The Impact of the financial and Economic Crisis on Central America: An Expenditure GDP approach

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Proposals for an Integrated Global Response to the Crisis

The Impact of the financial and Economic Crisis on Central America:

An Expenditure GDP approach

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Abstract

This article applies expenditure GDP approach for analyzing the impact of financial and economic crisis on Central America[1] (BCN, 2004). I use the regression analysis method of multivariable statistical analysis to establish a multiple linear regression model about the mean expenditure variables that they are estimated during 2000 to 2008, therefore I calculate forecast for 2010. In general terms, those countries present yours economies with a declining trend. So I suggest some measures to support the impact in our economies.

Keyword: Expenditure GDP approach; Financial Crisis; Economic impact; Regression Analysis.

Introduction

This article studies the impact of the U.S economic recession on seven Central America countries. They are Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica and Panamá. Consequently, their economies have kept a relative grow during 2009. Guatemala reduced yours exports, familiar remittance, investment, and fiscal incomes so it is significant affect the employ. Belize reached 6.4% of inflation, it was the highest rate on the last 12 years, and it was due to hard price rises of food and fuel. The unemployed rate was reduced to 8.5 %. Honduras has been characterized by the coup d'état, the international price rises of food and fuel; therefore it implies an inflationary pressure and an expanding imports. The effects of the international financial crisis were reflects in a reduction of the exports and in an upward slowing down of the familiar remittance with negative effects on the familiar consumption. Mauricio Funes assumes the presidency of the Salvador; he was the first president with revolutionary orientation. His government has a plan for alleviating the international crisis, but the extern context is unfavorable. Nicaragua reduced the familiar remittances, the exports, and investment. The familiar consumption is slowing down due home income reduced. Costa Rica is experimented contraction in

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[1] Central American countries studied are Guatemala, Honduras, Nicaragua, El Salvador y Panamá.

exports and consumption.   The arriving of tourists is reducing.   CAFTA-RD begins on the first January of 2009 (Barcenas:2009).

Review Literature

 The impact of the financial and economic global crisis on Central America countries will be measured by macroeconomic model. The GDP estimations may be getting by tree approach calculation equivalents.
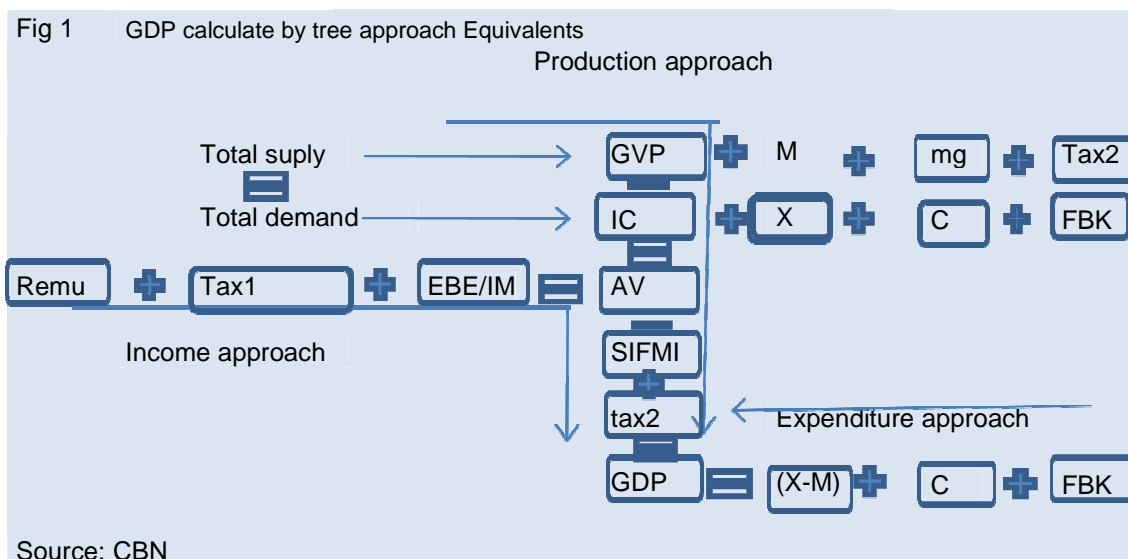
Production approach

It estimates the gross value production (GVP) of dissimilar economic activities and yours respective intermediate consumption (IC) for getting by difference the aggregate value (AV) of each activity. The GDP is an aggregate values add together of all activities, which it adds others tax over products and reduce pecuniary intermediation services directly measured.

Expenditure approach

It adds together all payments of final manufactured goods as consumer good and service which they are distributed in government consumption, familiar consumption, gross domestic investment, exportation and importation.

