

THE RELATIONSHIPS AMONG LIFE INSURANCE, BANKING, STOCK MARKETS AND ECONOMIC GROWTH

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ABSTRACT

This study provides new evidence on the long- and short-term effects of life insurance, banking, and stock markets on economic growth using the pooled mean group (PMG) technique. The sample consists of 31 countries and covers the period from 1981 to 2008. We contribute to the existing literature in three ways. First, we examine whether variations in time series averaging methods, used for a generalized method of moments estimator (GMM), affect the robustness of the effect of financial activities on growth. Second, we study the long- and short-term effects as well as the nonlinear effect of the finance–growth nexus. The results of the entire sample analyzed using three estimators provide robust evidence that private credit impedes economic growth while the effects of life insurance and stock market on growth are not robust. Our findings suggest that the effects of financial activities on growth vary with the period, income level, and financial development. That is, countries at different levels of development should engage in different financial activities to ensure sustainable growth.

JEL classification: C33; F30; G21; G28; O16; O40

Keywords: Private credit; turnover ratio; life insurance; economic growth; excessive finance

INTRODUCTION

The hypothesis that financial development promotes economic development has been tested in various ways; however, no conclusion has been reached. Although the empirical evidence appears heavily weighted in favor of a positive effect (King and Levine, 1993; Levine and Zervos, 1998; Levine et al., 2000; Aretis et al., 2001; Beck and Levine, 2004; Loayza and Ranciere, 2006; Cheng and Degryse, 2010), some studies have reported the opposite result (Atje and Jovanovic, 1993; De Gregorio and Guidotti, 1995; Ram, 1999; Arcand et al. 2012; Beck et al. 2014; Law and Singh, 2014).

Previous studies on these debates have focused on potential biases induced by simultaneity and have omitted critical variables and non-linearity (Beck et al., 2000; Beck and Levine, 2004; Rioja and Valev, 2004a; Rioja and Valev, 2004b; Arena, 2008; Cheng et al., 2014; Law and Singh, 2014). Beck and Levine (2004) and attempted to overcome the simultaneity issue by adopting the GMM technique and considering stock market development in the growth model to compensate for the omitted critical variables. They found that banking development and stock market liquidity accelerate economic growth based on a panel dataset comprising 40 countries over the 1976–1998 period. Further, by adding the potential role of insurance sector and considering nonlinear effects, Arena (2008) found evidence that the insurance sector and stock market liquidity have a positive effect on economic growth, whereas the effect of banking development on growth is insignificant. It is surprising that the addition of the insurance sector seems to dilute the positive effect of the finance–growth nexus. The findings are further confirmed by Chen et al. (2012), who concluded that the insurance sector weakens the link between banking development and economic development.

The question then is whether financial development matters for economic growth. This study adds to the existing literature by jointly considering the banking, life insurance, and stock market sectors to examine their effects on both long- and short-term economic growth.¹ While Arena (2008) provided a comprehensive analysis, this study goes further by considering three additional aspects.

The first aspect discusses the nonlinear effect of the finance–growth relationship.² Arena (2008) and Chen et al. (2012) considered nonlinearity by adopting interaction terms between the financial sector and the dummy variables that capture different levels of income or financial development. Nevertheless, they can at best provide nonlinear findings for the effect of a single sector on growth while controlling for the other two sectors. To investigate the distinct effects of the three financial services on growth, this paper divides the countries evenly into two groups according to their time series average of gross national income (GNI) per capita or private credit from 1981 to 2008. After classifying the countries as appropriate, we attempt to examine whether the effects of the three financial activities on economic growth vary according to where the countries stand in terms of GNI or private credit.

The second aspect is concerned with the long- and short-term effects of the three financial activities on growth. Arena (2008) and Chen et al. (2012) examined the long-term influences of financial services on growth using the GMM estimator. However, they ignored the possible short-term relationships. Identifying short- and long-term effects may have policy implications for strategies appropriate to different periods. In addition, several theoretical and empirical studies demonstrate the distinctly long- and short-term links between finance and growth, indicating the need for considering simultaneously its short- and long-term effects in the finance–growth model (Lindh, 2000; Gaytan and Ranciere, 2003; Dell’Ariccia and Marquez, 2006; Loayza and Ranciere, 2006; Cheng et al., 2014). Hence, we adopt the pooled mean group (PMG) estimator proposed by Pesaran et al. (1999) to explain the long- and short-term effects.

Third, this paper provides evidence that the effects of financial services on growth are robust with variations in time series averaging methods. While Arena (2008) and Chen et al. (2012) used the GMM estimator, given endogeneity, to overcome the possibility of simultaneity, Loayza and Ranciere (2006) argued that the GMM method based on data of time series averages can induce a loss of information and hide the potential dynamic relationship between financial activities and economic growth. The averaging method is likely to confound short-term effects with long-term effects, causing difficulties in explaining the result. Therefore, providing empirical results for different time series averaging methods may help ascertain whether

¹ Simultaneously considering the banking, stock market, and insurance sectors in the unified growth model meets the actual operations of financial markets. Levine (1997) documented that financial institutions nurture economic growth through facilitating risk amelioration, allocating resources, monitoring managers and exerting corporate control, mobilizing savings, and easing exchange that influence capital accumulation and/or technological innovation. However, these financial functions may not perform well unless credit, equity, and insurance markets coexist in the financial markets (Arena, 2008).

² Recent studies have indicated that the finance–growth relationship may depend critically on the country’s development (e.g., Odedokun, 1996; De Gregorio and Guidotti, 1995; Acemoglu and Zilibotti, 1997; Rioja and Valev, 2004a; Cheng et al., 2014) or financial development (e.g., Rioja and Valev, 2004b, Arena, 2008; Chen et al., 2012; Arcand et al. 2012; Law and Singh, 2014). These studies together provide a solid base for the dichotomy between high and low groups, either categorized by income level or the degree of financial development, when investigating the finance–growth nexus.

these methods produce unstable results.

Considering the aforementioned three aspects, this paper examines the long- and short-term effects of life insurance, banking, and the stock market on economic growth based on panel data for 31 countries between 1981 and 2008. We first examine whether the effects of financial activities on growth are robust with variations of time series averaging methods and methodologies. The findings provide robust evidence that private credit impedes economic growth while using GMM and PMG estimators, whereas the effects of life insurance and of stock market activities on growth are not robust. This suggests that different averaging methods for time series data applied to GMM estimators lead to unstable results. Next, we investigate the nonlinear relationships among banking, life insurance, the stock market, and economic growth using the PMG estimator. In all, 31 countries are segmented into high- and low-GNI groups based on GNI and into high- and low-financial development (FD) groups based on private credit. For high-GNI and high-FD groups, we find that life insurance accelerates long-term economic growth, whereas the effect of private credit on growth is negative. For the low-GNI group, the findings contend that the stock market turnover ratio enhances long-term economic growth, whereas the effect of private credit on growth is negative. Regarding the low-FD group, the results show negative effects of life insurance and stock market development on long-term growth, while the relationship between private credit and growth is positive. Finally, although private loans impede long-term growth, they enhance short-term growth, except for the low-FD group. Our findings suggest that the effect of financial activities on growth varies with the periods under consideration and the levels of economic development in countries. Thereby, countries at different levels should adopt different financial activities to ensure sustainable growth.

The rest of the paper is organized as follows. Section 2 provides a simple model to analyze the long-term effect of financial services on economic growth. Section 3 discusses the methodology, variables, and data used in the study. The empirical results are discussed in Section 4. Section 5 concludes the paper.

2. Methodology, Variables, and Data

2.1. Methodology

We define an error-correction model and then estimate it based on the PMG estimators provided by Pesaran et al. (1999) to calculate the long- and short-term elasticity of banking, stock markets, and life insurance with respect to economic growth. The PMG estimator allows the intercepts, short-term coefficients, and error-correction coefficients to be country specific but restricts the long-term coefficients to be the same.

As shown in equation (9), the long-term economic growth is simultaneously affected by banking, life insurance, and the stock market. Therefore, the error-correction form of an ARDL (p, q) model can be written as follows:

$$\Delta GR_{i,t} = \phi_i (GR_{i,t-1} - c - \beta' X_{i,t-1}) + \sum_{k=1}^{p-1} \alpha_{ik} \Delta GR_{i,t-k} + \sum_{j=0}^{q-1} \gamma_{ij}' \Delta X_{i,t-j} + \varepsilon_{i,t} \quad (10)$$

where $GR_{i,t}$ denotes economic growth; $X_{i,t} = (BANK_{i,t}, SM_{i,t}, LI_{i,t})'$ in which $BANK$, SM , and LI are indicators of banking, stock market, and life insurance development, respectively; and β is a vector of long-

term coefficients measuring the possible effects of $X_{i,t-1}$ on $GR_{i,t-1}$. α_{ik} and γ_{ij} are short-term coefficients representing the influences of $\Delta GR_{i,t-k}$ and $\Delta X_{i,t-j}$ on $\Delta GR_{i,t}$. ϕ_i represents the speed of adjustment to the long-term equilibrium.

To construct the estimators, Pesaran et al. (1999) suggested estimating the long-term slope coefficients (β) jointly across agents using a maximum likelihood (MLE) approach. Once the pooled MLE of the long-term parameters is successfully computed, the short-term and error-correction coefficients can be consistently estimated by running the individual MLE. Therefore, the mean of the error-correction coefficient (ϕ_{MG}) and short-term coefficients (α_{MG} or λ_{MG}) follow asymptotic normality and can be calculated using the equal weighted average of individual coefficients:

$$\phi_{MG} = N^{-1} \sum_{i=1}^N \phi_i; \quad z_{MG,j} = N^{-1} \sum_{i=1}^N z_{ij}.$$

where $z = \alpha$ and γ .

2.2. Measures of variables

This section introduces the development variables for banks, the stock market, life insurance companies, and economic growth. Following Beck et al. (2000) and Loayza and Ranciere (2006), we adopt private credit (*Private*), measured by the ratio of the value of credits by deposit banks and other financial institutions to GDP, as the indicator of financial development. Following Beck and Levine (2004) and Arena (2008), we use turnover ratio, denoted by *TOV*, which equals the annual trading value of domestic shares listed on domestic exchanges divided by the end-of-year value of domestic shares, as the measure of stock market liquidity. To measure life insurance markets, we follow Beck and Webb (2003) and Arena (2008) and use life insurance penetration as a measure of life-insurance consumption. This variable, denoted by *LIP*, is defined as the ratio of the life insurance premium volume to GDP and is used to measure insurance activity relative to the size of the economy. Finally, the growth rate of real GDP per capita is used as the indicator of economic development.

To control for the potential determinants of economic growth, we follow Rajan and Zingales (2003), Beck and Levine (2004), Loayza and Ranciere (2006), and Arena (2008) and add the ratio of exports plus imports to GDP (*TRADE*) and the ratio of government consumption to GDP (*GOV*) as the control variables.

2.3. The data

The sample period starts in 1981 and ends in 2008. Our empirical investigation covers 31 countries with available data. These countries are Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Egypt, France, Germany, Greece, India, Indonesia, Israel, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, Norway, the Philippines, Portugal, Singapore, South Africa, Spain, Sweden, Thailand, the United Kingdom, and the United States. Data for private credit, life insurance penetration, and stock market liquidity are taken from Beck's Financial Structure and Economic Development Database (FSEDD). The remaining data are from the World Development Indicators (WDI).

3. Empirical results

3.1. Summary statistics

Table 1 presents the descriptive statistics, time series averages of the variables by country over the sample period, and correlations. Panel A reveals that banking and stock market development varies widely across countries. As shown in Panel B, Korea has the highest turnover ratio of 142.276% while Colombia has the lowest turnover ratio of only 6.634%. With regard to banking development, while financial institutions in Japan lent 182.629% of the GDP to the private sector, Mexico's financial institutions lent only 17.513% of the GDP. In addition, we find that in nine countries, private loans exceed their GDP while private loans are less than half of their GDP in eight countries. In contrast, life insurance penetration and economic growth are more closely aligned across countries. Looking at Panel B, we find that South Africa is willing to spend 9.640% of its GDP to buy life insurance products, whereas Egypt spends 0.202% of its GDP on average. In addition, in seven countries, life insurance consumption is less than 1% of the GDP; most show private loans accounting for less than 40% of the GDP. This suggests that a lower level of financial development is associated with lower life insurance development. As claimed by Beck and Webb (2003), well-functioning banking systems support the development of insurance markets and vice versa. In terms of the growth rate of real GDP per capita, Korea has the highest annual growth rate of 6.218% and South Africa the lowest rate of 0.304% between 1981 and 2008.

