AGRI-INDUSTRIAL SITUATIONER: BASIS FOR STRATEGIC PLANS

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Abstract

In the Regional Development Plan (RDP) of Region VIII, Philippines, the centerpiece is along agri-industrial development. This study primarily aimed to delve into the patterns and trends of the agri-industrial development of Palompon, Leyte, Philippines, covering the period of 1999-2009, with the variables as geopolitical profile with 4 indicators, economic profile with 7 indicators, and socio-demographic aspect with 8 indicators. This study adopted a descriptive-evaluative research design using 3 levels of growth diagnostic approach to facilitate description and analysis of the patterns and trends of the favorable and unfavorable development in the locality. Analysis of development patterns and trends utilized a time-series method and a factor analysis to determine the factors associated with agri-development variables. Findings depict of a 2nd class municipality with a land area of 12,846 hectares in 50 villages) with 22% residing in urban villages and 88% residing in rural villages. The indicators under the economic profile

showed an improving mode through the years, while the indicators under the socio-demographic profile are in an increasing trend over the years. Thus, the municipality's identified strengths are enhanced, and its weaknesses are developed and given attention to, for a progressive municipality of Palompon in the 4th district of Leyte.

Keywords

Agri-Industrial Situationer, Analysis of Development Patterns and Trends, Leyte, Municipality of Palompon, Philippines, Strategic Plan

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1. Introduction

The northwestern part of Leyte is composed of ten (10) municipalities and one (1) city which are managed by local government units (LGUs). Notably, the majority of these municipalities and/or LGUs are located in the coastal area, and only three (3) of them are situated in the mountainous area. Presumably, the demographic location of these municipalities has much to do with the development of the place.

In 1992, the local government structure was changed through the implementation of Republic Act 7160 known as the 1991 Local Government Code of the Philippines. Through this, the municipalities, cities, provinces, and regions were given the local autonomy to enable them to attain the fullest development. The local government structure was placed into the decentralization system, whereby local government units were given more powers, authority, responsibilities, and resources. As such, several national programs/services were devolved to the local government units such as agriculture, health, and social services. After 10 years of implementation of the local government code, Region VIII remains poor compared to other regions of the country (National Economic Development Authority (NEDA) Report, 2003). In 2004, the Visayas Regional Council shifted from development planning to strategic planning and established the Regional Development Investment Plan (RDIP) from 2005-2010. The RDIP contains five (5) elements; macro economy, agri-industrial development, the "centerpiece of the plan"; social development and poverty reduction, infrastructure and logistic support; and good governance. The thrust of social development and poverty reduction is to reverse the rising number of poor families in the society and develop a healthy, educated, responsible and productive citizens who will serve as a contributor to the growth and development of Eastern Visayas.

The present socio-economic condition of the region is dominated in part by the gloomy realities of poverty and underdevelopment. But while the region has not kept pace with the relatively better pace of development in other parts of the country, still the prospects of the future are bright due to its natural endowments and potentialities.

Within this milieu, there is a need to conduct an in-depth analysis of the patterns and trends of agri-industrial development, particularly in one of the municipalities/LGUs in the northwestern part of Leyte, which is Palompon. Hopefully, the study has identified development and policy variables that can serve as inputs to the regional planners, local and international financing institutions in setting development directions and programs in northwestern Leyte and the region.

The municipality of Palompon is one of the five (5) LGUs that comprised the fourth (4ᵗʰ) district of Leyte. This research report presents the patterns and trends of agri-industrial development in the LGU of Palompon.

1.1 Geo-Political Profile

On the LGU of Palompon, the geopolitical profile shows that this is a second (2ⁿᵈ) class municipality based on the LGU income classification. The land area is 12,846 hectares or 128.45 square kilometers. It has fifty (50) villages, nine (9) of which are in the urban area, and forty-one (41) villages are situated in the rural areas. Its present population of 53,036 has 11,668 or 22% who are residing in the urban villages, and 41,368 or 88% are residing in the rural villages.

1.2 Statement of the Problem

This study was conducted to look into the patterns and trends of agri-industrial development in Palompon, Leyte for 1999-2009 using the following indicators (1) Economic profile, with sub-indicators like 1.1. Agri-Industrial [rice grain (irrigated), rice grain (non-irrigated), coconut, sugar cane, fish, hogs, chicken, corn, root crops, and pineapple]; 1.2 Employment [self-employment, underemployment, and unemployment]; 1.3 Natural Resources, 1.4 Finance, 1.5 Revenue Generated and Collected, 1.6 Trade and Industry, 1.7 Land Classification, and 1.8 Tourist Arrivals. (2) Demographic Profile [29 years old & below, 30-39 years old, 40-49 years old, and 50 years old & above. (3) Health and Nutrition [hospitals, health workers, underweight children, number of children vaccinated, number of births, number of deaths, morbidity and mortality]. (4) Housing-Ownership and House Type, (5) Social Welfare

and Community Development, (6) Public Order and Safety, (7) Education, and (8) Religion and Culture.