Income approach

It add together all remuneration to wage employee, tax less subvention above production and importation, gross mix up income, and surplus gross exploitation; in addition, the tax above products and less financial intermediation services indirectly measured (CBN:2004).

Fig 1   GDP calculate by tree approach Equivalents

Production approach

Total suply → GVP + M + mg + Tax2

Total demand → IC + X + C + FBK

Remu + Tax1 + EBE/IM = AV

Income approach

SIFMI

tax2 ← Expenditure approach

GDP = (X-M) + C + FBK

Source: CBN

, where

Variables	Descriptions
GVP	Gross value production
IC	Intermediate consumption
AV	Aggregate value
M	Importation
X	Exportations
C	Final consumption (Government and familiar consumption)
FBK	Gross domestic investment (I)
Remu	Remunerations to wage employees
Tax 1	Tax above production
EBE/IM	Exploitation Surplus / Mix up income
SIFMI	Banking allocate
Tax 2	Tax above products
GDP	Gross domestic product
mg	Trade and transportation margin

I´ve selected the expenditure approach for measuring the impact of the financial and economic global crisis on Central America countries, because it is significant for our study.

The macroeconomic theory[2] approach is

$$Y = (X - M) + \text{GC} + \text{FC} + \text{I} \qquad (1)$$

, where

Y: National Rent or Gross Domestic Production.

X: consumer good and service exportation is defined as transactions that indicate transfer of good property and service given by producer in a not resident country.

M: consumer good and service importation is specifying by all transactions of good property and service from not resident to resident country, thus as the services given by producer not residents as residents. It consists in the merchandising entrance by country custom, in addition by special regimen enterprise (free frank zone)

C: consumption may be combined with government (GC) and familiar consumption (FC). It is represented by consumption function:

$$C = \bar{C} + c\,Y \qquad \bar{C} > 0 \qquad 0 < c < 1 \qquad (2)$$

,where $\bar{C}$ is the ordinate in the origin. It represents the level of consumption when the rent is zero; c is the consumption function slope. The coefficient c is the marginal propensity to consumer; y is the national rent.

CG: government consumption is defined as the expenditure of government

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[2] Macro economic theory is taken of Dornbush and Fisher, 1980 and Sachs –Larraín, 1985.

CF: familiar consumption

I: the investment function, it represents the level of save in the eq (2) and the level of rent.

$$S \equiv Y - C \tag{3}$$

Data

Impact and Implications of the Global Financial and Economic Crisis are transmission on the seven countries studied by annual rate variation with the follows variables:

Variables	Variables description are annual rate variations (above local currency to constant prices of 2000)
y_i	Total Gross domestic product by type of expenditure
x_1	Government consumption
x_2	Family consumption
x_3	Gross domestic investment
x_4	Exportations
x_5	Importations

The data were taken of CEPAL statistical base (CEPAL, 2008).

Methodology

Linear regression analysis is the method used where the researches on changing proportion between dependent variable and independent variable. Its general mathematical model is

$$y = \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_p X_p + \mu \tag{4}$$

, $where \ \beta_i \ (i = 1,2, \ldots \ldots, p)$ is the parameter to be estimated, X_i is the observed value, μ is the random variable obeying standard normal distribution N(0,1). The five variations of annual rate GDP by type of expenditure are taken as independent variables, and the annual rate variation of the GDP is dependent variable. I establish the multiple linear regression models by Eviews 5.1 statistical analysis software. With Eviews I can quickly develop a statistical relation from my data and then use the relation to forecast future values of the data for 2010 year.

Results and discussion

The results show that the financial and economic crisis on the U.S., have impacted economic growth of Central America countries. The next table shows the mean GDP variation during 2000-2008. We can see that Honduras, Costa Rica and Nicaragua getting low down growth variation in your economies. Belize only will reach a 12 % growth variation. If we consider that the crisis born on 1990, thus all Central American economies have receiving a mean growth variation about 5 % maximum and 3 % minimum, however those economies show decreasing trend on 2008[3].

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[3] See graphs 1 to 7 and the table 2 in the annexes .

Table 1 Forecast GDP variations to 2010		
Country	Mean GDP 00-08	GDP 2010
Guatemala	3.083	0.014334
Belize	3.333	0.121231
Honduras	5.357	0.000009
El Salvador	2.766	0.033045
Nicaragua	3.666	0.002311
Costa Rica	5.012	0.000287
Panama	5.133	0.020974

The exportations have declining too.   Belize shows negative variations and the others countries present mean variations about 55 % maximum (Honduras) and 21 % minimum (Nicaragua).   On the other hand, the importations represent negative variations for all countries; however Belize indicates 12 % of variation.   The balance of trade is negative, so it represents indebtedness for our economies.   This situation will increase during 2010.