Panel C shows pairwise correlations between variables of interest. We find that economic growth is significantly correlated with the turnover ratio, and it is not significantly correlated with private credit and life insurance penetration. Furthermore, life insurance, banking, and stock market development are pairwise correlated. We find that private credit is correlated significantly with life insurance penetration and stock market turnover ratio. Turnover ratio is significantly correlated with bank development. The purpose of Panel C is to stress the probability of multicollinearity problems in ordinary least square (OLS) regression analysis, as presented in the next section. The results show that some of the sectors may be highly correlated. Thus, it is necessary to evaluate the effects of multicollinearity among variables of interest. A common technique for evaluating the effects of multicollinearity among the regressors is the variance inflation factor (VIF).

3.2. Whole-sample analysis

Table 2 presents results of the whole-sample analysis with variations in time series averaging methods along with the different methodologies. Equation (1) reports the ordinary least square (OLS) regression of economic growth averaged over the 1981–2008 period with one observation per country. The findings demonstrate a strong positive association between stock market development and economic growth, whereas the influences of banking and life insurance on growth are statistically insignificant. The findings are supported by past studies that use OLS regression. Specifically, the positive effect of the stock market turnover ratio on growth is consistent with what Levine and Zervos (1998) and Beck and Levine (2004) found. The insignificant negative effect of banking development on growth, although contradicted by Webb et al. (2002) and Beck and Levine (2004),³ is, however, consistent with the findings of Ram (1999). The insignificant influence of life insurance on growth confirms the findings of Webb et al. (2002). Since the variance inflation factor tests (VIF) in Table 2 are less than 10, multicollinearity does not pose a problem in interpreting our results.

³ We also exclude the life insurance sector from the regression model. However, the results are essentially the same.

We next report the results of the whole-sample analysis using the GMM difference estimator. Since the focus is on long-term relationships, we follow Beck and Levine (2004) and use five-year averages rather than original data to estimate the GMM results. Beck and Webb (2003) said the averaging process is aimed at abstracting from business cycle relationships. For robustness checks, this paper also formulates a panel with time series data averaged over four- and three-year intervals, respectively. As shown in equation (2), the findings show that private credit and the stock market turnover ratio have significantly negative effects on economic growth when simultaneity bias, omitted variables, and country-specific effects are controlled. Conversely, the influence of life insurance penetration on growth is statistically insignificant. The GMM results are the same with a panel set of four-year averages.

However, there is a small difference in that the significantly negative influence of stock market turnover ratio on growth becomes insignificant with three-year averages. In other words, a panel with time series data averaged over different year intervals may result in bias. The findings confirm those of Loayza and Ranciere (2006), who found that averaging time series data can induce a loss of information and hide the potential dynamic finance-growth relationship.

Finally, the findings of the PMG estimator restricts the long-term coefficients to be the same but allow the short-term coefficients to be country specific, as shown in equation (5). For comparison, we perform tests only for the long-term coefficients because OLS or GMM results imply a long-term association. The results show that life insurance development promotes economic growth; the results are consistent with Aleaniz (2008), who found that life insurance penetration enhances economic growth. Ward and Zurbuegg (2000) and Beck and Webb (2003) indicated that life insurance products provide risk transfer and indemnification, which help promote economic growth.

Furthermore, banking and stock market development impede economic growth. The significantly negative effect of private credit and stock market turnover ratio on growth is contradicted by Arena (2008), who suggested an insignificantly negative banking–growth relationship and a significantly positive equity–growth nexus.

Taken as a whole and considering simultaneity and omitted critical variables, we find strong evidence that private credit impedes economic growth via GMM and PMG results.⁴ In addition, three of the four equations support a negative effect of the stock market turnover ratio on economic growth. Finally, PMG results show that life insurance penetration accelerates economic growth, but this is not the case for GMM results. The OLS results can only be a reference because they do not consider simultaneity and the findings do not imply a causal link between the financial sector and economic growth (Beck and Levine, 2004). More importantly, while considering three financial activities simultaneously, our findings are contrary to those of Arena (2008) and Chen et al. (2012), who found that banking development does not lead to economic growth. Due to unstable results from using the GMM estimator with three time-series averaging methods, we adopt the PMG estimator with original time series data for further investigation.

3.3. Nonlinear effects of financial activities

While potential biases are properly considered, recent studies further explore the nonlinear relationships

⁴ The PMG method overcomes the endogeneity problem by implementing the autoregressive distributed lag (ARDL) approach (e.g., Pesaran and Shin, 1995; Pesaran et al., 1999; Loayza and Ranciere, 2006).

between financial services and economic growth. On the one hand, some studies stress that financial activities may have different effects on growth at different income levels (Rioja and Valev, 2004a; Arena, 2008; and Cheng et al., 2014). On the other hand, some studies emphasize that the finance–growth nexus may vary according to the level of financial development (Rioja and Valev, 2004b; Arena, 2008; Chen et al., 2012). Based on this, we divide the 31 countries evenly into two groups according to the average gross national income (GNI) and private credit over the entire period, respectively. Countries with GNI (private credit) smaller than the median GNI (private credit) are assigned to the low-level group, whereas those with GNI (private credit) larger than the median GNI (private credit) belong to the high-level group. Table 3 presents the countries of the high- (high-GNI) and low-income (low-GNI) groups along with the high- (high-FD) and low-financial development (low-FD) groups.

3.3.1. Comparing the financial activities of different development groups

We discuss whether the countries in the high- and low-level groups show different levels of financial services development and growth rates. In Panel A of Table 4, we find that the high-GNI group, relative to the low-GNI group, possesses higher levels of banking development, a more mature life insurance market, and a higher turnover ratio of the stock market but a lower economic growth rate. These suggest that high-income countries, despite lower economic growth rates, have relatively sound regulatory systems that facilitate information flow and promote well-functioning financial markets (Mishkin, 2007).

The findings in Panel B show that countries classified in the high-FD group have greater life insurance penetration and more-liquid stock markets. Nevertheless, the economic growth rate for the high-FD group is the same as that for the low-FD group. These suggest that well-functioning banking systems support the development of the life insurance and stock markets (Beck and Webb, 2003). The main findings, presented in Table 4, indicate that countries at different levels of economic development have different levels of financial activity development. Therefore, one must not confound high- with low-level countries.

3.3.2. Long- and short-term analysis for high- and low-GNI groups

Table 5 presents nonlinear results based on the PMG estimator for the long- and short-term relationships among banking, life insurance, stock market development, and economic growth. We first explore the long- and short-term finance–growth nexus for high- and low-GNI groups separately. As shown in columns 3 and 4, the results show that the long-term relationship between life insurance development and economic growth is significantly positive for the high-GNI group but insignificant for the low-GNI group. These findings support the view of Arena (2008) and Haiss and Sumegi (2008), who demonstrated that life insurance is more important for high-income countries than for low-income ones.

The influence of private credit on growth is significantly negative for both the high- and low-GNI groups. For the high-GNI group, the mean of private credit is 95.639%, which is almost 100% of the GDP. Cecchetti and Kharroubi (2012) concluded that finance begins having a negative effect on growth when credit to the private sector reaches 90% of the GDP. Arcand et al. (2012) found that when private credit reaches 100% of the GDP, financial development impedes economic growth.⁵ Beck et al. (2014) also demonstrated that more

⁵ Arcand et al. (2012) indicate that before the crisis, there was an apparent consensus that more finance was always a good thing and hence a large financial sector could represent the economic strength of a country

finance can lead to a misallocation of resources and financial instability, which in turn harms the economy. Lee (2013) concluded that banking activities impede economic development in 17 selected OECD countries.⁶

The negative influence of banking development on growth for the low-GNI group may result from poor legal and financial supervision in low-income countries (Mishkin, 2007). De Gregorio and Guidotti (1995) indicated that the negative effect of banking development on growth can be traced to a feeble regulatory system in Latin American. Cheng et al. (2014) found that developing countries are more likely to suffer frequent financial crises.⁷

In terms of stock market liquidity, the findings show a significantly positive effect of the stock market turnover ratio on long-term economic growth for the low-GNI group while being insignificant for the high-GNI group. The turnover ratio is related to liquidity and the ease and speed with which assets can be converted to cash (Levine and Zervos, 1998). However, an increase in the liquidity of stock markets may reduce saving rates (Arestis et al., 2001) and encourage myopia based on the idea of cooperative control (Jensen and Murphy, 1990).⁸ Therefore, the conjunction of the dark and bright sides of stock market liquidity lead to the insignificant effect of the stock market turnover ratio on growth, observed in the high-GNI group. In contrast, for the low-GNI group, the positive effect of stock market liquidity dominates the negative effect, which in turn accelerates economic growth. Adopting real output as an indicator of economic development, Cheng et al. (2014) suggested a significantly positive effect of the stock market turnover ratio on long-term economic development for both industrial and emerging economies. While the findings for the low-GNI group are consistent with Cheng et al. (2014), those for the high-GNI group contradict their findings.

With regard to the short-term associations, regardless of income levels, the short-term effect of private credit on growth is significantly positive, while the effects of life insurance and stock market liquidity on short-term growth are insignificant. Specifically, in terms of the significantly positive effect of private credit on short-term growth together with the significantly negative long-term association mentioned above, providing very large loans in credit markets stimulates investment markets and, in turn, promotes short-term economic development. However, in the long term, a very large volume of loans can result in economic volatility, misallocation of resources, and an increased probability of financial crises, thereby impeding long-term economic development (Arcand et. al, 2012).

In addition, the insignificant effect of life insurance development on short-term growth accompanied with the findings that life insurance penetration promotes long-term economic growth implies that the development of the life insurance market is a long-term policy. Webb et al. (2002) argued that a life insurance product implies a long-term investment and that it is more related to long-term economic growth.

while after the crisis, it was argued that oversized financial systems may not be that good for countries at the center of the global recession.

⁶ Except for Mexico, the remaining 16 countries are high-income countries.

⁷ For example, Indonesia, Korea, Malaysia, Philippines, and Thailand were the countries most affected by the 1997 Asian financial crisis. The 1997 crisis then spilled over to Brazil in the following year and soon enveloped the entire Latin American continent. Besides, Mexico experienced the peso crisis in 1994. Chile went through a crisis during the period from 1982 to 1983.

⁸ Jensen and Murphy (1990) indicated that the easy sale of equity causes disincentives to make efforts on cooperative management, which in turns causes adverse cooperative governance.

Finally, the insignificant effect of the stock market turnover ratio on short-term growth has also been addressed by previous studies, although they have not focused on the short-term relationship. Harris (1997) contended that the stock–growth relationship is at best weak. Arestis et al. (2001) argued that the effect of stock markets on growth has been overly emphasized. This study confirms the findings of Cheng et al. (2014), who concluded that the short-term effect of the stock market turnover ratio on real output for both industrial and emerging economies is insignificant.

3.3.3. Long- and short-term analysis for high- and low-FD groups

This section examines the nonlinear dynamic finance–growth relationship according to the level of financial development. First, it is interesting to note that the effects of life insurance, banking, and stock market development on economic growth for the high-FD group are the same as those for the high-GNI group regardless of whether they are long or short term. That is, for long-term relationships, we find a significantly positive and negative effect of life insurance and private credit on growth, respectively. The effect of the stock market turnover ratio on growth is insignificant. Regarding the short-term association, we find a significantly positive influence of private credit on economic growth.