2. Methodology

To achieve effective development strategies, it is believed that an in-depth analysis of the patterns and trends of agri-industrial development in the municipality would be in place. The variables on geopolitical profile have 4 indicators, economic profile with 7 indicators, and socio-demographic aspect has 8 indicators. This study adopted a descriptive-evaluative research design using 3 levels of growth diagnostic approach to facilitate description and analysis of the patterns and trends of the favorable and unfavorable development in the locality. Analysis of development patterns and trends utilized a time-series method and a factor analysis to determine the factors associated with agri-development variables.

3. Results and Discussion

3.1 The Economic Profile

The economic profile of the municipality is measured in terms of (1) Agri-Industrial Productivity, (2) Employment, (3) Natural Resources, (4) Finance, (5) Revenue Generated and Collected, (6) Trade and Industry, (7) Land Classification, and (8) Tourist Arrivals.

3.1.1 Agri-Industrial Productivity

The agricultural productivity was determined using the ten (10) indicators identified for the municipality, namely: (1) Rice Grain (Irrigated), (2) Rice Grain (Non-Irrigated), (3) Coconut, (4) Sugar Cane, (5) Fish, (6) Hogs, (7) chicken, (8) corn, (9) root crops, and (10) pineapple. This is shown in Table 1.

Table 1: *Estimated Trend and Model for Agricultural Production*

Agri-Production	Period Covered	Estimated Trend	Estimated Model	R	R-Square
Rice Grain Irrigated	1999 - 2009	Exponential	Y 3.325E-37+.046	-	0.758
Rice Grain Non-irrigated	1999 - 2009	Exponential	Y 1.364E-84+.100	-	0.898
Coconut	1999 - 2009	Linear	Y -806948.382+407.118	0.998	-
Sugarcane	2002 - 2009	Linear	Y 206397.690-100.844	0.357	-
Fish	1999 - 2009	Linear	Y -95626.273+48.727	0.999	-
Hogs	2002 - 2009	Linear	Y -769778.500+385.893	0.899	-

Chicken	2002 - 2009	Exponential	Y 9.711E23-.022	-	0.187
Corn	1999 - 2009	Exponential	Y 2.021E-63+.075	-	0.929
Root crops	1999 -2009	Exponential	Y 2.863E-17+.022	-	0.988
Pineapple	2002 - 2009	Exponential	Y 2.189E-6+.011	-	0.592

Rice production in irrigated land shows a strong exponential relationship (R^2=0.758) through the years, while the rice grain in the non-irrigated land area also obtained a strong exponential relationship over time (R^2=0.898). The rising trend in the rice grain production be it in irrigated and non-irrigated areas could be attributed to the equally distributed land area allocation and the farmers/residents industry in its production.

The production of coconut in the municipality is also showing an impressive increase having obtained a very strong linear relationship (R=0.998) and sugar cane proved a low linear relationship over time (R=0.357). The findings indicate that coconut has been given more land area allocation and for the farmers to extend more time on its production, while the sugar cane production is given less focus and attention by the farmers of the place. While low adoption rates might seem irrational when looking at promised yields, they may well be a result of rational decision making by farmers given the various constraints they face (Brooks, 2010). Poor farmers often do not have assets they can rely on in case of low output (Jack, 2009).

The decentralization of the system, putting farmer groups or the private sector in charge of service provision, has been the response proposed to overcome these accountability problems (Anderson & Feder (2007) and Alex et al. (2002).

On the other hand, owing to the municipality which is known as coastal for its location, fish production turned out a very impressive increasing trend with an almost perfect linear relationship (R=0.999). The production of hogs, on the other hand, appears also in an increasing trend with a strong linear relationship.

Notably, fish production and other marine products are found to be in abundance through the years with the fisherfolks using the modern way of fishing, and excess of it is marketed to the neighboring municipalities. The hog production is also on the rise since there are residents of the place who indulged in hog raising for the daily consumption and also marketed to the neighboring municipalities.

The production of chicken showed a weak exponential relationship over time indicating a decreasing trend through the years (R^2=0.187). The production of pineapple, on the other hand,

had a moderate exponential relationship over time (R^2=0.592). It is a rise and fall trend through the years of the pineapple production in the place. The trend characteristics would show that pineapple production in the place is not given much attention, though we could observe the continuous display of pineapple among the fruit stands in the marketplace which could be from other pineapple-producing places.

As shown in Table 1, the corn production in the municipality has a very strong exponential relationship (R^2=0.929) indicating an increasing trend over time, while the root crops also showed the same increasing trend through the years (R^2=0.988). This similar trend of these available products in the municipality could be observed during the market day of the place.

3.1.2 Employment

The employment scenario of the municipality is showing an increasing trend with the male and female employees, both having an R of 0.940 or a very strong linear relationship over time.

3.1.2.1 Similarly, the self-employment scenario also has both a very strong linear relationship over time with R=0.941 on the males and R=0.940 on the females.