The mean impact of the financial and international crisis is the foreign investment.   In the period studied Costa Rica, Panamá y Nicaragua present negative variations, so in 2010 similar situation will be to rest of the countries. In addition, the familiar remittances have been strongly reduced. The transmission of this impact we see reflected in the consumption. On the first time, the government consumption shows a reducing. Nicaragua is only country that reduce your expenditure in 0.1 %, while Costa Rica in 1.14 %, Panamá in 48 %, Belize 19 %, Honduras 11 %, and El Salvador 10 %, in other words this percent represent propensity marginal to the consumer (government). For example, Nicaragua will expenditure 0.01 cents (is the lower) by each investment córdoba.

Finally, the familiar consumption shows negative variations for Panama with -0.65. The others countries present positive variations. El Salvador represents the maximum per cent with 90 %, Honduras 70 %, Costa Rica 55 %, Nicaragua 31 % and Belize 07 %. This information is the propensity marginal that the household can use to consumption.

Conclusion

The financial and economic international crisis is come of structural nature.   The productive structure diversification is suggested. The mean conclusion is the necessary to formulate a new development agenda.   In fact, the instrument and resource for each country depend of your fiscal space to finance the public fond, access to credit in foreign currency, and outer assets. In addition, I suggest keynesian incentive that consist in raise the public expenditure by infrastructure productive projects.   The fiscal politic may be used as anti cyclical instrument.   In addition, commercial politic have a positive impact as tariff modification, restrictions to importations, financing to exportations. Sectoral politic managed to particular sector as agricultural, industry and construction.   Social politic conduced to reduce the crisis impact.

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Annexes

Table 2: Variation annual rate by GDP expenditure 2000-2008				
Country	Coefficient	Std. Error	t-Statistic	Prob.
x_1 Guatemala	0.175767	0.067213	2.615066	0.0591
Belize	0.19062	0.120345	1.583956	0.1884
Honduras	0.11812	0.009089	12.9957	0.0489
El Salvador	0.10449	0.007562	13.81697	0.046
Nicaragua	0.017346	0.091022	0.190572	0.8581
Costa Rica	1.14825	0.31646	3.628424	0.0683
Panamá	0.481753	0.946461	0.509005	0.6613
x_2 Guatemala	0.000724	0.116096	0.00624	0.9953
Belize	0.070507	0.178416	0.395181	0.7129
Honduras	0.709119	0.01416	50.0793	0.0127
El Salvador	0.904354	0.009812	92.16544	0.0069
Nicaragua	0.316476	0.125253	2.526692	0.0649
Costa Rica	0.552109	0.489838	1.127126	0.3767
Panamá	-0.654771	2.754102	-0.23774	0.8342
Guatemala x_3	0.064144	0.045187	1.419502	0.2288
Belize	0.059923	0.070242	0.853098	0.4417
Honduras	0.194019	0.02002	9.691415	0.0655
El Salvador	0.1814	0.001834	98.90069	0.0064
Nicaragua	0.000208	0.019279	0.010776	0.9919
Costa Rica	-0.102414	0.118027	-0.86771	0.477
Panamá	-0.315493	0.625942	-0.50403	0.6643
Guatemala x_4	-0.063058	0.075594	-0.83416	0.4511
Belize	-0.035734	0.119305	-0.29952	0.7795
Honduras	0.554588	0.023041	24.07012	0.0264
El Salvador	0.36059	0.003959	91.07575	0.007
Nicaragua	0.210392	0.057871	3.635527	0.0221
Costa Rica	0.428213	0.087487	4.894578	0.0393
Panamá	0.293445	0.447649	0.655525	0.5795
Guatemala x_5	0.227396	0.117185	1.940484	0.1243
Belize	0.126301	0.161864	0.780291	0.4788
Honduras	-0.574086	0.043435	-13.2171	0.0481
El Salvador	-0.556909	0.012664	-43.9749	0.0145
Nicaragua	0.061584	0.052906	1.164039	0.3091
Costa Rica	-0.17743	0.096166	-1.84504	0.2063
Panamá	-0.205225	0.303188	-0.67689	0.5683