Of the influences of the three financial activities on growth, it is worth discussing why the negative effect of private credit on growth remains significant. As shown in Table 4, the mean of private credit is 102.839% for the high-FD group, which is higher than the GDP. The concept of “too much finance” indicates that loans could harm the economy when the size of loans offered by financial intermediaries exceeds its economic scale. Easterly et al. (2000) found that the volatility of output growth begins increasing when credit to the private sectors reaches 100% of the GDP. Arcand et al. (2012) indicated that once private credit reaches 100% of the GDP, financial development impedes economic growth. They point out that excessive financing is related to economic volatility, misallocation of resources, and an increased probability of large economic crashes. Rajan (2006) noted that over-development of financial intermediation increases the probability of a catastrophic meltdown. Bezemer et al. (2014) indicated that high ratios of financial capital to GDP may depress growth. Law and Singh (2014) emphasized that more finance is not necessarily good for economic growth.

The aforementioned studies provide another view on the finance–growth nexus, namely that too much finance impedes economic growth. Comparing the component countries in the high-FD and high-GNI groups, we find that 12 of the 16 countries are in both groups. Thus, the negative effect of private credit on growth shown in the high-GNI group may dominate in countries whose financial institutions offer too many loans to the private sector. In other words, the negative effects revealed in the high-GNI and high-FD groups should be attributed to excessive finance instead of the income level.

Second, for the low-FD group, the results show that life insurance development and stock market liquidity impede long-term economic growth, whereas the relationship between private credit and growth is significantly positive. A low level of financial development implies that the financial institutions in these countries need sustainable funds and the establishment of financial regulations to ensure the soundness of banking systems. In addition, well-functioning banking systems support the development of other financial activities (Beck and Webb, 2003). Moreover, received wisdom says that a well-developed banking sector enhances economic growth (King and Levine; Beck and Levine, 2004). When resources are limited, the development of financial institutions is the first priority. As local governments pay more attention to

developing the banking sector, the development of the life insurance sector lags behind. This leads to a positive banking–growth relationship and a negative insurance–growth association in the low-FD group. Using a dynamic panel threshold model, Law and Singh (2014) showed a positive effect of financial development on economic growth while showing that the development of the banking system is below a certain threshold.

In addition, the significantly negative relationship between the stock market turnover ratio and growth echoes the negative side of liquidity. Myers and Rajan (1998) argued that greater asset liquidity reduces a firm's ability to commit to a specific course of action. Arestis et al. (2001) demonstrated that the increase in liquidity may have a negative influence on growth through three different channels. First, the increase in the liquidity of equity markets may reduce saving rates by increasing the return on investment. Second, the increase in liquidity of stock markets may result in a decrease in savings since the demand for precautionary savings decreases (Rousseau and Wachtel, 2000). Third, high stock market liquidity may encourage myopia based on the idea of cooperative control. The easy sale of equity creates disincentives to attempt cooperative management, which in turn leads to adverse cooperative governance, thus hampering economic growth (Jensen and Murphy, 1990). In other words, once the equity markets of low-FD countries without properly monitoring and financial regulations, greater liquidity of stock market impede long-term economic growth.

In sum, our findings suggest that the effect of the development of financial activities on growth depends on the level of economic development, financial development, and period. Hence, countries at different levels of development should adopt different financial activities to render stable growth. Table 6 summarizes our PMG findings.

4. Conclusion

This paper examines the long- and short-term effects of life insurance, banking, and the stock market on economic growth based on panel data for 31 countries over the period 1981 to 2008. This paper first examines whether the effects of financial activities on growth are robust with variations in time series averaging methods and methodologies. Our findings show that private credit impedes economic growth using the GMM and PMG estimators and contradicts the findings of Arena (2008) and Chen et al. (2012), who suggested an insignificant banking–growth nexus. Conversely, the effect of life insurance and stock market on growth are not robust.

Due to unstable results estimated using the GMM estimator with three time series averaging methods, the PMG estimator using original time series data is adopted to investigate the nonlinear relationships among banking, life insurance, stock market, and economic growth. For the high-GNI and high-FD groups, we find that life insurance accelerates long-term economic growth, whereas the effects of private credit on growth are negative. To render stable growth, local governments should pay attention to promoting the development of the life insurance sector and moderately controlling private loans. For the low-GNI group, the findings contend that the stock market turnover ratio enhances long-term economic growth, whereas the effect of private credit on growth is negative. Hence, increasing the liquidity of the stock market and decreasing private loans will help promote long-term growth. Regarding the low-FD group, the results show a negative effect of life insurance and stock market development on long-term growth, while the relationship between private credit and growth is positive. In other words, the first priority for local governments is to provide sustainable loans

to the private sector. The next priority is to reduce the liquidity of the stock market and decrease the consumption of life insurance products. These measures will ensure long-term growth for the low-FD group. Finally, although private loans impede long-term growth, they enhance short-term growth, except for the low-FD group. Our findings suggest that the effect of the development of financial activities on growth varies with the period and countries' development levels. Thus, different countries should adopt different financial tools to ensure sustainable growth.

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THE PROCEDURAL AND CONCEPTUAL MATHEMATICS KNOWLEDGE OF DEAF EDUCATION TEACHERS

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ABSTRACT

This study aimed to investigate the procedural and conceptual mathematics knowledge of deaf education Teachers in the elementary stage. The study sample consisted of male and female mathematics teachers in the elementary stage of deaf education in Al-Ahsa district in Saudi Arabia during the second semester of the academic year (1433-1434) (N=63). The study utilized a descriptive design, and used the teachers' responses to the Teachers Knowledge Exam to describe and investigate the depth of their knowledge of essential mathematics concepts and skills. The findings of the study revealed that many teachers did not possess and adequate depth of mathematical knowledge that enables them to visualize and represent the essential concepts of elementary school mathematics. In addition, they lack adequate knowledge of some mathematics skills. Moreover, there was statistically significant differences ($\alpha=0.01$) between male and female teachers in mathematics knowledge of statistics and data representation favouring the male teachers. There was also statistically significant differences ($\alpha=0.01$) between expert and novice teachers in mathematics knowledge favouring the expert teachers.

RISK MEASUREMENT AND MANAGEMENT STRATEGIES IN POULTRY FARM ENTERPRISES IN IMO STATE, NIGERIA

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ABSTRACT

This study analyzed risk among poultry farm enterprises in Imo State of Nigeria. Specifically, it examined sources of risks, the major risks associated with poultry farm enterprise, and the risk reducing strategies among the poultry farm enterprises in the study area. Primary data collected in 2015 with validated questionnaire from 120 proportionately and randomly selected poultry farm enterprises were used for the study. The data were analyzed with descriptive statistics and W-Statistic that was validated with Pearson Criterion (X^2). The results showed that major risk sources affecting poultry farm enterprises were production, marketing, financial and political in that order. The results found a W-Statistic value of 0.789, which was verified by Pearson Criterion to obtain X^2 -Calculated value of 4.65 which is lower than X^2 -Critical value of 11.07 at 5% significant level. The risk reducing strategies were found to be diversification, savings, co-operative marketing, borrowing and insurance. It was recommended that government and donor agencies should make policies aimed at encouraging poultry farm enterprises adopt the highlighted risk reducing strategies in risk management to improve their productivity and farm income.

Keywords: Risk, Measurement, Management, Poultry Farm, Imo State.

WATER BIRTH, THE MODIFIED NATURAL CHILD BIRTH

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ABSTRACT

Abstract — Even though the increasing of Caesarean section rate found in many countries, promotion of natural childbirth remains worldwide. The pure natural childbirth in natural position was modified step by step. It became modern vaginal delivery in lithotomy position with active management and many supporting medications. Pain is the main concern of pregnant women during childbirth. Many modalities are introduced for pain relief, with or without medication, mechanical or electrical, or regional anesthesia. Warm water in the bathtub is one of the simple options for pain relief. The temperature of 37°C made the pregnant woman feels relax and calm by the relaxation of the muscles. The buoyant force reduces the gravity and has less pressure effect on the weight bearing area. Finally, due to comfortable in the bathtub, many pregnant women prefer to remain there for pushing, resulting in water birth. The use of medications during intrapartum period is reduced. Manipulations such as episiotomy are also difficult to perform. The overview of water birth is the mimicry of the pure natural childbirth except the bathtub. However, the positive effect of pain relief needs to be aware of the complications such as infection or near drowned baby and tired mother.

Keywords—*natural birth, pain, water birth.*

INTRODUCTION

Even though the International Healthcare Community had considered the ideal rate of Caesarean section to be between 10-15% since 1985, the Caesarean section rate is increasing worldwide every year. It is as high as 40.5% of all birth in Latin America and Caribbean countries and 32.3% of childbirth in North America. The average annual increase around the world is 4.4% in the past 15 years. Many organizations have tried to reduce these rate by promoting conventional vaginal delivery and active management. Natural childbirth is one of conventional vaginal delivery and water birth is the modified natural childbirth.

ACTIVE MANAGEMENT OF LABOR

Conventional vaginal delivery can be conducted by caregiver, obstetrician or midwife. The place of birth can be at the hospital, at birth unit, or at home. In the past, labor was usually prolonged and progressed naturally which it caused several complications in both maternal and baby. Prolong labor also caused increasing operative delivery such as forceps extraction or Caesarean section followed by maternal and neonatal morbidity, too.

The active management was introduced by Kieran O'Driscoll in 1969 in order to reduce such complications of prolonged labor. Augmentation and stimulation protocols were used as management tools. Amniotomy followed by oxytocin infusion reduced labor time from over 12 hours to less than 12 hours. The result showed the morbidity of labor was less in the intervention group. Nowadays, the active management is accepted as a standard protocol for labor in many countries.

Pregnant woman will be presented with definite criteria of labor. She will be admitted to the Labor Unit. History taking and physical examination will be done along with some laboratory tests. Enema and pubic hair shaving may be done there prior to go to the first stage unit.

In the first stage of labor, amniotomy will be performed in case of intact membrane. The benefit is not only augmentation of labor but also evaluation of the amniotic fluid. Intravenous line and fluid will be administered with additional of oxytocin. Pregnant woman will not allowed to eat or drink anything to prevent complications, such as aspiration during anesthesia, in case of emergency Caesarean section be needed. She will be allowed ambulation as going to the toilet but with limitation because of IV line and IV fluid bottle. Continuous electronic fetal monitoring may be used in some labor units. Pain will be managed by medications such as Pethidine or Morphine injection that caused possible neonatal complication, respiratory depression. Spinal or Epidural anesthesia may be used in the facilities with available anesthesiologist. Frequent pelvic examination will be done to access the progress of labor and cervical dilatation. She will stay there until full dilation of cervix then move on for labor.

In the second stage of labor, she will be in lithotomy position. Local anesthesia such as xylocaine will be infiltrated at the perineum. Episiotomy will be performed during crowning. After external rotation, the baby's noses and mouth will be sucked by suction bulb. Shoulder will be delivered. Immediately after birth, the newborn's umbilical cord will be clamped and cut then the baby will be transferred to its mother for breast feeding.

NATURAL CHILD BIRTH

Natural childbirth is the birth process without intervention or medication. The labor starts naturally without induction. Bowel preparation such as enema is not needed. It is not necessary to shave pubic hair. The progress of labor is going on without augmentation by exogenous oxytocin. Intravenous fluid is not needed. Pregnant woman in labor can move freely in the first stage area. She is allowed to sip water but no food is allowed. Routine and frequent pelvic examination is not necessary. Continuous electronic fetal monitoring is not needed. The observation with occasional fetal heart sound check by stethoscope is adequate.

Pain management in natural childbirth is different form active management of labor. Many modalities are used but without medication. Massage, acupuncture, Transcutaneous Electrical Nerve Stimulation (TENS), hot compression or warm water tub are used. Efficacy depends on each trial.

When pregnant woman feels like to push, pelvic examination may be done at this time to confirm the full dilatation of the cervix. She can move or choose her comfortable position. She does not need to remain on the bed in lithotomy position as conventional method. Lithotomy position may cause pressure to the sacrum and coccyx with more pain and uncomfortable by limitation of pelvic expansion. During labor, baby needs enlarging of birth canals to come out. Lying position presses the birth canal by the weight of the mother. The most acceptable position to open the pelvic outlet is the squat position. Knee abduction will open the pelvic outlet without posterior pressure on sacrum and coccyx. The angulation of coccyx can be extended more. By gravity, the baby is easy to come out.