3.1.2.2 The underemployment rate obtained a very weak linear relationship with R=0.037 on the males and R=0.036 on the females.

3.1.2.3 As noted, while the employment and self-employment rate are increasing through the years, the unemployment scenario also showed an increasing trend in the place with R=0.939 and R=0.941 for the males and females, respectively. With the increasing population of the place due to coming in of workers from outside Palompon, goes the increasing trend of the indicators on employment.

Table 2: *Estimated Trend and Model for Employment*

Indicator	Period Covered	Estimated Trend	Estimated Model	R
Employment				
Male	2001 - 2009	Linear	Y -716684.583+364.183	0.940
Female	2001 - 2009	Linear	Y -703296.472+357.383	0.940
Self-Employment				
Male	2001 - 2009	Linear	Y -188984.833+96.033	0.941
Female	2001 - 2009	Linear	Y -185607.806+94.317	0.940
Underemployment				
Male	2003 - 2009	Linear	Y -5422.071+3.893	0.037

Female	2003 - 2009	Linear	Y -5518.214+4.036	0.036
Unemployment				
Male	2001 - 2009	Linear	Y -200006.833+10.167	0.939
Female	2001 - 2009	Linear	Y -42572.611+21.633	0.941

3.1.3 In terms of natural resources in the municipality (Table 3), the land-based resources, as: (1) vegetables (R=0.943)), (2) fruits (R=0.943), (3) coconut (R=0.878), (4) rice (R=0.878), (5) pineapple (R=0.878), (6) root crops, and (7) corn (R=0.828) showed an increasing trend denoting a strong to very strong linear relationship over time. Inasmuch as these aforementioned products are found available in the municipality, the residents need to be encouraged for more production of these to be sourced out to other neighboring municipalities.

Table 3: *Estimated Trend and Model for Natural Resources*

Indicator	Period Covered	Estimated Trend	Estimated Model	R	R-Square
Natural Resources-Land Based					
Vegetables	2000 - 2009	Linear	Y 0	0.943	-
Fruits	2000 - 2009	Linear	Y 2679.290+.090	0.943	-
Coconut	2000 - 2009	Linear	Y 3746.240+.090	0.878	-
Rice	2000 - 2009	Linear	Y -75.396+.116	0.878	-
Pineapple	2000 - 2009	Linear	Y -204.662+.198	0.878	-
Root crops	2000 - 2009	Linear	-	-	-
Corn	2000 - 2009	Linear	Y -26.407+.059	0.828	-
Natural Resources-Marine and Water Based					
Fish	2000 - 2009	Exponential	Y 2123718.313-.004	-	0.175
Shrimps	2000 - 2009	Exponential	Y 2.299E-28+.034	-	0.905
Crabs	2000 - 2009	Linear	Y -1060.743+.543	0.968	-
Oysters	2000 - 2009	Exponential	Y 3.843E-17+.020	-	0.999
Seaweeds	2000 - 2009	-	-	-	-
Seashells	2000 - 2009	-	-	-	-

Since Palompon is a coastal municipality in the 4th district of Leyte, there are marine and water-based resources identified, such as (a) fish having an R^2=0.175 or a low exponential relationship, (b) shrimps with an R^2=0.905 or very strong exponential relationship, (c) crabs obtained an R=0.968 or a very strong linear relationship, and (d) oysters showed an R2=0.999 or very strong exponential relationship over time. There was a decreasing trend of fish production

in the place, which could be due to undesirable practices of some fishermen. Good ways and means of fishing may be resorted to increase the catch of fish.

3.1.4 In the aspect of finance of the municipality (Table 4), the budgetary allocation of six (6) indicators were delved into, like the following: (a) on education (R2=0.949) has a very strong exponential relationship, (b) on health (R2=0.949) has a very strong exponential relationship (c) on public safety (R^2=0.949), also a very strong exponential relationship, (d) on general public services (R^2=0.943) got a very strong exponential relationship, (e) on fisheries/marine (R^2=0.200) got a low exponential relationship, and (f) agricultural purposes (R^2=0.949) a very strong exponential relationship over time. As observed in the data, the budgetary allocation of the place is found increasing through the years, except on fisheries/marine products which is decreasing.

With respect to financing on expenditure, six (6) indicators were delved into, as follows: (a) education has a strong exponential relationship (R^2=0.775), (b) health showed a strong exponential relationship (R^2=0.858), (c) public safety had a strong linear relationship (R=0.879), (d) general public services got a strong exponential relationship (R^2=0.886), (e) fisheries/marine obtained a low exponential relationship (R^2=0.216), and environmental purposes has a moderate exponential relationship over time (R^2=0.532).