GRAPH 1 GUATEMALA INDICATORS 2000 2010

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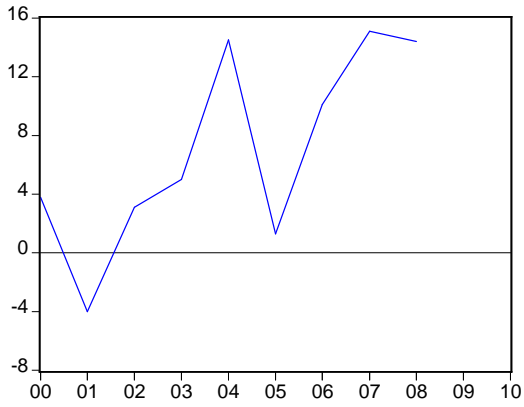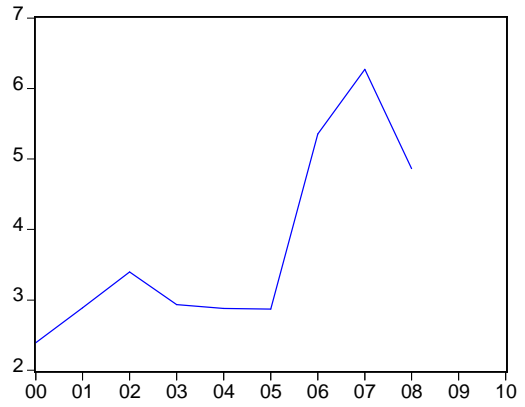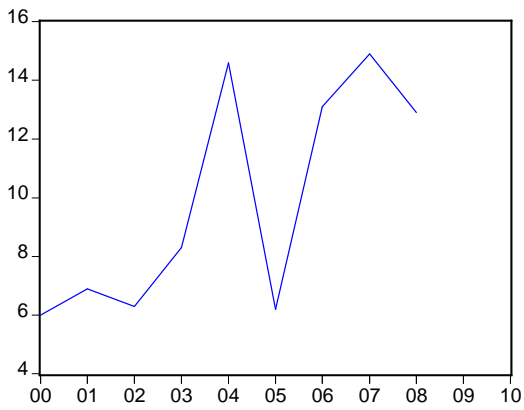
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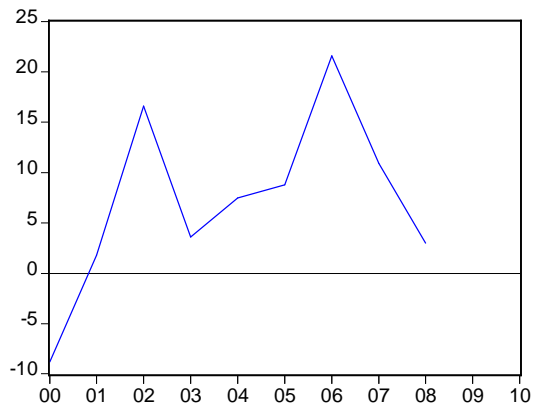
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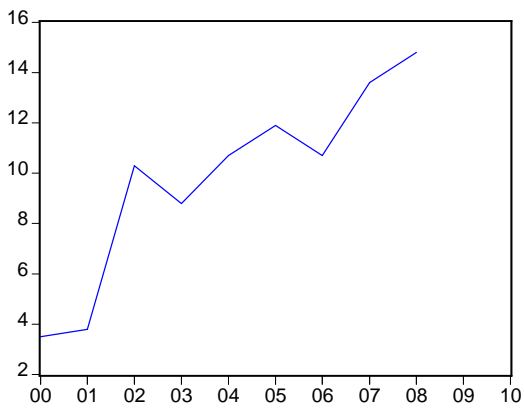
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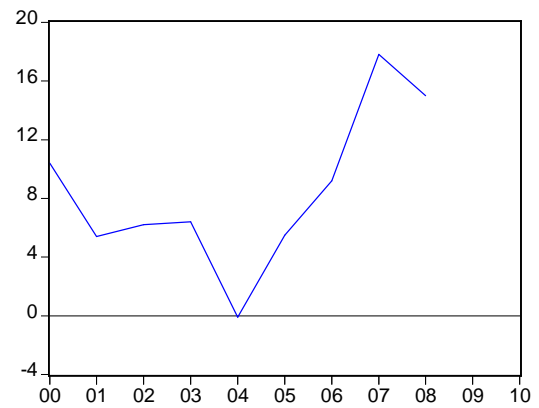
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GRAPH 2 BELIZE INDICATORS 2008 2010
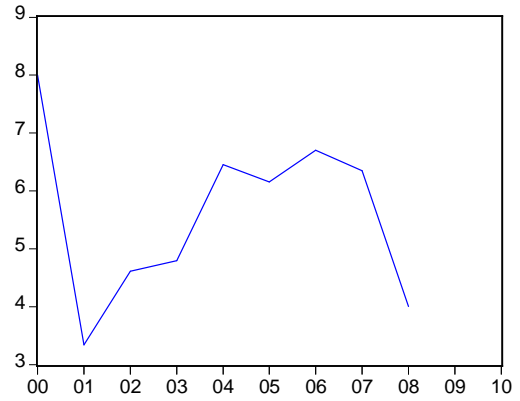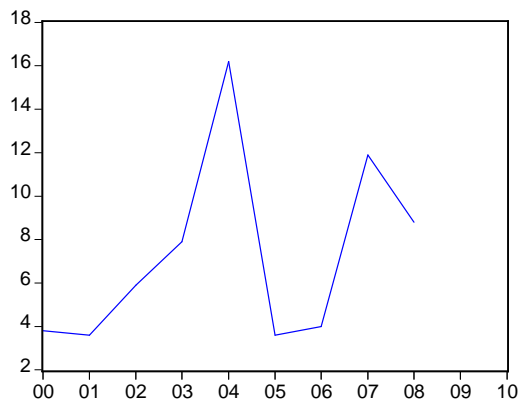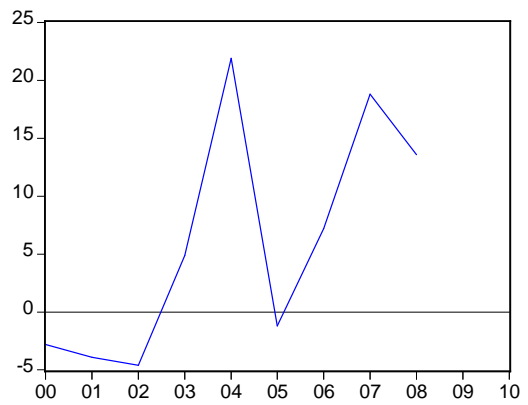