If the baby's head reaches the pelvic outlet as we called "crowning", the mother will be asked to push slowly with contraction. Episiotomy is not needed. Perineum will be slowly extended and may be torn on the weak point. The obstetrician or midwife will do the Ritgen's maneuver at this moment to prevent extensive tear of the perineum.

The amniotic fluid will be cleared from the baby's nose and mouth by gentle sweeping after external rotation. There is no need to suck the fluid with the suction ball. The baby's head will be pulled for shoulder delivery. The umbilical cord needs to be cut, but not immediately after birth. The baby will be on its mother's abdomen to start their bonding. Breast feeding will be started in the labor room to promote milk production.

WATER BIRTH

Water birth is recently popular in Asia and UK. 9% of babies born in the UK are from this under water technique. It is the subset of natural childbirth. It is modified from the conventional natural childbirth at the point of pain control in the first stage of labor. Warm water at 37°C in the bathtub is one of pain relief options. When the pregnant woman cannot bear the pain, she may go into the bathtub. The effect of warm water in the bathtub is soothing and supporting the pregnant woman, combining with buoyancy effect to reduce pressure on the body. The warm temperature relaxes the muscle, reduces tension and eases pain. It makes her relax and calm.

At the point of pushing, some pregnant women get up for land-birth, but some prefer remaining in the bathtub for labor. The caregiver stays beside the bathtub using long gloves for assisting. No intervention is needed at this point. The mother controls the rhythm of pushing with contraction. The birth process is going on by natural mechanism of labor. Episiotomy cannot be performed under the water. The baby remains in the warm water, as same temperature as intrauterine amniotic fluid, immediately after birth. The first gasping is not occur unless it touch the air, so the risk of aspiration is low. The baby is then carried out of the water followed by cutting its umbilical cord.

Since the process of placental delivery in the third stage of labor causes a lot of blood lose, the mother needs to step out of the bathtub for placental delivery and further management.

The water birth is associated with high maternal satisfaction due to pain relief, good experience of childbirth and the increased likelihood of intact perineum. It is also associated with decreased incidence of episiotomy, severe perineal laceration and reduced postpartum hemorrhage.

COMPLICATION

Meta-analysis and reviews found no significant difference in complication between water birth and conventional vaginal delivery in terms of bleeding, infection and perineal tear. On the baby's side, there is no significant difference between babies delivered in water and on land in terms of neonatal mortality, neonatal intensive care unit or special care unit admission rate, Apgar scores, umbilical cord blood gases and pH, and infection rates. Neonatal mortality rates are also low and similar. However, the careful selection of the population of low risk pregnancy to conduct water birth may be the factor of low complication.

The water birth may cause possible complications such as fresh water drowning, respiratory problems, neonatal hyponatremia, neonatal waterborne infectious disease, cord rupture with neonatal hemorrhage, hypoxic ischemic encephalopathy and death. These potential complications may not be seen in land-based birth. The rates of these complications are likely to be low but they are not well defined.

CONCLUSION

The target of all methods of child-bearing are safety in both mother and baby. Caregivers need to have precise knowledge and careful counseling to the pregnant woman in all alternatives and risks of complications. If she prefers to have water birth, she should be advised of the potential detrimental consequences for the baby, extra from the land-based delivery. The final decision is, of course, the agreement of both sides based on the clinical situation, place of delivery and the experience of caregiver. However, emergency Caesarean section

or other operative delivery needs to be aware in all circumstances. Pediatrician also needs to be informed for awareness of neonatal complications.

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26 YEARS RETROSPECTIVE STUDY: CAUSE OF RABIES DEATH IN THAILAND

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ABSTRACT

The prevalence of canine and human rabies in Thailand has decreased significantly during the last decade. This has been associated with an increasing number of human post-exposure treatments. Educational efforts, mass vaccination of dogs and cats and the use of safe and effective vaccines have all made an impact. Thailand had established five-year strategic national plans for rabies control programmes which improved rabies surveillance and data collection, initiate measures to phase out nerve tissue vaccines and replace them with modern tissue culture vaccines, promote rational use of TCVs for PEP and encourage the introduction of cost-effective intradermal human rabies vaccination schedule in every hospital in Thailand, strengthen inter-ministerial and intersectoral collaboration for rabies control in canine population through mass vaccination, dog population management and active community participation. However statistics since 1990-2016 show that rabies is still a major public health threat in Thai community because of many reasons. The proportion of fluorescent antibody positive dogs, among those examined for rabies averaged as high as 54%. Canine rabies often found in dogs less than 3 year old which are not usually vaccinated. This is the age group most likely to interact with humans and other dogs. Some death case even has no history of dog bite. All human rabies death during the past 5 year was because of neglect vaccination. Our study also supports the World Health Organization's recommendation that observing suspected rabid dogs for 10 days is an adequate and safe practice, and supports the need of pre exposure rabies vaccination.

Key word: epidemiology, cause of death, rabies

INTRODUCTION

Rabies is considered a major violent public health problem. Mortality rate of clinically ill patients are 100 percent. But rabies is a vaccine preventable disease if whom are completely vaccinated. World Health Organization (WHO) statistics show that there are 55,000 human rabies deaths in each year from 150 countries around the world. In Asia continent, there are over 31,000 death and more than 56 percent or 20,000 of the rabies cases are in India. Second or 3000 cases are in China and 2490 are in Pakistan. Dog is the main vector of human rabies virus that transmitted to human through the bite wound. Actually, WHO and Office International des Epizooties (OIE) target all the countries in the ASEAN region including Thailand eliminate human rabies death within the year 2020 under the Rabies Elimination Strategic Framework¹

In order to accomplish the substantial goal, authors design an long term 26 years retrospectively study from the surveillance secondary data or the report 506 of Department of disease control, Ministry of Public

Health Thailand that every death need to be investigated and record and analysis for future strategic plan for prevention and control

METHODOLOGY

Descriptive retrospective clinical research study was conducted using secondary data of secondary information from the report 506, a specific disease investigation report of office of epidemiology within 26 year period from 1990 – 2016 and from related rabies prevention and control research. Analyze data use statistical percent.

RESULT OF STUDY

Researchers have studied the disease surveillance reports annual 1990-2016 from department of epidemiology and disease control, Ministry of public health and related documents by using the theory of epidemiological data for analysis and prepare a proposal of measures in rabies eradication of the country. The study found that

Place Factor: Rabies distribute almost all regions of the country. But most patients found dead in central and district/metropolitan area and the eastern part of the country. It found that in each region there are areas where repeated exposure disease. ie. Central districts are in suburban of Bangkok, Pathumthani, Samutprakan, Ayutthaya. Eastern districts are in Prachinburi, Sakaeo, Rayong, Chonburi, Chachoengsao province. Southern district is in Songkhla Northeastern districts are in Surin province and Western districts are in Kanchanaburi, and Tak province.

Person factor: 1452 death of rabies were found during the year 1990-2016. Number of patients classified annually are 370,171,113,93,78,58,55,68,50,32,30,20,19,20,26,17,9,24,15,7,7,5,5,9 6, 8, 24, 15, 8, 5, 5, 6 cases, respectively. The trend is down. Most are male rather than female and as a teen working age 35 – 44 years. Characteristics of injury are bleeding wound, mostly is bitten on the hands and feet but some case are even scratch and some has no history of bite. The majority of patient does not receive the rabies vaccine or immunoglobulin and did not see doctors because of the incorrect understanding that dog's age less than 3 months will not be rabies, including a confident dog whose owners are not likely to be rabies so they do not give priority to vaccinations.

Time Factor: There are rabies deaths throughout the year, scattered in every season, but the majority are found in the January-April of every year.

The results of the analysis of the data found that the rabies situation in Thailand decline dramatically. Since 1990 the deaths of rabies were 370 that were about 1 death per day. After the transformation of nerve tissue vaccine to tissue culture rabies vaccine and implementation of intradermal vaccination, the incidence reduced to 171 in 1991,117 in 1992, 55 in 1998 and 15 in 2010. The average prevalence rate was 0.003 per 10,000. The figure shows that the incidence and prevalence rate of rabies death can be controlled. Concerning with disease distribution, finding that there are death of rabies in almost every regions and every season of the country that related to the number of stray dogs and the positive rabid dogs finding. Bangkok, where is in the central part of Thailand has highest density of population, remain a highest rabies deaths at that time. Number of death followed with southern, north east, and west region respectively.

However, up to now, rabies is still remaining as 5-9 cases every year. It cannot be eradicated. Even though many effort has been done. The Ministry of health has accelerated rural areas and urban areas across the country to be a 100 percent rabies free area within 2015 which cannot be done. Collaboration with the Department of livestock development, and local government organizations vaccinated against rabies in dogs between the ages of 3 months to cover no less than 80 percent of dogs in the village which now are only 50 percent. Campaign to do registration of all household dogs, vaccination and sterilization to control the number of stray dogs every year.

DISCUSSION

This study shows that rabies cannot be eradicated because of many reasons:

1. Human factor

People lack of knowledge and awareness of the severity of the disease. They did not realize the important of post exposure vaccination. They do not receive a proper medical treatment and adequate wound care. Some believed and Trust the folk medicine.

2. Host factor

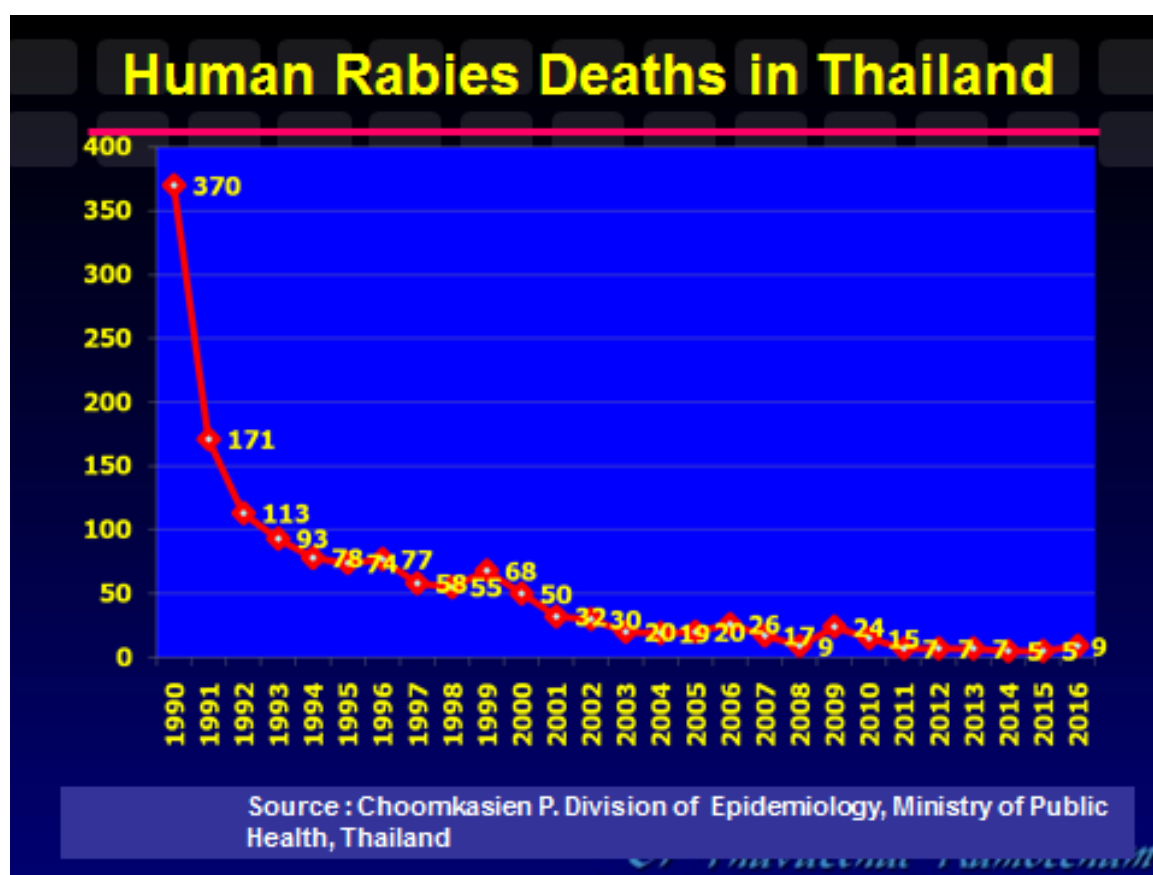
80 percent of the deaths were bitten by rabid dogs. 48 percent were puppy less than 3 month old which vaccination has not yet recommends by vet doctor. 67 percent were own dogs instead of stray dogs. 2.2 percent of death was bitten by complete vaccination dogs. Many deaths were bitten by their own dogs. Beside that other mammal such as cat, rabbit, monkey, and rat are found rabies. Problems with stray dogs are not know the exact number of dogs cause no disease control plans and migration of dogs are also important problrms especially along the neighborhood countries border.