Table 4: *Estimated Trend and Model for Finance*

Indicator	Period	Estimated Trend	R	R-Square
Budgetary Allocation				
Education	2004 - 2009	Exponential	-	0.949
Health	2004 - 2009	Exponential	-	0.949
Public Safety	2004 - 2009	Exponential	-	0.949
General Public Services	2004 - 2009	Exponential	-	0.943
Fisheries/Marine	2004 - 2009	Exponential	-	0.200
Agricultural Purposes	2004 - 2009	Exponential	-	0.949
Expenditure				
Education	2004 - 2009	Exponential	-	0.775
Health	2004 - 2009	Exponential	-	0.858
Public Safety	2004 - 2009	Linear	0.879	-
General Public Services	2004 - 2009	Exponential	-	0.886
Fisheries/Marine	2004 - 2009	Exponential	-	0.216
Environmental Purposes	2004 - 2009	Exponential	-	0.532

3.1.5 In terms of the revenue generated and collected in the municipality (Table 5), a similar rising trend among indicators could be observed, like (a) mining and quarrying which obtained a strong linear relationship with an R of 0.792 denoting an increasing trend through the years, (b) trade had a very weak linear relationship (R=0.002), (c) other collection showed a strong exponential relationship (R^2=0.800), (d) the subtotal also depicted a strong linear relationship through the years (R=0.833), and (e) the Internal Revenue Allotment (IRA) showed a strong exponential relationship over time (R^2=0.889). There was no result of the revenue collected and generated by agriculture. With this, agricultural policies should be enforced because in 2004 it contributed 83 percent to the welfare cost of overall trade-distorting policies in developing countries (Valenzuela et al., 2009). The picture portrayed in this aspect showed an increasing trend throughout the 10-year period.

Table 5: *Estimated Trend and Model for Sources of Revenue*

Indicator	Period	Estimated Trend	Estimated Model	R	R-Square
Sources of Revenue					
Agriculture					
Mining and Quarrying	2006 - 2009	Linear	Y 1.506E8-74586.962	0.792	-
Trade	2006 - 2009	Linear	Y -4325795.075+7556.031	0.002	-
Others	2006 - 2009	Exponential	Y 7.932E-194+.229	-	0.800
Sub-total	2006 - 2009	Linear	Y -1.327E9+668616.120	0.833	-
IRA	2006 - 2009	Exponential	Y 2.029E-63+.081	-	0.889

3.1.6 As the trade and industry in the municipality was looked into (Table 6), the five (5) indicators depicted a similar trend: (a) trading has a very strong exponential relationship (R^2=0.997), (b) manufacturing showed a perfect linear relationship (R=1.000), (c) services proved a strong exponential relationship over time (R^2=0.993), (d) agri-production has a very strong linear relationship through the years (R=0.998), and (e) tourist spots showed a strong exponential relationship (R^2=0.871). Through observations, the trade and industry in the place have been rising through the years. De Janvry et al. (2002) suggest that the cooperation of such organizations with the public sector can lead to successful partnerships in which each party specializes according to its comparative advantage.

Table 6: *Estimated Trend and Model for Trade and Industry*

Indicator	Period	Estimated Trend	R	R-Square
Trading	1999 - 2009	Exponential		0.997
Manufacturing	1999 - 2009	Linear	1.000	-
Services	1999 - 2009	Exponential		0.993
Agri -Production	1999 - 2009	Linear	0.998	-
Tourist Spots	1999 - 2009	Exponential		0.871

3.1.7 In terms of land classification of the municipality, five (5) indicators were considered, and from them it was found out that three (3) obtained a zero linear relationship, namely: (a) agricultural, (b) industrial, and (c) timber and forest with an R of 0.000 denoting a steady trend. Only in residential and commercial aspects where there were expanding land areas with an R of 0.853, and an R of 0.870, respectively, denoting a strong linear relationship through the years. With the presence of a state college in the place goes the expansion of residential areas as well as commercial areas in response to the need for more lodging houses and dormitories for students and school personnel to stay.

Table 7: *Estimated Trend and Model for Land Classification*

Indicator	Period	Estimated Trend	R
Agricultural	2000 - 2009	Linear	0.000
Residential	2000 - 2009	Linear	0.853
Commercial	2000 - 2009	Linear	0.870
Industrial	2000 - 2009	Linear	0.000
Timber and Forest	2000 - 2009	Linear	0.000

3.1.8 On tourist arrivals, although the municipality has identified attractive tourist destinations, records on it could not be found yet especially on the names of tourists visiting the place.

3.2 Demographic Profile

As to the demographic profile of the municipality (Table 8), in terms of (3.2.1) population, the findings showed a perfect linear relationship over time with an R of 1.000 in the 29 years old and below, male and female; 30-39 years old, male and female, 40-49 years old male and female; and, 50 years old and above, male and female. Since there was an increasing

population trend in the place, there was also a rising age-group population in either male and female population.