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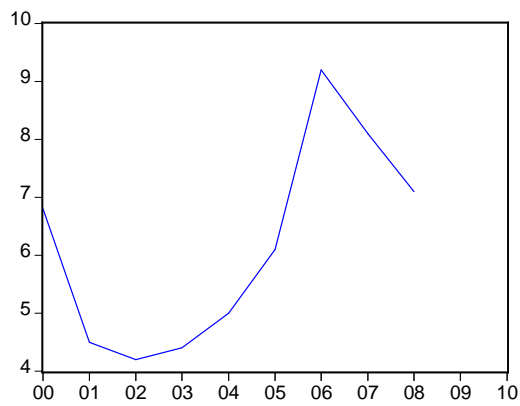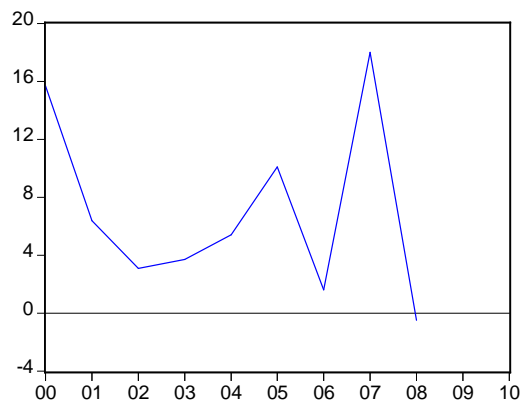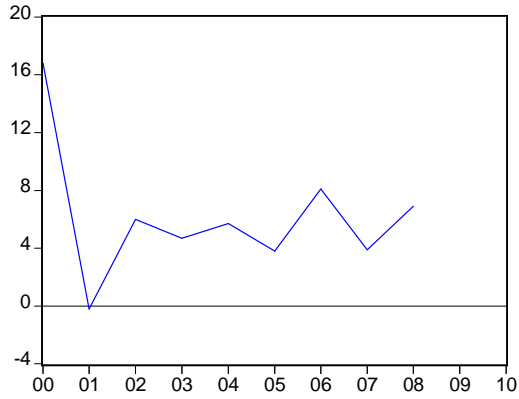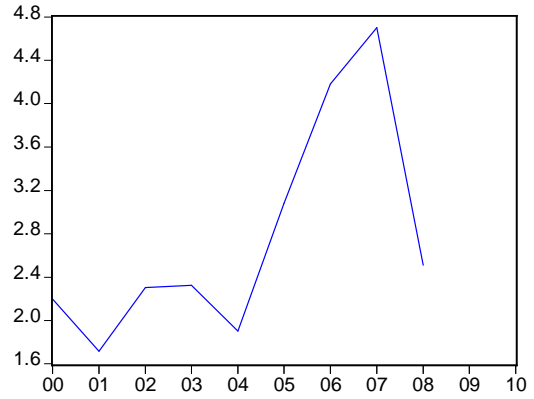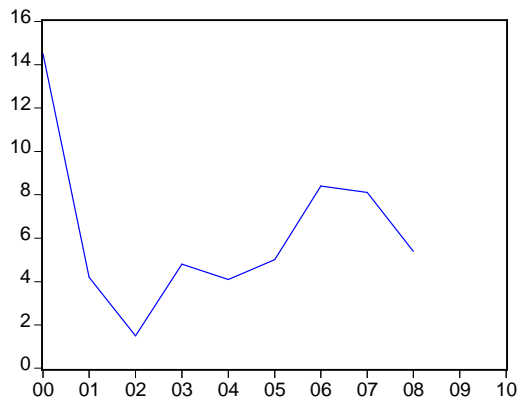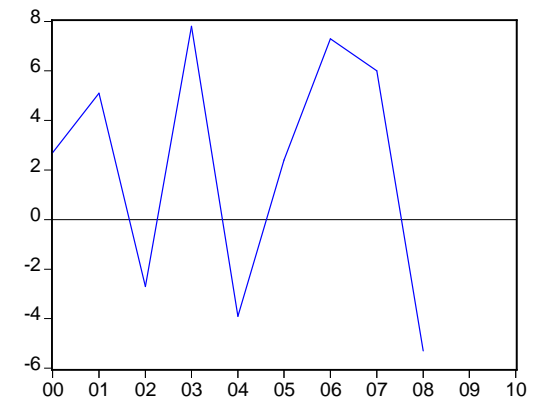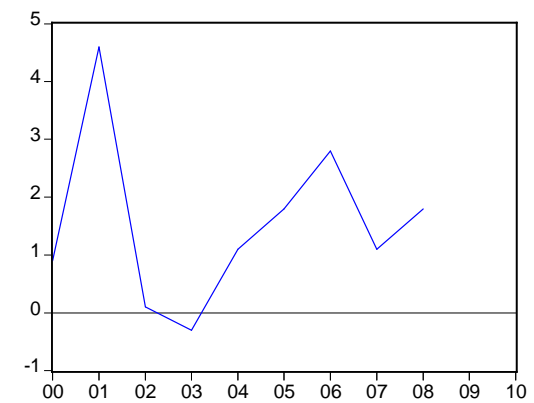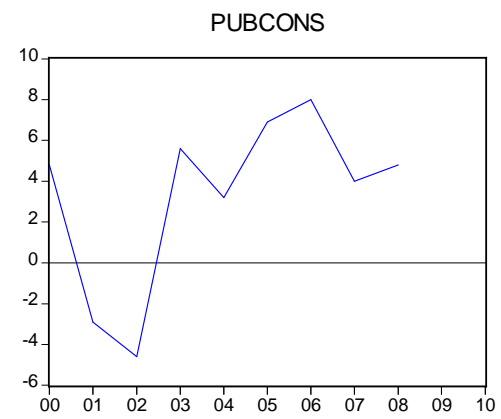