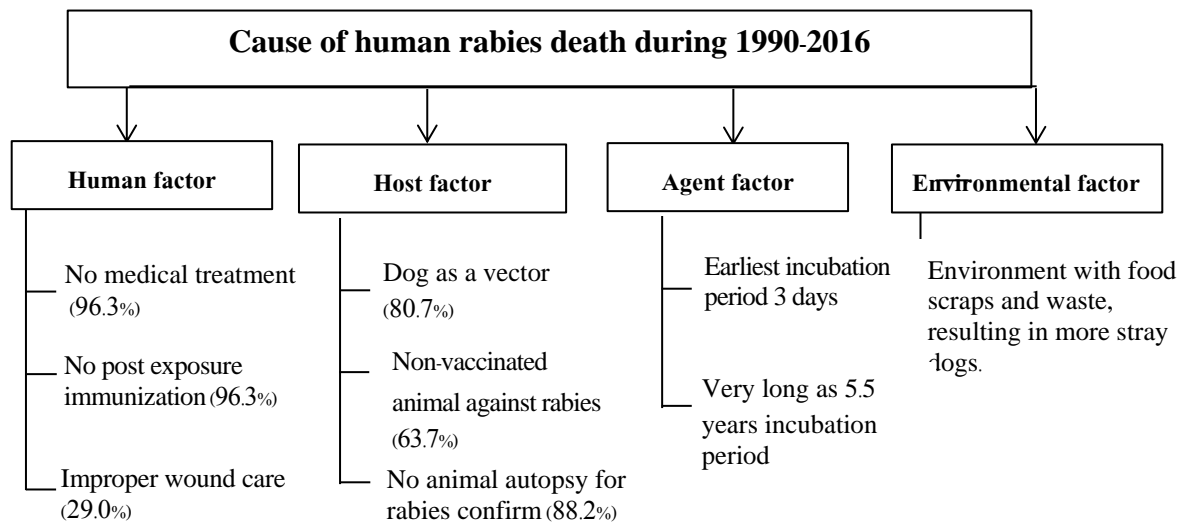
3. Agent factor

From this study, incubation period are average 7 days after bitten but 3 days up to 5.5 year are also found. So median are about 80 days.

4. Environmental factor

The report found that a dirty environment, a lot of garbage and debris, especially in the tropical zone result the rapid increasing number of stray dogs.





CONCLUSION

From this study we learn that:

1. The dog remains continuously the leading cause of rabies vector that came to most people. Almost half of the rabid dogs age less than 3 months and are more own dogs than stray dogs.
2. Although trend and situation of rabies death reduced every year, it cannot eradicate and seem like incidence increase in this year. Distribution is almost all regions of the country and repeat in same area.
3. The patient/death by rabies have not yet given priority to or aware of fully vaccination according to the date of the assignment. Mainly are in the labor-age range.
4. Patients mainly found in the first half of each year is January to April.

SUGGESTION

1. Build a correct public knowledge about rabies. People should literate in rabies and aware of dangerous of disease and the importance of vaccinations, both in humans and in animals. Providing news, information about the situation and the knowledge of rabies in the broader.
2. Development of a system of protection, monitoring and surveillance of rabies should be more productive and integrative with department of livestock, department of disease control and local governments. Outdate law and regulation should be edit and reformed.
3. Development of the doctors and medical staff in the care and vaccinations to correctly practice guidelines.
4. Aims to create Rabies Free Zone especially in region that experience repetitive patients by virtue of the principal of the active participation of the people in the community
5. Present information to on all levels manager, so they will see the significance and severity of the disease, which is the driving force that allows local officials to accelerate action seriously and continuously.

ACKNOWLEDGEMENT

The author would like to express sincere thanks to Research and Development Institute, Suan Sunandha Rajabhat University, Bangkok, Thailand for financial support and assistance. Thanks to all who cooperate in this this study that bring this study successful.

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MUAY THAI CONTENT TOWARDS DIGITAL ECONOMY

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ABSTRACT

Thai boxing so-called Muay Thai was a Thai cultural heritage and had a long historical root in terms of an effective self-defense of Thai warriors on the battlefields. In recent years Muay Thai has been developed into such different adaptations as unarmed combat, sport, entertainment, a fitness program as well as a self-defense. This research was to examine how Muay Thai would be promoted internationally towards Thailand's digital economy. It was reported that art and culture has played a crucial role in the development of its national economy. The study was a qualitative research by collecting data based on interviews of Muay Thai masters, Muay Thai boxers, Thai boxing schools, animation studios, related research and articles as well as websites respectively. The study found that interactive animated Muay Thai would be the best format as an online promoter of digital economy since it could provide a rapid increase in education, market, social and finally cultural values. However, Muay Thai cannot be a driving force of national economy without a strong support from government including infrastructure and funding supports together with collaboration between public and private sectors.

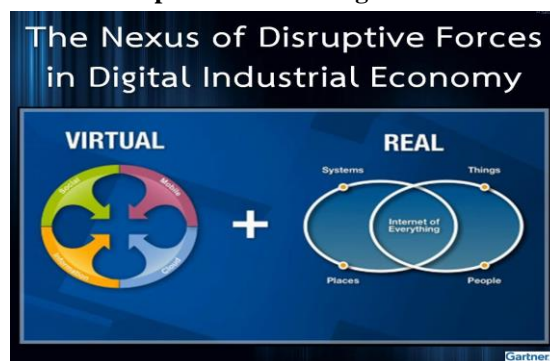
Keywords-digital economy, digital content, Muay Thai

INTRODUCTION

The world is now facing an era of unprecedented change. The recession of the global economy has reshaped the global business landscape. The downturn has adopted key technologies-mobility, cloud computing, business intelligence and social media spurring a new way of wealth creation of emerging market by cutting cost creating innovation and driving income. Most countries worldwide are aware of these new challenges. The Oxford economics has addressed significant shifts of the world market including the global digital economy, digital transformation, reverse of digital divide and emerging market.

Therefore, ICT industries have been playing significant roles attributed to its strength as a medium of communication, education, entertainment and, more recently, as a tool for electronic commerce. The Nexus of Forces by Gartner – the convergence of mobile, social, cloud and information – has become the platform for digital business. Digital business technologies are disrupting business operations in ways that have not previously been seen.

Figure 1
The Nexus of Disruptive Forces in Digital Industrial Economy



www.gartner.com

Digital economy later becomes a buzzword. OECD defined digital economy as it enables and executes the trade of goods and services through electronic commerce on the internet. Oxford Digital Economy Collaboration Group signifies digital economy in enabling and conducting the trade of goods and services through electronic commerce on the internet which is based on supporting infrastructure, e-business and e-commerce. Digital economy is able to increase performance and competitiveness across the industries contributing to the general economic growth. Further, various countries have launched policy, measures and strategies of digital economy to fuel their economic growth including Japan, South Korea, Britain, U.S.A, Malaysia and China and even Thailand. In 2013, cultural and creative industries worldwide generated revenues of USD 2250b and employed 29 million people while digital cultural goods are, by far, the biggest revenue source for the digital economy, generating USD 66b of B2C sales.

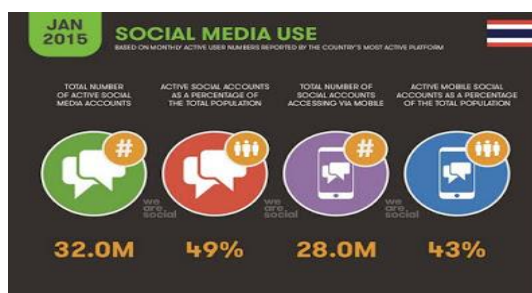
REVIEW OF THE LITERATURE

I. Thailand Digital Economy

Thailand has been recognized as a business-friendly country for foreign direct investment in Southeast Asian in the 20th century and a destination for service and industry sectors. Now in the 21st century as trade shifts towards the internet and technology, Thailand is transforming itself into an economy that not only embraces the industrial, but the digital as well. At present, Thailand has 34 million internet users accounted for 50% of the total population. While there are 96.4 million mobile phones in usage with 34.6 million are smart phone users. There are over 43% of active social media accounts by using facebook most.

Figure 2

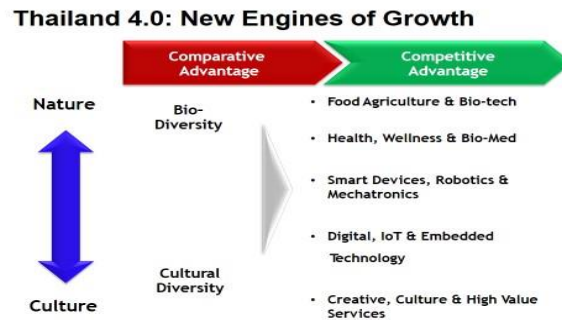
Thailand's Social Media Use



www.thaimarketingguru.com

Therefore, Thai government has declared Thailand 4.0 as a new policy to fuel the engine of national growth by changing production of "commodities" into "innovative products", transforming industry-driven activities into those driven by technology, creativity and innovation while shifting from the focus on making products, to providing services. Thailand 4.0 will emphasize economic growth unleashing human potential to creating national competitiveness and sustainability. However, the policy can transform towards the value based economy by partnering public and private sectors as a mechanism of national growth.

Figure 3
Thailand 4.0: New Engines of Growth



Dr. Suwit Maesincee's presentation

Recently, the government established Ministry of Digital Economy and Society to replace the existing Ministry of Information and Communication Technology and a National Digital Economy and Society Committee led to directly support and strengthen digital economy. The Thai government has developed a large scale program including reshuffling government agencies to align synergies and produce a digital economy frameworks by implementing solid infrastructure, services and digital economy promotion and innovation creation respectively.

Noticeably, Thai art and culture has been signified as a high transformation in terms of generating income, providing jobs and building exports. When combined, this sector is one of the most rapidly growing arenas of the world economy. It is believed that in the next few years, the value of the creative economy is likely to become larger than an industrial sector. In the 21st century, a thriving creative economy would be key driving force for a country's continued economic success.

II. Myay Thai

2.1 History of Muay Thai

Thai Boxing or Muay Thai is considered as the national sport and cultural martial art combat. Muay Thai is referred as "The Art of Eight Limbs" using eight points of body by the combined use of fists, elbows, knees, shins, being associated with a good physical preparation that makes a full-contact fighter. Due to the ancient history, soldiers, commoners including those from the royal family also learnt Muay Thai.

Figure 4
Muay Thai Posture



<https://suthatzana55.wordpress.com>

Historically Muay Thai was created to protect the country especially from wars. The military arts or “Muay Thai” became engrained in the culture of the early Siamese people and young men practiced the art form for various reasons: self-defense, exercise, discipline; monks even instructed at many Buddhist temples. However, Muay Thai was recognized in the middle of the 16th century during the battles between the Burmese of the Konbaung Dynasty and Siam. The famous fighter Nai Khanomtom was captured as the war prisoner but he was acknowledged as a hero to fight against more than 10 Burmese and won the battles. His fighting style became known as Siamese-Style boxing, later to be known as Muay Thai.