Table 8: *Estimated Trend for Demographic Profile*

Indicator	**Period**	**Period**	**R**	**R-Square**
Population				
29 years old & below				
Male	2000 - 2009	Linear/Exponential	1.000	1.000
Female	2000 - 2009	Linear/Exponential	1.000	1.000
30-39 years old				
Male	2000 - 2009	Linear/Exponential	1.000	1.000
Female	2000 - 2009	Linear/Exponential	1.000	1.000
40-49 years old				
Male	2000 - 2009	Linear/Exponential	1.000	1.000
Female	2000- 2009	Linear/Exponential	1.000	1.000
50 years old & above				
Male	2000 - 2009	Linear/Exponential	1.000	1.000
Female	2000 - 2009	Linear/Exponential	1.000	1.000

3.3 On Health and Nutrition (Table 9), specifically on the status of health and nutrition in the municipality, the number of hospitals/health centers showed that the public sector remains the same in number (R^2=0.000) while the number of private health centers or clinics obtained a strong exponential relationship (R^2=0.870). On the health workers, the number of employed doctors, nurses, and midwives remain the same through the years (R=0.000).

Table 9: *Estimated Trend and Model for Health and Nutrition*

Indicator	Period	Estimated Trend	R	R-Square
No. of Hospitals				
Public	1999 - 2009	Linear	0.000	-
Private	1999 - 2009	Exponential	-	0.870
No. of Health Workers				
Nurses	1999 - 2009	Linear	0.000	-
Doctors	1999 - 2009	Linear	0.000	-
Midwives	1999 - 2009	Linear	0.000	-
Underweight children	1999 - 2009	Linear	0.188	-
No. of children vaccinated	2003 - 2009	Exponential	-	0.190
No. of births	2000 - 2009	Linear	0.236	-
No. of deaths	1999 - 2009	Exponential	-	0.073

Moreover, the number of underweight children and the number of children given the vaccination depicted low a very linear/exponential relationship over time (R=0.188), and (R^2=0.190), respectively. The number of births has a low linear relationship (R=0.236), and the number of deaths has a very weak exponential relationship (R^2=0.073). This aspect of health and nutrition in the municipality appears in unpredictable trend since it will depend on how the programs of the Department of Health (DOH) are implemented by the health personnel of the health centers. Likewise, the number of births and deaths through the years could not be predicted.

As to the number of morbidity and mortality (Table 10), there are four (4) indicators that were determined with data: (a) hypertension-morbidity has very weak exponential relationship (R^2=0.014) denoting a decreasing trend, while the hypertension-mortality has a strong linear relationship (R=0.761); (b) cancer-mortality obtained a strong linear relationship (R=0.799); (c) tuberculosis-morbidity has a very strong linear relationship (R=0.995), while tuberculosis-mortality showed a moderate linear relationship (R=0.577); (d) diarrhea-morbidity had a very weak exponential relationship (R^2=0.087), while diarrhea-mortality showed a strong linear relationship (R=0.866) denoting an increasing trend through the years. There is an unpredictable trend in the morbidity and mortality of the diseases identified. It depends on how the care of these diseases was managed by the health personnel of the place.

Table 10: *Estimated Trend and Model for Morbidity and Mortality*

Indicator	Period	Estimated Trend	R	R-Square
Hypertension				
Morbidity	2005 - 2009	Exponential		0.014
Mortality	2005 -2009	Linear	0.761	-
Cancer				
Mortality	2005 - 2009	Linear	0.799	-
Tuberculosis				
Morbidity	2005 - 2009	Linear	0.995	-
Mortality	2005 -2009	Linear	0.577	-
Diarrhea				
Morbidity	2005 - 2009	Exponential	-	0.087
Mortality	2005 - 2009	Linear	0.866	-

3.4 In reference to housing ownership (Table 11), the seven (7) indicators showed a perfect to near perfect linear relationship with an R of 1.000 on (a) owned house only, (b) owned both house and lot, (c) renting the house, (d) renting the lot, (e) renting both house and lot, (f) lot in a government property, and (g) squatter with an R of 0.999.

As to house type, there is also a perfect linear relationship having obtained an R of 1.000 in the concrete type, semi-concrete type, high-valued wood type, and low-quality wood type, except in light materials type which has a very strong linear relationship with an R of 0.999. These findings denote an increasing number of the different types of houses mentioned.

Table 11: *Estimated Trend and Model for House Ownership and House Type*

Indicator	Period	Estimated Trend	R
Ownership			
Owned house only	2004 - 2009	Linear	1.000
Owned both house and lot	2004 - 2009	Linear	1.000
Renting the house	2004 - 2009	Linear	1.000
Renting the lot	2004 - 2009	Linear	1.000
Renting both house and lot	2004 - 2009	Linear	1.000
Lot is a government property	2004 - 2009	Linear	1.000
Squatter	2004 - 2009	Linear	0.999
House Type			
Concrete	1999 - 2009	Linear	1.000
Semi-concrete	1999 - 2009	Linear	1.000
High valued wood	1999 - 2009	Linear	1.000
Low quality wood (including bamboo and nipa)	1999 - 2009	Linear	1.000
Light materials	1999 - 2009	Linear	0.999

3.5 With regards to the Social Welfare and Community Development in the municipality (Table 12), the findings showed a fluctuating trend on the number of beneficiaries of the programs of Department of Agriculture (DA) and Department of Agrarian Reform (DAR). The DA males and females obtained similar or moderate exponential relationship over time with R^2 of 0.560, and 0.558, respectively. On the other hand, the DAR males had a low and/or weak exponential relationship ($R^2=0.197$) while the DAR females had a moderate linear relationship over time (R=0.544). The trend in the number of beneficiaries of these programs showed

fluctuating result throughout the years. It all depends on the motivation of these people involved in the DA and DAR programs.