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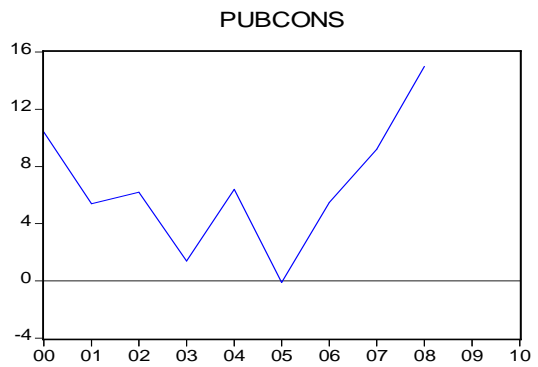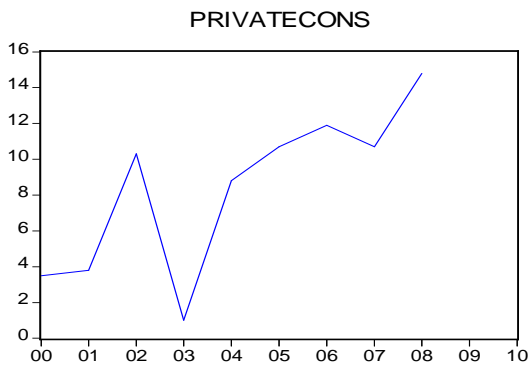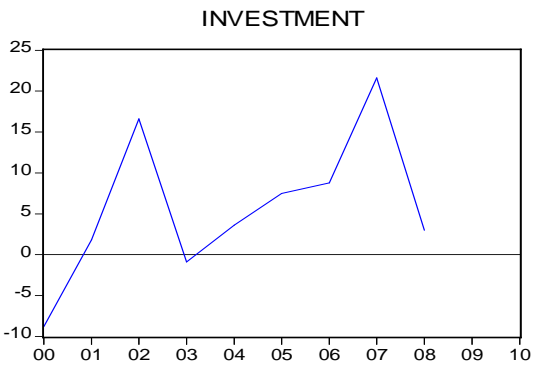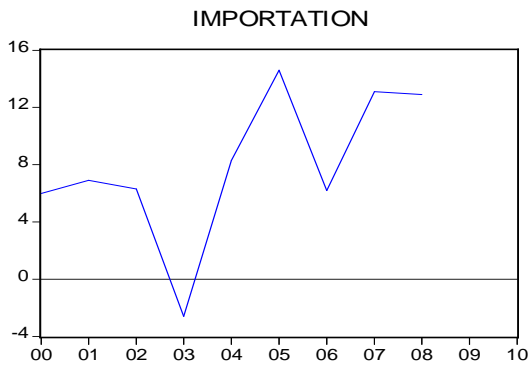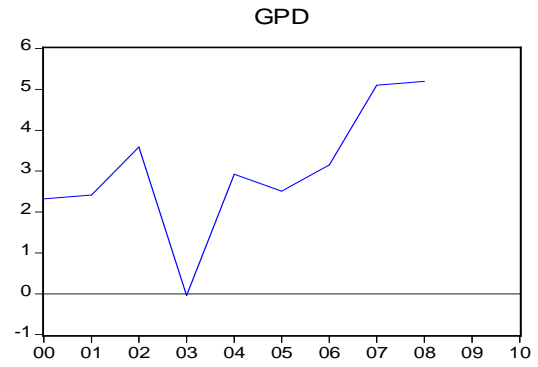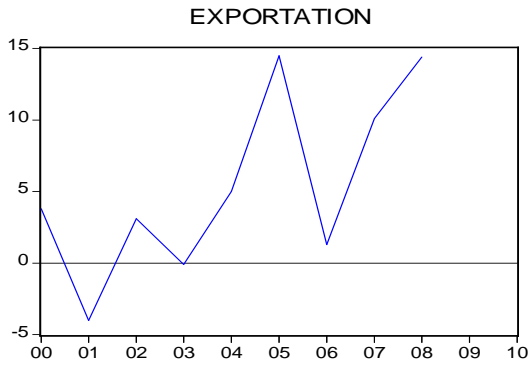
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GRAPH 3 HONDURAS INDICATORS 2000 2010