2.2 International Recognition of Muay Thai

Currently, Muay Thai becomes internationally well-known and widely accepted. As new training camps and gyms open around the world, Muay Thai still continues to grow. Several countries have opened Thai boxing training schools, camps or gyms as a sport exercise, self-defense and a commercial martial art. There are over 500,000 studying Muay Thai per year with over 3869 Thai boxing schools and camps worldwide, 1631 in Brazil, 20 Argentina, 190 U.S.A. especially California, Nevada and Illinois, 32 Australia, 256 India, and 650 Iran.

METHODOLOGY

Qualitative methodology was employed based on primary and secondary research sources. Initially, a comprehensive and exhaustive search of the literature on digital economy and Muay Thai was conducted. The sources of the study included related books, journals, books, proceedings, articles, and other publications. In-depth Interviews of government official, Thai boxing masters, owners of Thai boxing schools and gyms and animation studios were conducted. Descriptive analysis was used to show the results of the study.

FINDING ANALYSIS AND DISCUSSION

It is regarded that creative economy is one of the fast growing sectors of the world economy. It is highly transformative in terms of income generations, job creation and export earnings. Governments and creative sectors across the world are increasingly recognizing its importance as a social, value and cultural engagement. It is undeniable that creative industries lie at the crossroads of arts, culture, business and technology.

There is no doubt that every cultural industry is impacted by digitalization. It is possible to reach a substantially larger number of potential consumers. The contribution of information and communication technology will enable new economies of scope and integration that change the economics of content distribution. Emerging market will become global scale competitors in the international market and helps broadening access to knowledge increase participation.

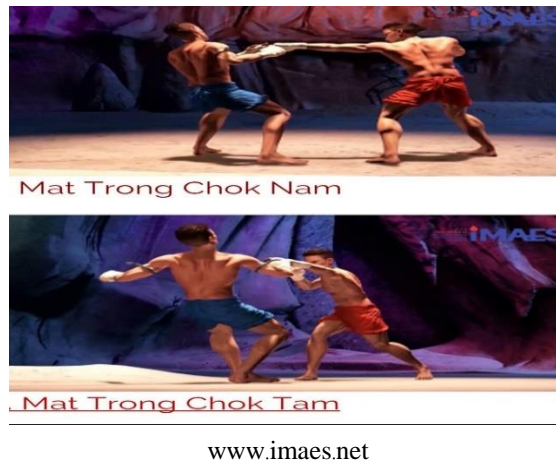
As creative industry has come into play, Muay Thai has been regarded as one of the Thai traditional art and cultures which is still gaining popularity. It can serve for different kinds of purposes including sport, fitness, entertainment, self-defense or even combat. Global learners can be easily attracted through various formats and platforms- interactive games, e-learning, 2D and 3D animation. Moreover, such cultural heritage is also cherished as an asset and gives society its identity and nurtures rich cultural and creative present and future

Figure 5
Muay Thai Posture in 2D format



www.wikihow.com

Figure 6
Muay Thai Posture in 3D format



Nevertheless, Muay Thai needs to be promoted through strong supports of government. The government should stimulate enhanced digital knowledge creation and dissemination, and encourage investments for global access to content. The government also should encourage investment in network infrastructure, software content and applications. Online commercial transactions including mechanisms for payment, electronic signatures and authentication and international interoperability, as well as intellectual property right should be well established to transform Muay Thai into a promoter towards digital economy.

CONCLUSION

Technology breakthroughs have provided a lot of opportunities for disseminating national art and cultural heritage. It helps preserve social, cultural and economic values. Muay Thai which has been regarded as one of the Thai traditional art and cultures will play a vital role for Thailand's digital economy since Muay Thai has been internationally recognized and still gaining popularity continuously. Muay Thai can be promoted and introduced in various arenas and formats as sport, entertainment, self-defense art, or a martial art competition. However, government policy and measures especially infrastructure, and funding supports, 2D and 3D animated quality content and online content protection would be the key factors towards the development of Thailand's digital economy.

ACKNOWLEDGMENT

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ANALYSIS OF ROMANTIC FILM “SNAP” WITH SYMBOLISM OF THAI POLITICAL CRISIS

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ABSTRACT

This article analysis about a romantic film “Snap” with symbolism of Thai political crisis, Snap is an independent film that released 2015 in Thailand, it won 4 prizes in Thailand National Film Association Awards 2016 and directed by Kongdej Jaturanrasamee who ever won highest prize form Tang- Wong (2013) in the same festival and Snap was selected for screening in many film festival in Thailand and International Festival. Snap has a simple storytelling in a general of romantic genre, the story about two friends memories of their young love and youthful life after visit in their hometown but this film has a positive review from critical and audience reception because the film setting in the political crisis event in Thailand, in that time the people uprising and anti-government protests took place between November 2013 and May 2014, in the film there are many scene refer to the series of event since 2004 – present day of military coup.

Snap is an importance film in the current time of strict military politics in Thailand and tell the context refer to this situation and free from the censorship of government. In the same situation there are work of many filmmaker, their were censored and banded before. Snap that should be studied and analyzed with film theory about symbolism and social context for interpret the sub text of narrative structure in this film from scene to scene and character by character for understanding the real meaning of the filmmaker that truly want to told beneath the pressure of military coup situation in Thailand.

Keywords-Film, Symbolism, Political, Thai

INTRODUCTION

The writer and director of “Snap” is Kongdej Jaturanrasamees, he created a story line about Pueng, a daughter of a military Colonel, who had planned to spend her marriage life with Mann, a young Lieutenant with a promising future. On the day, Martial Law was announced, she received a wedding invitation from a high school friend and she had to go back to her hometown. Upon her return to Chanthaburi, Pueng was reunited with her old friends and she met Boyd who came back to work at the promising event as a wedding photographer. The unresolved feelings between Pueng and Boyd resurfaced as they relive the old memories of their youthful days.



figure.1 'Snap' International poster

The story line of Snap isn't the only thing of the filmmaker want to tell. Because there are subtext situation about Thailand's 2014 military coup setting in the background of the film with a participation of the characters and appears in the mise- en scene in many scenes. A filmmaker, Kongdej Jaturanrasmee narrated a storyline and subtext about the political crisis that led to riots and violence in 2010. It was represented in the teen movie "Tang Wong" in 2013. A teen movie with scenario of violence in the late 2010 which created impact on the growth of the characters and climax of this film. "Tang Wong" was screening in limited cinemas. However, the film won Best Film in Thailand National Film Association Award in 2014 and Snap won 3 awards in the same festival in 2016. In a film "Snap", the director still used symbolic in his narrative style like Tang Wong. But it was very simple and sentimental element in every scene with a political crisis subtext within a romantic-drama styles.

THE CHARACTER ANALYSIS IN THE FILM "SNAP".

After the premiere screening in the World Film Festival 2015, Kongdej Jaturanrasmee talked about a film "Snap" that he was inspired by the thing that was struck in his mind about the present day and the life style of the millennial generation with the popular culture such as the behavior of the people who use mobile phones everywhere and every time more than surfacing with a realistic situation or impression with the real thing. They used to be enchanted with their pictures in filter of a mobile phone app. Kongdej Jaturanrasmee thought about the millennial's feeling problem and created a scene about instalgram picture app which showed the feeling of the person who posted that which was opposite to the real situation in the behavior of the character, Pueng (Waruntorn Paonil). She is a Bangkok office worker who has opposite feeling to the emoticons and cheery hashtags. It's a different story. She has an unstable feeling with Mann, a young Lieutenant who will marry with her. Kongdej Jaturanrasmee set the symbolic in a relationship of Pueng and Mann with a square of an instalgram picture that cropped of a wide shot before post. There are many things more than what we saw in a happy picture that she posted. It means her hidden feeling in wide shot that is cropped of the Instagram shot. But everything is still in her mind. She has still kept the feeling of her young love with Boyd (Toni Rakkaen). He is her high-school boyfriend. But now they meet again in Chanthaburi. The Character of Boyd was set as a personal style like a 90's boy who is stuck in the old days. There are many scenes we saw Boyd lives in the old photo print shop or watched the negative film. Boyd is a symbolic of the good old days about the analog world opposite to the present time that Peung still in love with Boyd but it's not the same.



Figure 2 The character Boyd (Toni Rakkaen)



Figure 3 The character Pueng (Waruntorn Paonil)

Another symbolic of the character Mann, he is a young Lieutenant who is a present love of Pueng. He was walking in the scene of the meeting of Boyd and Pueng and their young love is impossible to happen again. The scene can be interpreted to the real situation of the political crisis in 22 May 2014 of the army formally staged a coup against the caretaker government and formed a junta called National Peace and Order Maintaining Council (NPOMC) to govern the country to control the people of Thailand under a military coup.

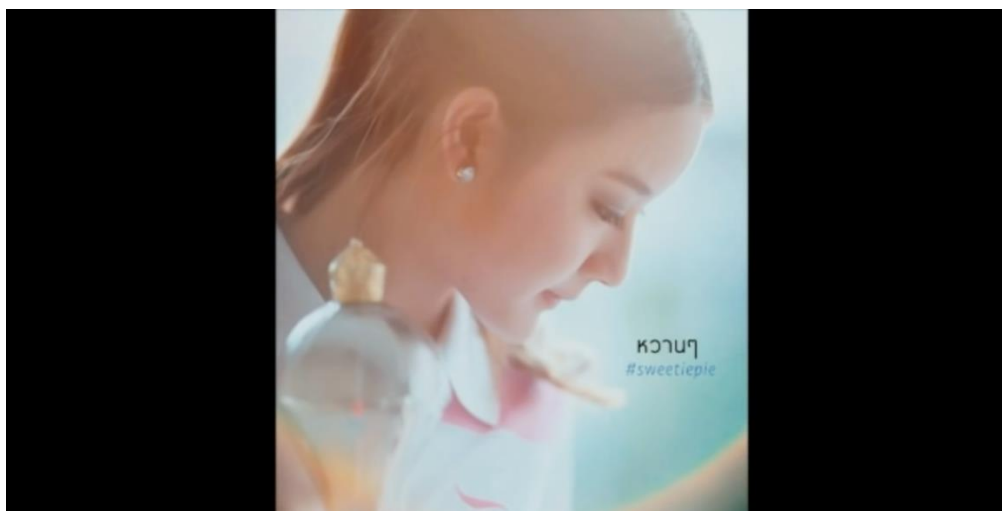


Figure 4 The Instagram shot with 1:1 aspect ratio



Figure 5. Normal shot in the film.

THE SYMBOLIC IN THE NARRATIVE STRUCTURE OF THE FILM “SNAP”.

The main plot of “Snap” tells the story of a group of friends who come back and see each other again for attending the wedding of two friends in the group. The spouse selected the theme of their wedding to be School Reunion in their old high-school in Chanthaburi. This makes Pueng, one of the bridesmaids were meet Boyd, an old friend who was invited to be a photographer in this wedding. This is Pueng and Boyd’s first met in the past eight years. The celebration is taking place in Chanthaburi, the provincial town where Pueng lived until her army general father was transferred to Bangkok during the 2006 coup. Their young love returns again with same old questions which is still unresolved bearing in their mind all along eight years ago.

The significant in the symbolic of the plot is the eight years period from 2006 to 2014, in which the political crisis time since The Royal Thai Army staged a coup d’état against the elected caretaker government of Prime Minister Thaksin Shinawatra on 19 September 2006 to the coup again on 22 May 2014 by a junta called National Peace and Order Maintaining Council (NPOMC). The two events of political crisis affecting to 2 main characters (Boyd and Pueng) directly. On 19 Sep 2006, the coup made Pueng and her army general father was transferred to Bangkok. She must leave the school in Chanthaburi. She made the promise with Boyd that he will take a picture of her before she leave. But Boyd didn’t come because he had an accident by motorcycle with his father. And she has never known about his story. The 2nd situation setting was on 22 May 2014, the military coup was the same day of the wedding ceremony that Boyd and Pueng attended and the

romantic scene in the aquarium museum. But they are still not clear about their eight years relationship problem and leave again in the same way like a political crisis which is still that not clear until today.