Table 12: *Estimated Trend and Model for Social Welfare and Community Development*

Indicator	Period	Estimated Trend	R	R-Square
Department of Agriculture				
Male	1999 - 2009	Exponential	-	0.560
Female	1999 - 2009	Exponential	-	0.558
Department of Agrarian Reform				
Male	1999 - 2009	Exponential	-	0.197
Female	1999 - 2009	Linear	0.544	-

3.6 In the aspect of Public Order and Safety (Table 13), in terms of the number of occurrences, the result turned out in an unpredictable manner: (a) murder-solved proved a zero linear relationship over time (R=0.000) while the murder unsolved had a very strong exponential relationship (R^2=0.950);   (b) homicide-solved showed a low/weak exponential relationship (R^2=0.277)   while the homicide-unsolved got a very strong linear relationship (R=0.990); (c) theft-solved had a very weak exponential relationship   (R^2=0.018) while the theft-unsolved showed a moderate linear relationship (R=0.596); (d) drugs-solved obtained a moderate linear relationship (R=0.577) while the drugs-unsolved had a strong exponential relationship over time (R^2=0.829).

Table 13: *Estimated Trend and Model for Public Order and Safety*

Indicator	Period	Estimated Trend	R	R-Square
Number of Cases of Crimes				
Murder				
Solved		Linear	0.000	-
Unsolved	2005 - 2009	Exponential		0.950
Homicide				
Solved	2005 - 2009	Exponential	-	0.277
Unsolved	2005 - 2009	Linear	0.990	-
Theft				
Solved	2005 - 2009	Exponential	-	0.018
Unsolved	2005 - 2009	Linear	0.596	-
Violation of prohibited drugs				
Solved	2005 - 2009	Linear	0.577	-

Unsolved	2005 - 2009	Exponential		0.829
Number of prisoners				
Male	2003 - 2009	Exponential	-	0.901
Female	2003 - 2009	Linear	0.612	-
Number of Jails	1999 - 2009	Linear	-	-
Number of Cells	1999 - 2009	Linear	-	-

On the number of prisoners, the males had a very strong exponential relationship (R=0.901) while the females showed a moderate linear relationship over time (R=0.612). The trends in all the indicators are found stronger on the unsolved cases than the solved ones. And, as expected, the male prisoners are increasing in number through the years than the female ones.

3.7 With reference to Education in the municipality (Table 14), on the number of schools showed that the public pre-elementary schools obtained a zero linear relationship (R=0.000) indicating that the number remains the same while the private pre-elementary schools got a moderate linear relationship (R=0.674) indicating the increasing trend in number of these schools. Likewise, the number of public elementary schools has a moderate linear relationship (R=0.671) while the private elementary schools remain the same in number through the years (R=0.000). The number of secondary schools, either public or private showed a strong linear relationship with an R of 0.866, and 0.837, respectively. The tertiary schools, either public or private remain the same in number through the years with zero or an R of 0.000 on both over time.

On the number of teachers in the pre-elementary schools, either public or private has a low linear relationship (R=0.160 and R=0.000); in the elementary schools-public, the males had a low linear relationship (R=0.194), and the females showed a moderate linear relationship (R=0.620), and the elementary schools-private, the males got a very weak linear relationship while the females showed a moderate exponential relationship over time ($R^2=0.037$ and $R^2=0.488$). Among the secondary schools in the public sector, the teachers showed a strong exponential relationship, with the males ($R^2=0.766$) and females ($R^2=0.880$); the private secondary schools had male teachers obtaining a strong exponential relationship ($R^2=0.0.818$) and the female teachers with a very strong linear relationship over time R=0.943). The tertiary schools-public showed the male teachers with a low linear relationship (R=0.430) while the female teachers proved a strong exponential relationship ($R^2=0.862$), and the tertiary schools-private had the male teachers with weak exponential relationship ($R^2=0.144$) and female teachers

with the low exponential relationship over time (R^2=0.394). The number of female teachers is always greater compared to the male teachers in all the school levels, with teaching considered as a female-dominated profession.