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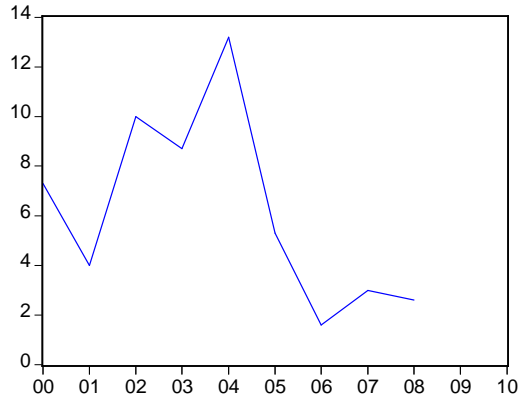
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GRAPH 4 EL SALVADOR INDICATORS 2000 2010

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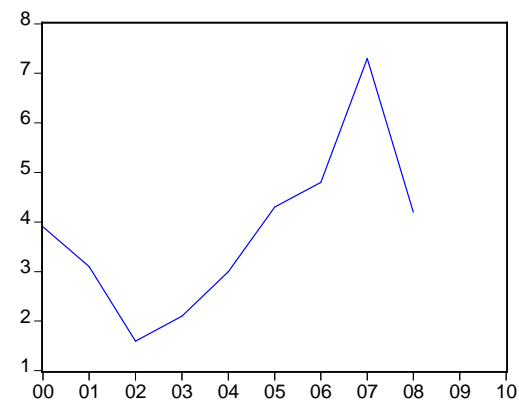
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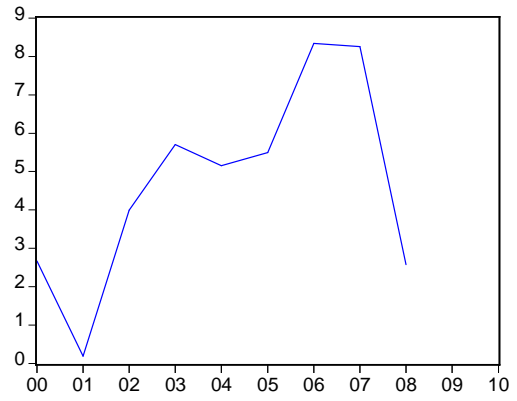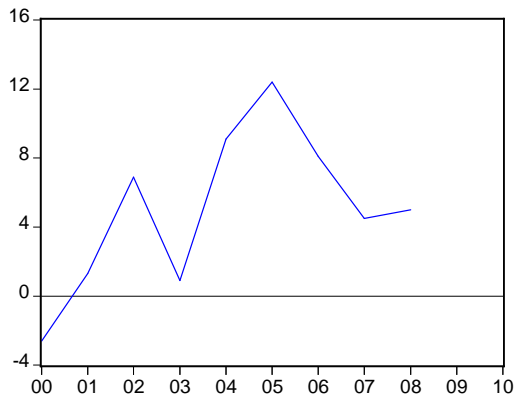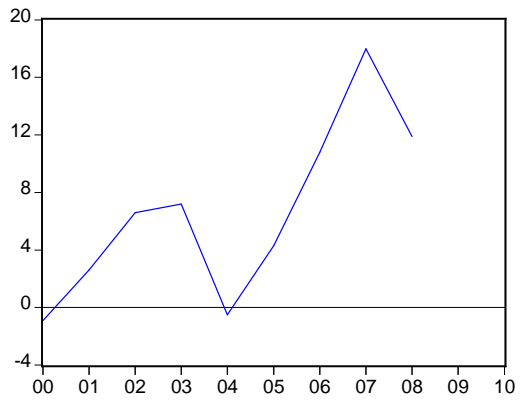
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GRAPH 5 NICARAGUA INDICATORS 2000 2005