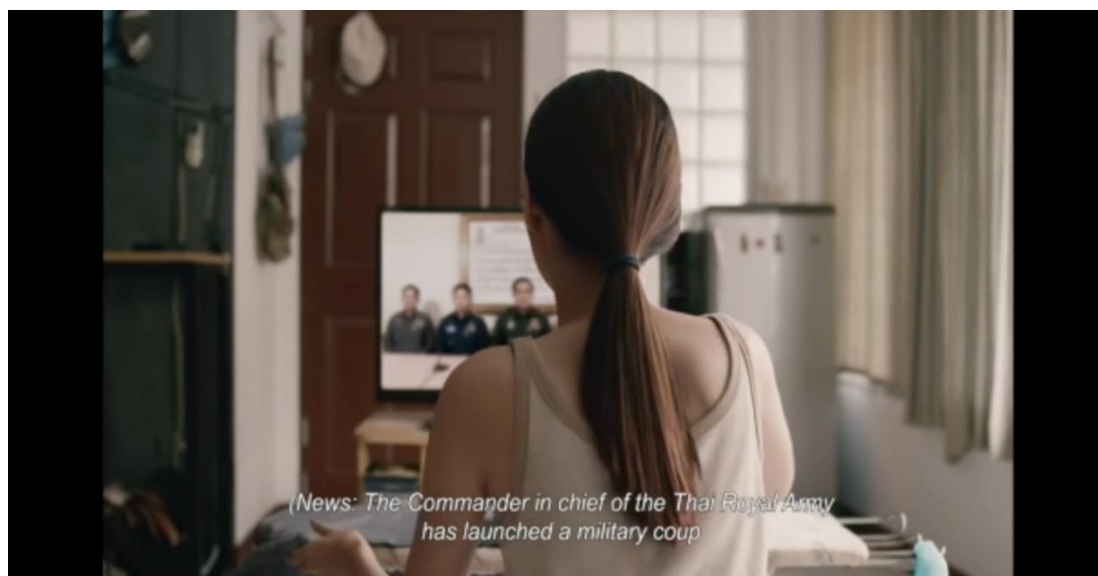


fig.6 Symbolic of a military coup in the mise-en scene shot.

The characters in the story take us to the question of the second time of the coup, that we recognize these events in any manner. The coup in 2006, for some people who look at that event in a negative way and try to resist them. But some people are not looking at it negatively as well. However, Boyd chose not to resist clearly.

In the film “Snap” shows and gives some subtext for the Thai audience about the coup situation between eight years, that is not a reunion of a young love story of Boyd and Pueng. But it is also the linkage to the question of Thailand political crisis in the eight years following. What we learned in these situation, How we move forward and as we remember the events of eight years ago and find the way together to fix this problem and move on.

4. The analysis of romantic film “Snap” with symbolism of Thai Political Crisis

Kongdej Jaturanrasmee doesn't told about the symbolism in his film. But in this article. It is the analysis by the social context that is set in the narrative structure and the interview incuding with the production note of director and the film theory.

This article which is the analysis of romantic film “Snap” with symbolism of Thai Political Crisis. This article has found 2 aspects 1) The symbolism in behavior of the character in the film “Snap” tells about the millennial generation between the instalgram world in 1:1 shot and the reality world with the subtext in character mind on the wide shot scene. 2) The symbolism of the plot in the film “Snap” refers to 2 situations of military coup events in Thailand; the 1st coup On 19 Sep 2006 subtext in flashback story and the 2rd coup on 22 May 2014 which are the setting the story of this film.

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A COMPARATIVE STUDY OF THAI AND MYANMAR TEMPLE FESTIVAL DRESS

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ABSTRACT

The purposes of this research were to compare and to study on Thai and Myanmar temple festival dress for creating the knowledge which can be useful for Thai cultural attitudes and festival perceptions, especially for young generation. The findings of the research disclosed that there were four temple festivals of Thai Buddhists such as Songkran festival, Buddhist Lent festival, Sart Duen Sib festival and End of Buddhist Lent festival. Myanmar Buddhists also have four Buddhist temple festivals such as Thadingyut Festival, Tazaungmon Full Moon festival, Htamane festival, and Thingyan Festival.

Thai and Myanmar Buddhist men wear the stand-up collar, spread collar and round neck collar, hip-length blouses with long sleeves or short sleeves and they wear Sarong. While Thai Buddhist men also wear long pants or loincloths too. Myanmar Buddhist men wear headdresses call "Guang Baung". Thai and Myanmar Buddhist women wear stand-up collar, spread collar and round neck collar, hip-length blouses with long sleeves or short sleeves with the tube skirts. Thai Buddhist women also wear loincloths and use fabric shoulder flattering, while Myanmar Buddhist women use Scarf.

Keywords – Temple Festival dress, Thai Buddhist, Myanmar Buddhist

INTRODUCTION

Nowadays Thai people are facing several crises of value, ethics and behaviours which link to Thai way of life, thinking, attitude and virtue. These problems are the effects of foreign culture expansion on multimedia. The creative media are much less dangerous and illegal media which spread over the whole country of Thailand. While Thai people, especially children and young people, are not aware of Thai custom and culture, social institutions such as family institution, religious institutions and educational institutions take less active role in the implantation of ethical virtues and the potential development of Thai people, especially children and young people. That is because the youth and their parents rarely have the opportunity to see the beauty of Thai traditional dress in the Buddhist temple festivals, and the importance of these festivals with Thai temple festivals dress. The dissemination of precise knowledge about the temple festivals and the temple festival dress of Thai and Myanmar, which community and religious adhesive country are alike. They will enrich attitudes and cultural perceptions of the two countries. For these reasons, this research is conducted.

METHODOLOGY

In this documentary research study, all data from National Library of Thailand and Electronic media is collected. The qualitative data is analyzed and interpreted in qualitative research without variable control just as naturalistic research, and the analysis results and research results are presented by descriptive writing with pictures.

RESULTS AND DISCUSSION

A) Thai Buddhist Temple Festival and Myanmar Buddhist Temple Festival.

In Thailand, there are four major Thai Buddhist temple festivals as follows :

1) **Songkran** is a Thai traditional New Year. Songkran Festival starts on April 13 every year and lasts for 3 days. Thai New Year begins early in the morning when faithful Thai Buddhists give alms to Buddhist monks. After that, they build sand pagodas and release caged animals, especially birds and fish. Elders and parents will be visited and respected by their children and grandchildren. The young pour scented water over their elder's hands, they in return, wish them good health, happiness and prosperity, and also go to the temple to make merit to their deceased ancestors. In the afternoon, Thai Buddhists sprinkle scented water on Buddha images. After that, they sprinkle perfumed water on, or throw clean, cold water over each other. In addition, they take part in folk plays [2].



Figure. 1 Thai Buddhist activities in Songkran Festival.

2) **Buddhist Lent Festival**. The commencement of the three- month Buddhist Lent traditionally falls on the first day of the waxing moon of the eighth lunar month. During this period, coinciding with the rainy season, Buddhist monks and novices remain closeted in their particular Buddhist temples, and discouraged from spending nights elsewhere. It is a popular time for young Thai men to be ordained as a Buddhist monk. Two main important things presented to monks during the Buddhist Lent are the large candles and garments worn by monks, especially the bathing robes [3].



Figure 2 The large candle procession in Ubon Ratchathani Province

3) **Sart Thai Festival** is held on the 15th waning (no moon) day at the end of the tenth lunar month. Sart Thai Day is the day of making merit traditions and the honoring Ghosts & Ancestors Day of Thai Buddhists. This traditional festival is now celebrated mostly in Thailand's southern provinces, especially in Nakhon Si Thammarat, and other parts of Thailand. It has many features of animism, attributing souls or spirits to animals, plants, and other entities [3].



Figure 3 Start Thai Festival in Nakhon Si Thammarat

4) **The end of Buddhist Lent Festival** begins on the full moon day of the eleventh lunar month. Thai Buddhists celebrate this occasion by offering foods and other necessities to monks [3]. This ceremony is called “Dhevo Rohana Ceremony”.



Figure 4 Dhevo Rohana Ceremony

In Myanmar, there are four major Myanmar Buddhist temple festivals as follows :

1) **Thadingyut Festival, or Myanmar festival of lights**, is celebrated at the end of Buddhist Lent. This festival commemorates the time when the Buddha returned to the earth after preaching in the abode of celestials during the three months of Lent. He descended at night and devotees greeted him with lamps and lanterns. So people decorate their houses with candles and colored lanterns. Pagodas are crowded with people in doing of meritorious deeds so it is not only a time of joy but also thanksgiving and paying homage to parents and elders. There are concerts and theaters in every city.



Figure 5 Main activities of Festival of Lights in Myanmar

2) **Tazaungmon Full Moon Festival** is a celebration for the season of the offering robes and other requisites needed by monks after the end of Buddhist Lent. Cash offerings for monasteries are also collected and displayed on wooden frames built in the shape of a tree. There is the special offering of Mathothigan, or timely woven robes, a robe that is woven in one single day, held on the night of the eve throughout to the full moon day. There are weaving competition to complete the robes, which are offered to images of Buddha.



Figure 6 Main activities of Tazaungmon Full Moon Festival in Myanmar

3) **Htamane Festival or Glutinous Rice Festival** is a celebration for the donation of sticky rice and sesame seeds. There is a competition between teams of men for donation of glutinous rice to the Great Lord Buddha. Lots of people enjoy watching the competition of cooking glutinous rice. After finishing the competition, glutinous rice is distributed as donation to people and followed by the prize giving ceremony for the winners.



Figure 7 Main activities of Htamane Festival in Myanmar

4) **Thingyan Festival is the Myanmar New Year Festival and the Water Festival**. During the festival, Myanmar people pour water over one another to the melodious tunes of singing and dancing at the decorated pavilions. Pouring water signifies cleansing the body and mind of evils of the past year, performing a lot of meritorious deeds to usher in the New Year such as going to pagodas and monasteries, offering food and alms to monks, paying respect to parents, teachers and the elders, setting free fish and cattle and so on.



Figure 8 Main activities of Thingyan Festival in Myanmar

IT MAY BE CONCLUDED THAT

1) Thai Songkran Festival is similar to Thingyan Festival in Myanmar in terms of the purpose of the festivals, which is traditional New Year celebration and the Watu Festival.

2) Buddhist Lent Festival is similar to Tazaungmon Full Moon Festival in terms of the offering robes and others reguisites needed by monks. The dissimilar is Tazaungmon Full Moon Festival has Junla Kratin too.

3) Sart Thai Festival is similar to Htamanae Festival in terms of making merit traditions and Hororing Ghosts and Ancestors. The dissimilar is Htamanae Festival making merit for Buddha, too.

4) The end od Buddhist Lent Festival is similar to Thadingyut Festival in term of offering foods and other necessities to monks, the dissimilar is Thadingyut Festival in Myanmar's Festival of lights and also has Tradition Devo.

B) Thai and Myanmar Buddhist Temple Festival Dress.

Most of Thai and Myanmar Buddhist men wear the stand-up collar, spread collar and round neck collar, hip length blouses with long sleeves or short sleeves and they wear Salong. Thai Buddhist men also wear long pants or loincloths, too. Myanmar Buddhist men wear headdress call "Guang Baung"



Thai Buddhist Temple Festival Men Dress



Myanmar Buddhist Temple Festival Men Dress

Figure 9 The comparative of Thai and Myanmar Buddhist Temple Festival Dress

The temple festival of women, most of Thai and Myanmar Buddhist women wear stand-up collar, spread collar and round neck collar, hip-length blouses with long sleeves or short sleeves with the tube skirts. Thai Buddhist women also wear loincloths and use fabric shoulder flattering, while Myanmar Buddhist women use scarf.