3.7.1   In terms of the number of enrollment of schools in the municipality through the years had the following findings: (a) in the pre-elementary schools-public, enrollment showed a low linear relationship over time in both males and females (R=0.367 & R=0.475), while in the pre-elementary schools-private, enrollment showed a moderate linear relationship in males (R=0.560) and a moderate exponential relationship over time in females (R^2=0.605); (b) in the elementary schools-public, enrollment had a moderate exponential relationship over time in both males and females (R^2=0.455 & R^2=0.436), while in the elementary schools-private, enrollment showed a low exponential relationship in males (R^2=0.309) and a very strong linear relationship in females (R=0.941); (c) in the secondary schools-public, enrollment had a moderate exponential relationship in males (R^2=0.571) and a weak exponential relationship in females (R^2=0.285), while in the secondary schools-private, enrollment obtained a very weak linear relationship in males (R=0.066) and also a weak exponential relationship in females (R^2=0,005); (d) in the tertiary schools-public, enrollment had a low linear relationship in males (R=0.102) and a moderate linear relationship in females (R=0.667), while in tertiary schools-private, the enrollment had moderate exponential relationship in both males and females (R^2=0.647).

As noticed, the enrollment trend is unpredictable through the years in all educational levels, be it in the public or private schools.

3.7.2 The drop-out rate in the elementary schools-public showed a moderate exponential relationship over time in both males (R^2=0.555) and females (R^2=0.619). In the secondary schools-public, the drop-out rate showed a weak exponential relationship in males (R^2=0.171) and a very weak linear relationship in females (R=0.056), while in the secondary schools-private, it is a low linear relationship in males (R=0.341) and a weak linear relationship in females (R=0.056). In the tertiary schools-public, the drop-out rate showed a moderate to a strong linear relationship in males (R=0.655) and a low linear relationship in females (R=0.494). The drop-outs rate in schools, at all levels, showed unpredictable trend through the years.

3.7.3 On the number of graduates in the 11-year period in the municipality, the findings showed that: (a) in the pre-elementary schools-public, the number of graduates obtained a strong linear relationship in males (R=0.655) and a moderate to low linear relationship in females

(R=0.494), while in the pre-elementary schools-private, the number of graduates had a weak exponential relationship over time in males (R2=0.136) and a moderate to strong linear relationship over time in females (R=0.658); (b) in the elementary schools-public, the number of graduates had a weak linear relationship over time in males (R=0.247) and a moderate to strong linear relationship over time in females (R=0.687), while in the elementary schools-private, the number of graduates had a moderate linear relationship over time in the males (R=0.612) and a low linear relationship over time in the females (R=0.216); (c) in the secondary schools-public, the number of graduates showed a moderate linear relationship over time in the males (R=0.631) and a low exponential relationship in the females (R2=0.344), while in the secondary schools-private, the number of graduates had a very low linear relationship in the males (R=0.142) and a low linear relationship over time in females (R=0.310); and (d) in the tertiary schools-private, the number of graduates had a moderate to low linear relationship over time in males (R=0.424) and a very weak exponential relationship in females (R2=0.049). By going over the data on the number of graduates in the schools, it can be deduced that the trend varies in the different educational levels and will depend on the varied educational situations.

Table 14: *Estimated and Trends in Education*

Indicator		Period	Estimated Trend	R	R Square
Number of schools					
Pre-Elementary	Public		Linear	0.674	-
	Private	1999 - 2009	Linear	0.000	-
Elementary	Public	1999 - 2009	Linear	0.000	-
	Private		Linear	0.671	-
Secondary	Public	1999 - 2009	Linear	0.866	-
	Private	1999 - 2009	Linear	0.837	-
Tertiary	Public		Linear	0.000	-
	Private		Linear	0.000	-
Number of Teachers					
Pre-Elementary	Public				
	Male	1999 - 2009	Linear	0.160	-
	Female	1999 - 2009	Linear	0.160	-
	Private				
	Male	1999 - 2009	Linear	0.000	-
	Female	1999 - 2009	Linear	0.000	-
Elementary	Public				
	Male	1999 - 2009	Linear	0.194	-

	Female	1999 - 2009	Linear	0.620	-
	Private				
	Male	1999 - 2009	Exponential	-	0.037
	Female	1999 - 2009	Exponential	-	0.488
Secondary	Public				
	Male	1999 - 2009	Exponential	-	0.766
	Female	1999 - 2009	Exponential	-	0.850
	Private				
	Male	1999 - 2009	Exponential	-	0.818
	Female	1999 - 2009	Linear	0.943	-
Tertiary	Public				-
	Male	1999 - 2009	Linear	0.430	-
	Female	1999 - 2009	Exponential	-	0.862
	Private				-
	Male	1999 - 2009	Exponential	-	0.144
	Female	1999 - 2009	Exponential	-	0.394
Enrollment					
Pre-Elementary	Public				
	Male	1999-2009	Linear	0.367	-
	Female	1999-2009	Linear	0.475	-
	Private				
	Male	1999 - 2009	Linear	0.560	-
	Female	1999 - 2009	Exponential	-	0.605
Elementary	Public				
	Male	1999 - 2002	Exponential	-	0.455
	Female	1999 - 2002	Exponential	-	0.436
	Private				
	Male	1999 - 2009	Exponential	-	0.309
	Female	1999 - 2002	Linear	0.941	-
Secondary	Public				-
	Male	1999 - 2009	Exponential	-	0.571
	Female	1999 - 2009	Exponential	-	0.285
	Private				-
	Male	1999 - 2009	Linear	0.066	-
	Female	1999 - 2009	Exponential	-	0.005
Tertiary	Public				
	Male	1999 - 2009	Linear	0.102	-
	Female	1999 - 2009	Linear	0.667	-
	Private				
	Male	1999 - 2009	Exponential	-	0.627
	Female	1999 - 2009	Exponential	-	0.647