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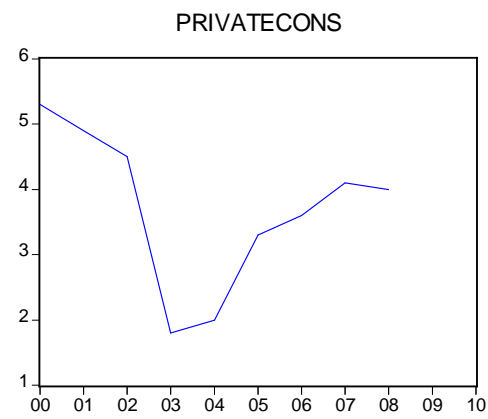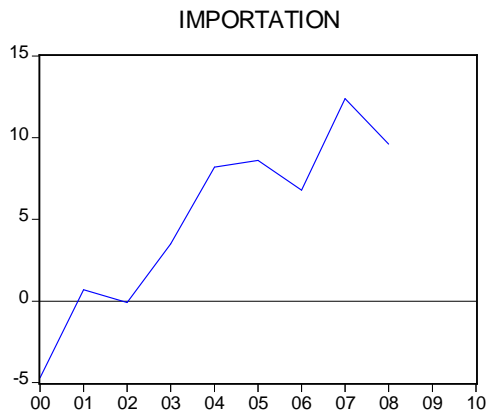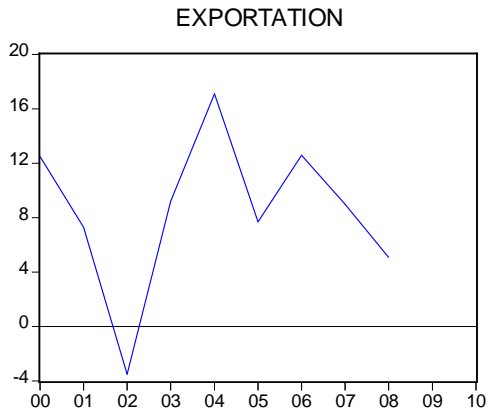
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GRAPH 6 COSTA RICA INDICATORS 2000 2010

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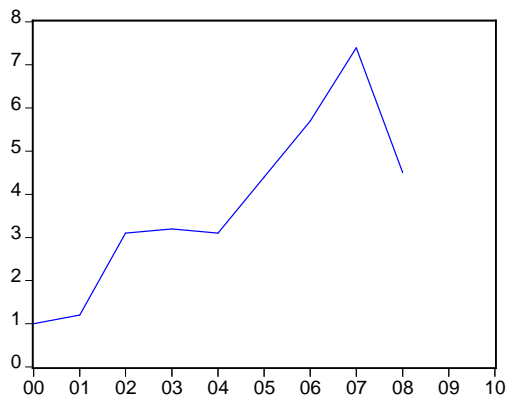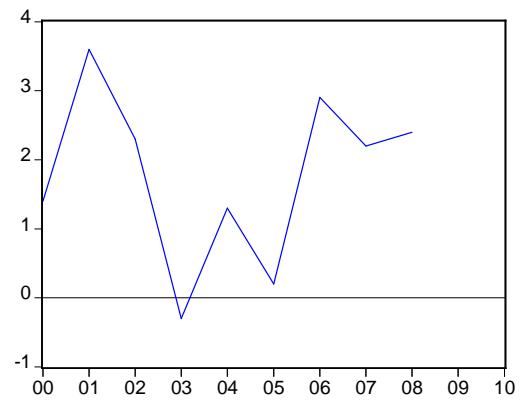### GPD

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GRAPH 7 PANAMA INDICATORS 2000 2010

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