Tabla 2 Stationarity of the Number of students in primary school by state entity ALPRIMXENT

Panel unit root test: Summary		*User - specified lags: 1*		
Series: ALPRIMXENT		*Newey - West automatic bandwidth*		
Sample: 2006 2013		*selection and Bartlett kernel*		
Exogenous variables: Individual effects		*Balanced observations for each test*		
Method	*Statistic*	*Prob.***	*Cross - sections*	*Obs*
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.39904	0.0000	32	192
Null: Unit root (assumes individual unit root process)				

Source:Own elaboration based on study data.

Tabla 3 Stationarity of GDP per capita PIBPER

Panel unit root test: Summary		*User - specified lags: 1*		
Series: PIBPER		*Newey - West automatic bandwidth*		
Sample: 2006 2013		*selection and Bartlett kernel*		
Exogenous variables: Individual effects		*Balanced observations for each test*		
Method	*Statistic*	*Prob.***	*Cross - sections*	*Obs*
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.49773	0.0002	32	192
Null: Unit root (assumes individual unit root process)				

Source: Own elaboration with study data

Tabla 4 Stationarity of the consignments (REM)

Panel unit root test: Summary		*Newey - West automatic bandwidth*		
Series: REM		*selection and Bartlett kernel*		
Sample: 2006 2013		*Balanced observations for each test*		
Exogenous variables: Individual effects		*User - specified lags: 1*		
Method	*Statistic*	*Prob.***	*Cross - sections*	*Obs*
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.-8.71487	0.0000	32	192
Null: Unit root (assumes individual unit root process)				

Source: Own elaboration with study data

It is oserved that the three variables passed to a level, with a degree of integration con *I (0)*. It implies that the series overcome the stationarity assumption (0, σ), with an own value nearly to 0.0000 (zero). *Therefore, it is not necessary to evaluate its cointegration.* It is accepted the series in a level with its valid unitary roots and it proceeds to the regretion analysis of the series. *ls alprimxent c pibper rem* (see table 4).

Having the series to a level *I(0),*they cannot be passed according to the stationarity assumption (0, σ), even though the own value near to 0.0000. In its better condition it is resented without effects. The prop value of the GDP per capita is higher than the acceptable value of 0.05 and it is not enough to value the test of normality para valorar la (figure 1).

Tabla 5 Test of normality for the series ls alprimxent c pibper rem

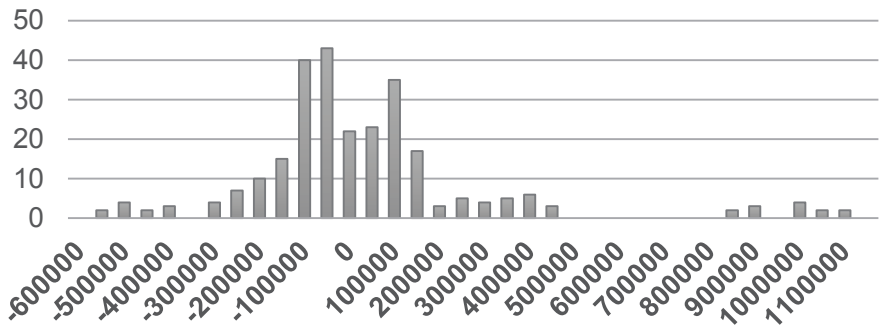
Dependent Variable: ALPRIMXENT		*Periods included: 8*		
Method: Panel Least Squares		*Cross - sections included: 32*		
Sample: 2006 2013		*Total panel (balanced) observations: 256*		
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	131365.3	31491.42	4.171463	0.0000
PIBPER	0.643471	1.468974	0.438041	0.6617
REM	395.3193	25.45705	15.52887	0.0000
R-squared	0.504920	Mean dependent var		426824.6
Adjusted R-squared	0.501006	S.D. dependent var		352197.0
S.E. of regression	248790.2	Akaike info criterion		27.69826
Sum squared resid	1.57E+13	Schwarz criterion		27.73980
Log likelihood	-3542.377	Hannan - Quinn criter.		27.71497
F-statistic	129.0142	Durbin - Watson stat		0.036192
Prob(F -statistic)	0.000000			

Source: Own elaboration with study data

Considering the obtained values, they are perceived very high, as it is the *C* coeficient of 131,365 units and the coefficient of the cosignment in 395.3 units, the error is fairly high for the independent coefficient *C* and for the consignments. Additionaly the probability value for the GDP per capita is out of the accepatable range. What it is remarked in table number 5 with 0.6617 very far from the zero. The average of the independent variable is 426,824.6 units and its deviation is around 352,197 units.