Drop-outs	Public				
	Male	1999 - 2009	Exponential	-	0.555
	Female	1999 - 2009	Exponential	-	0.619
Secondary	Public				-
	Male	1999 - 2009	Exponential	-	0.171
	Female	1999 - 2009	Linear	0.056	-
	Private				
	Male	1999 - 2009	Linear	0.341	-
	Female	1999 - 2009	Linear	0.056	-
Tertiary	Public				
	Male	2001 - 2009	Linear	0.347	-
	Female	2001-2009	Linear	0.632	-
Graduates					
Pre-Elementary	Public				
	Male	1999 - 2009	Linear	0.655	-
	Female	1999 - 2009	Linear	0.494	-
	Private				
	Male	1999 - 2009	Exponential	-	0.136
	Female	1999 - 2009	Linear	0.658	-
Elementary	Public				
	Male	1999 - 2009	Linear	0.247	-
	Female	1999 - 2009	Linear	0.687	-
	Private				
	Male	1999 - 2009	Linear	0.612	-
	Female	1999 - 2009	Linear	0.296	-
Secondary	Public				
	Male	1999 - 2009	Linear	0.631	-
	Female	1999-2009	Exponential	-	0.344
	Private				
	Male	1999 - 2009	Linear	0.142	-
	Female	1999 - 2009	Linear	0.310	-
Tertiary	Private				
	Male	1999 - 2009	Linear	0.424	-
	Female	1999 - 2009	Exponential	-	0.049

6. In terms of Religion and Culture in the municipality (Table 15), the data appear in increasing trend in practically all religious affiliations showing a very strong linear relationship over time, like the: (a) Roman Catholic with an R of 0.992, (b) Muslim has an R of 0.880, (c) Jehova's Witness has an R of 0.993, (d) Protestant has an R of 0.993, (e) *Iglesia ni Cristo* (INC) has an R of 0.993, (f) *Aglipayan* has an R of 0.993, and Seventh Day Adventist has an R of 0.993. This

picture portrays an expected scenario in a growing population in the municipality, inasmuch as this would result in an increasing number of members in any religious affiliation.

Table 15: *Estimated Trend for Religion and Culture*

Indicator	Period	Estimated Trend	R
Religious Affiliation			
Roman Catholic	1999 - 2009	Linear	0.992
Muslim	1999 - 2009	Linear	0.880
Jehova's Witnesses	1999 - 2009	Linear	0.993
Protestant	1999 - 2009	Linear	0.993
Iglesia ni Kristo	1999 - 2009	Linear	0.993
Aglipayan	1999 - 2009	Linear	0.993
7th Day Adventist	1999 - 2009	Linear	0.993

4. Conclusion and Recommendation

With the aforementioned findings at hand, it is safe to conclude that there is sufficient supply of agricultural products in the municipality. In the employment scenario in the place, there is increasing employment, self-employment, and the unemployment rate, while there is a decrease in the underemployment rate. In terms of natural resources, the land-based resources are found to be in improving mode through the years. In finance, specifically, the budgetary allocation showed an impressive trend over time except in the allocation of fisheries/marine products which have been observed to be dwindling through the years.

On the other hand, the expenditures' side put the aspect on fisheries/marine adjusting to its budgetary allocation, while there is an additional expenditure on environmental purposes. The sources of revenue generated and collected, including the IRA coming in, are increasing, except on trade. Trade and industry, as observed, has been improving. The residential and commercial land allocation has been improving, while the agricultural, industrial and timber forest remain the same.

The population growth in the municipality proved to have an increasing demographic profile. In terms of health and nutrition, the private clinics/health centers have increased in number, the number of health workers remain the same, the number of underweight children has been decreasing, and the number of vaccinated children are declining.

House ownership and house type have shown an improving trend over the years. The involvement of program beneficiaries of DA and DAR showed a rise and fall trend over the year period. On public order and safety, specifically on the number of cases of crimes, depicted more on the unsolved cases compared to the solved cases.

In the aspect of education, the number of schools is increasing in the pre-elementary private, elementary public, secondary public and private; and in tertiary, remains the same in number in the public and private sectors. The number of teachers in the four (4) levels has slightly increased through the years, so with the enrolment trend. The drop-out trend showed a decline while the number of graduates is showing a slight increase over time. Members of the different religious affiliations are increasing in number throughout the years.

On the basis of the foregoing conclusions, it is safe to recommend that resident farmers and fisherfolks need to be encouraged to work out for more supply and be shared with other neighboring municipalities for more income. The municipality's identified strengths are enhanced, and its weaknesses are to be developed and given attention to, for a progressive municipality of Palompon.

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