All those values obtained in the evaluation force to run the series with a treatment seeking to stabilize them and with that, get a better behavior. In order to corroborate the discontinuity of the calculated behavior The Gauss bell and its coeficients graphic is used (figure 1).

Figura 1 Histogram of normality in the series ls alprimxent c pibper rem



Series: Estandardized residuals
Sample : 2006-2013
Observations: 256

Mean: 6.91e -11
Median: 45230.00
Maximum: 1106518
Minimum: -551400.9
Std. Dev.: 247812.6
Skewness: 1.913331
Kurtosis: 9.621761

Jarque - Bera: 623.9047
Probability : 0.000000

Source: Own elaboration with study data

In the test of normality prueba (figure 1) it is observed the discontinuity in the bell, an acceptable probability of 0.0000, but a very high kurtosis and dispared values. Because of that ,it is decided to evaluate the series by elasticities through logaritms, with the purpose to stabilize the effects of the measurement units of the variables in the coefficients. That is shown in table number 6. Series evaluated: *ls log(alprimxent) c log(pibper) log(rem)*

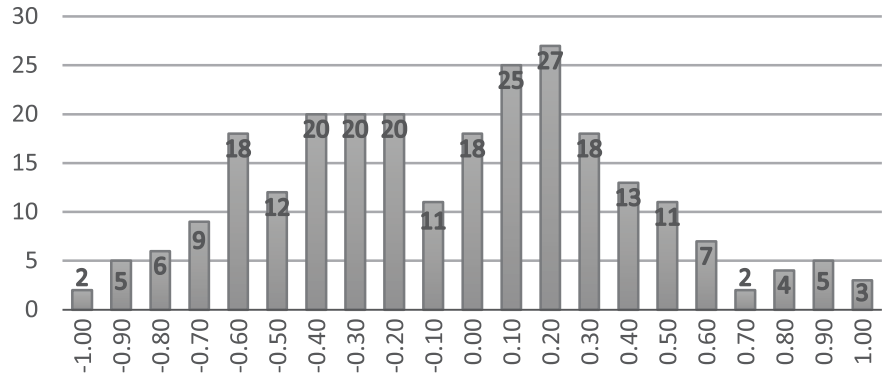
Tabla 6 Regression of the series ls log(alprimxent) c log(pibper) log(rem) through elasticities

Dependent Variable: LOG(ALPRIMXENT)		*Periods included: 8*		
Method: Panel Least Squares		*Cross - sections included: 32*		
Sample: 2006 2013		*Total panel (balanced) observations: 256*		
Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	6.204352	0.689742	8.995183	0.0000
LOG(PIBPER)	0.268634	0.061892	4.340376	0.0000
LOG(REM)	0.657261	0.032259	20.37470	0.0000
R-squared	0.654524	Mean dependent var		12.68440
Adjusted R-squared	0.651793	S.D. dependent var		0.755283
S.E. of regression	0.445686	Akaike info criterion		1.233244
Sum squared resid	50.25486	Schwarz criterion		1.274789
Log likelihood	-154.8553	Hannan - Quinn criter.		1.249954
F-statistic	239.6611	Durbin-Watson stat		0.057944
Prob(F -statistic)	0.000000			

Source: Own elaboration with study data

Through elasticities (table 6) a valid result is obtained for the prop value of *0.0000, without any effect in crossed sections nor the period*. It procceds to evaluate the test of normality considering that the series have been stabilized, the atypic observations have been reduced and the effect on the units of variables have been eliminated over the coefficients (figure 2).

Figura 2 Histogram without effects in the crossed sections nor in period



Series: Estandardized residuals
Sample: 2006 -2013
Observations: 256

Mean: 5.70e-16
Median: 0-035361
Maximum: 1.073882
Minimum: -0.984383
Std. Dev.: 0.443935
Skewness: 0.128295
Kurtosis: 2.493015

Jarque -Bera: 3.443973
Probability : 0.178711

Source: Own elaboration with study data

The results are aceptable in the regression of the serie without any corelation of the effects in the coefficients of the independent variable. In the analysis, through the revision of the behavior in the histogram, it is verified that the continuity in the Gauss bell of the histogram of normality, with a probability near to 0.2, is aceptable to the 98% in level of confidence and a kurtosis of 2.49 (figure 2).

Tabla 7 Accepted Coeficients for the hypothesis H1 evaluated through elasticities

ls log(alprimxent) c log(pibper) log(r em) $y = \beta 0 + \beta 1x1 + \beta 2x2 + \alpha duml + ei$		
Variable	*Coeficiente*	*R-squared*
C	6.204352	0.654524
Pibper	0.268634	*Adjusted R-squared*
Rem	0.657261	0.651793

Source: Own elaboration with study data

The regression is valid with that normality and a kurtosis within the parameters, involving a near to zero bias, and a distribution near to the normal. The coeficients are accepted for the initial planned hypothesis, with positive effects concerning to the percentage of students (permanence) *with the increase of the GDP per capita and the consignments* (table 7).

The hypothesis is confirmed *Ho* and the final equation will stay determined by the equation 1.

$$alprimxent = 6.204352 + 0.268634(pibper) + 0.657261(rem) + \alpha dumI + ei \quad (1)$$

Where:

$\alpha dumI$= is the non observablo effect in the period, independent from the time *i*
ei = is the same as stochastic error

The value of Chi-ajustada allows us to infer that the combinations in the independent variables explain in a 65% the behavior of the dependent variable. The coefficients involve a positive relationship of the variables concerning to the independent variable in function of the elasticities, indicating that:

- By a percentual increasing of the GDP per capita increases a 0.27% the number of students. The values are expected according to the theoretical assumptions. The influence is positive.
- By a percentual increasing of the consignments it increases in a 0.65 % the number of students. The values are expected according to the theoretical assumptions. The influence is positive.

Discusion

The fact that the results does not explain in a major percentage the dependent variable supposes that another variable not conssidered is required or it could be implicit in another variable with other indicators of another dimensión which would be necessary to explore. It must not be forgotten that the educational results are the product of socioeconomical variables, familiar, cultural and institutional. To value other variables in the análisis could improve the results of representativeness.

The obtained coefficients reveal that the influence is higher for the consignments (0.66) while those for the GDP are lower (0.27).The quantification exercise serves to be exposed if we replace the unitary values in the variables keeping a constant or eliminating the values of the non observable effect $\alpha dumI$ and the error ei in the equation.

$$alprimxent = 6.204352 + 0.268634(pibper) + 0.657261(rem) + \alpha dumI + ei$$

Considering the non observable effect and the error the same as zero, while the variables GDP per capita and the consignments the same as one and two in combination, it is possible to observe the effect:

$$alprimxent = 6.204352 + 0.268634(1) + 0.657261(1) + 0 = 7.130$$

$$alprimxent = 6.204352 + 0.268634(1) + 0.657261(2) + 0 = 7.7875$$

$$alprimxent = 6.204352 + 0.268634(2) + 0.657261(1) + 0 = 7.3989$$

Mathematically would imply to strenghten the public policies focused on increasing the percentage of the consignments, due to its effect is higher in the dependent variable of school permanence. Perhaps it may be thought in strenghten the legal or temporary migration programs or those of communitary social bond of the legal migration with programs such as 3 by 1 (extinguished). However, it would not be the correct alternative. The countries cannot think in encouraging the migration and the la departure of their citizens this way, expelling the workforce; on the contrary, they must look for ways to improve the production and the development of their countries, as well as the permanence of their citizens inside the national territory as a major priority.

Conclusion

The public policies which strenghten the growth of the GDP are mainly desired, not only for the influence in the school permanence in Mexico, but also for the effects in other sectors, such as health, security or the educational sector itself, and for the development of the country in general; it is better to create public policies that strengthen the GDP than to creat policies that strengthen the migration. These are aspects which should taken into account by the decisión makers with the information obtained as a result of this and other related studies as well.

The information and the results of this current study allow to affirm that the planted hypothesis is correct, there is a positive influence of the constituted mixed incomes by the GDP per capita and the cosignments in the school permanence. The influence of the consignments is higher 66/27 related to the GDP per capita.

In future research we could go deeper in the application of focalized surveys in the state entities where the migrant population has a strong presence with the intention to get data concerning to the resources the families assign to the education and the surroundings, and to return and value the variables and their level of influence las. Likewise, look for, consistently increase the data base, what can improve the quality of the results.

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