Thai Buddhist Temple Festival Women Dress



Myanmar Buddhist Temple Festival Women Dress

Fig. 9 The comparative of Thai and Myanmar Buddhist Temple Festival Dress

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STUDENTS' ATTITUDES TOWARDS KATAKANA LOANWORDS AND THEIR LEARNING STRATEGIES

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ABSTRACT

With the increase of Katakana loanwords in Japanese, educational issues regarding them among learners of Japanese as a foreign language have arisen. With the assumption that attitudes and language learning strategies are considered as important factors for influencing the success of language learning, attitudes towards Katakana loanwords and learning strategies was investigated among the first year student majoring in Japanese at Suan Sunandha Rajabhat University. Forty one students participated in this study. The quantitative data was collected by means of a questionnaire. The analyses showed evidence of positive attitudes of students towards Katakana loanwords. The result revealed that Katakana loanwords can help students link their meaning in Japanese to their corresponding words in English, so they can access the meaning of Katakana loanwords easier. Japanese academic achievement was also found to be significantly related to the sub-strategy of metacognitive learning: controlling schedules to have time to study and trying to find learning resources beyond the classroom, but there was no significant meaning between students' attitudes towards Katakana loanwords and their learning strategies.

Keywords —attitudes, Katakana loanwords, learning strategies

INTRODUCTION

The work described in this paper is part of a broader research project entitled "Students' Attitudes towards Katakana loanwords and their learning strategies". Student's attitudes has frequently been studied and reported by many scholars as well. Language learning strategies have been considered as a key factor for successful language learning. In learning, students will develop their own learning strategies to make the best of their learning strengths. Sometimes, they may be aware or even not be aware that they are using learning strategies since they do it automatically or naturally.(Bilash,2009). For students who make use of learning strategies without being aware of it, if the teacher suggests learning strategies to them, it can help them learn and produce results more effectively. For teachers, understanding which strategies are the most effective for their students, can also support student success in the classroom.

For many decades, it was shown that Thai students prefer to learn Japanese as a foreign language. Japanese classes are available in many universities in Thailand, and at Suan Sunandha Rajabhat University as well. Japanese introduces thousands of English loanwords (Katakana loanwords) into their language and this has caused difficulty to both Japanese students and Japanese language learners. Katakana words are difficult because usage and pronunciation have changed. They are reshaped as words with Japanese sounds when presented in Katakana (Igarashi, 2007). Despite their links to foreign language words, the word forms used in Japanese are different from the original words. From Daulton's (2004) point of view, Katakana loanwords are a useful source of latent vocabulary and are also a beneficial tool in teaching and learning in the EFL classroom.

Most researchers have discussed the advantages and disadvantages of Katakana loanwords, but little has been done with Thai students who learn Japanese as a foreign Language. Therefore, it is worth studying how students learn and view Katakana loanwords. This research concentrated on finding out students' attitudes towards Katakana loanwords in Japanese. It also examined learning strategies students utilized when studying Katakana loanwords, as well as the relationships between their attitudes and their learning strategies.

LITERATURE & THEORY

The theoretical framework of this study is based on language learning strategies (Oxford, 1990). Oxford discussed the differences between learning styles and learning strategies. Learning styles are the general approaches that students use in learning a new language or any subject (Cornett, 1983). Learning strategies are defined as “specific actions, behaviors, steps, or techniques which students use to enhance their own learning (Scarcella & Oxford, 1992). Learner strategies can be classified into six major groups (Oxford, 1990b) which can be summarized as: 1) cognitive strategies: reasoning, analyzing, summarizing; 2) metacognitive strategies: paying attention, self –monitoring; 3) memory-related strategies: grouping, imagery; 4) compensation strategies: guessing meaning, using synonyms; 5), affective strategies: self-encouragement, anxiety reduction; and 6) social strategies: asking questions, becoming culturally aware. Thus learning strategies are tools for self-direction for learners. The use of appropriate language learning strategies for every student condition gives positive results in overall achievements in specific skill areas. (Thompson and Rubin, 1996).

RELATED WORKS

There has been a great deal of study on the role of “attitude” in second language or foreign language learning. The overall findings indicated that attitudes are involved in students’ English proficiency. (Yang, 2012). In Yang’s study, which was conducted with 20 University of Malaysia Master’s students, showed that “learners who were highly and positively involved in their English proficiency had positive attitudes”.

The relationship between learners' attitudes and learning strategies were studied with 1,201 university students in China by Yin (2008). It was revealed in the study that two sources of influence were the most powerful in relation to the learners' use of language learning strategies were: ability / belief, and motivational orientation, especially orientation toward competition and academic self-efficacy.

Another study presented the attitudes and language learning strategies of second year students majoring in English at 5 Rajabhat Universities in Bangkok. In the study, students were classified into four groups: advanced, intermediate, elementary and foundation, by their grades from their English subjects. The results revealed that students in more advanced groups tended to have highly visual preferences, and those with global-oriented learning styles tended to have highly metacognitive learning strategies (Teeraporn Plailek, 2012). In addition, the advanced group tended to have highly metacognitive learning strategies.

In the study of English Learners’ Attitudes towards Gairaigo, Daulton (2011), examined 113 freshmen at a private mid-level University. The results indicated that students recognized pronunciation discrepancies to be the biggest weakness of loanword cognates. However, it could not determine the relationships between English proficiency and gairaigo (English-based loanwords) attitudes. Daulton (2004) found that as many as 45.5% of the 3000 most-frequent word families in English were found to have correspondences with common Japanese loanwords.

While many researchers focused on students’ attitudes towards English loanwords, Yegt (2014), paid attention to the attitudes towards English loanwords in Dutch news broadcasts: The influences of gender and age. The findings highlighted the fact that female participants have more positive attitudes towards English loanwords than male participants.. The paper further indicated that most participants do not prefer alternative words to the loanwords used, and even more regarding pronunciation.

Although many educators have conducted research on attitudes and language learning strategies, little evidence has been shown about the attitudes and learning strategies of Thai undergraduate students towards Katakana loanwords. This current study was undertaken with the desire to know students’ responses and reactions to Katakana loanwords at the tertiary level.

METHODOLOGY

1. Sample of the Study

The students who participated in the study consisted of 41 freshmen majoring in Japanese, and having English as their minor, at Suan Sunandha Rajabhat University, Thailand. They represented four proficiency levels of Japanese: very high proficiency, high proficiency, intermediate proficiency and low proficiency,

divided by their grades in Foundation Japanese 2. The study was conducted during the last week of second semester in the 2015 academic year.

2. Development of Instruments

A set of questionnaire was used to collect the data of the study. The participants were asked to rate their level of attitudes towards Katakana loanwords using a 5-point Likert scale ranging from Level 1: strongly disagree to Level 5: strongly agree. There were 15 items concerning Katakana loanwords of which 4 items were positive and 11 items were negative. The questionnaire items were selected from the survey instruments used by Daulton (2011) and modified to meet the recent study requirement.

The questionnaire developed by Oxford (1990) which has been widely used by ESL/EFL researchers was used to collect data on learning strategies. This part of the questionnaire consisted of 36 items which were divided into 6 groups. This six groups of learning strategies include 1) memory 2) cognitive 3) compensation 4) meta-cognitive 5) affective, and 6) social strategies. The 5-point Likert scale asked the participants to evaluate 6 items on memory strategy, 5 items on cognitive strategy, 5 items on compensation strategy, 6 items on meta-cognitive strategy, 8 items on affective strategy, and 6 items on social strategy.

3. DATA ANALYSIS

Descriptive statistics, including frequency, means and standard deviations were calculated to identify their attitudes towards Katakana loanwords and the learning strategies of the participants. A One-way ANOVA analysis test was also used to determine the effects of academic Japanese achievement variables on students' attitudes and their learning strategies. To measure the degree of relationships between students' attitudes and their learning strategies, and determine any significant differences, the Pearson r correlation (2-tailed) was used.

RESULTS

1. Students' Attitudes towards English Loanwords and their Learning Strategies

The results of the descriptive analysis shows that the overall mean score of English loanwords attitudes among the participants was 3.49 (SD= 1.18) on the Likert scale, meaning positive attitudes towards Katakana loanwords. That of overall learning strategy usage was 3.65 (SD=.75). The result showed that Katakana loanwords can help students to link the meaning of such words in Japanese to the corresponding words in English or other foreign words (Mean=4.47, S.D=.77), so they can access the meaning of Katakana loanwords easier (Mean=4.27, S.D=.77). It was also revealed that affective strategies (Mean= 3.80, S.D= 3.69) were highly employed while compensation strategies (Mean 3.42, S.D=.69) were moderately used.

Table 1: Descriptive analysis: Overview score of Katakana loanwords attitudes and learning strategy usage

	Mean(S.D)
Help you to link meaning of such word in Japanese to the corresponding words in English or other foreign words	4.47(.77)
Help you to access the meaning of new	4.27(.77)
Overall	3.49(1.18)
Memory	3.51(.75)
Cognitive	3.64(.91)
Compensation	3.42(.69)
Metacognitive	3.76(.73)
Affective	3.80(.69)
Social	3.79(.77)
Overall	3.65(.75)

As far as the group classification is concerned, the result showed that Japanese academic achievement was also found to be significantly related to the sub-strategy of metacognitive learning: controlling schedules to have time to study and trying to find learning resources beyond the classroom, but there was no significant meaning between the students' attitudes towards Katakana loanwords and their learning strategies.

CONCLUSION AND FUTURE WORK

Student Japanese achievement and the use of language strategies are investigated in this study though a significant relationship was not found between students' attitudes and their use of language strategies as Yang (2012) found in his study. Never the less, the study can provide us a way to understand the Katakana learning strategies used by students. As the study revealed Japanese academic achievement was found to be significantly related to the sub-strategy of metacognitive learning: controlling schedules to have time to study and trying to find learning resources beyond the classroom, therefore it will be beneficial for teacher to utilize this strategy in Japanese classes.

Since the current study, there have been a limited number of participants. A future study should have more sample sizes and take other factors such as age, experience of Japanese and English learning into consideration.

ACKNOWLEDGEMENTS

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EFFECT OF NANOCCLAYS CONTENT ON THE BEHAVIOR OF THE THERMOPLASTIC BLENDS

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ABSTRACT

The incorporation of nanoclay into polymers can improve the thermal stability and mechanical properties. This work focuses on the study of thermoplastic nanocomposites based on high density Polyethylene /Polystyrene blends compatibilized with SBS-g-MA and reinforced with nanoclay. All HDPE/PS/SBS-g-MA/nanoclay formulations were prepared by using internal mixer and single screw extruder followed by injection molding. Maleic anhydride styrene-butadiene-styrene (SBS-g-MA) was used as the compatibilizer and the nanoclay content was varied between 0 - 7 weight percent. The mechanical and thermal properties of HDPE/PS nanocomposites were examined.

Keywords: Compatibilization, HDPE/ PS, nanocomposites, nanoclay, polymer blend.

INTRODUCTION

Polymer/nanoclay nanocomposites and nanoblend present unique properties that are not observed in conventional composites. The development of polymer blends has been investigated intensively in recent years because of their commercial growing [1]. However, the immiscible blends often have poor mechanical properties and morphology unstable during the melt processing. The achievement of compatibilization, even by adding a compatibilizer, has played an important role in the development of polymer blends and provides a good solution for needs of industry [2]. The aims of the incorporation of small amounts of nanoclay (<10wt.%) into polymer matrices may improve dimension stability, mechanical, thermal, optical, electrical, gas barrier properties, and decrease the flammability of polymer blends [3]. The presented work in this paper focuses on the study of thermoplastic nanocomposites based on HDPE and PS reinforced by nanoclay. The objective of this work was to evaluate the effect of nanoclay loading on the thermal and mechanical properties of HDPE/PS/SBS-g-MA/nanoclay nanocomposites.

2.1. Specimen preparation

Melt compounding of the HDPE/PS (70/30) blends and nanocomposites were done by a high shear internal mixer and single screw extruder. The extrusion zone temperature ranged from 180 to 190 °C. The product was pelletized with the Haake pelletizer. The pellets were injection molded into standard tensile bars using a Battenfeld injection molding machine.

2.2. Testing

2.2.1. Mechanical properties

a. The tensile test

Tensile properties were determined at room temperature 23°C using a computer controlled Zwick/Roell Z050 tensile testing machine operating at 2 mm/min cross-head speed.

b. The impact test

The impact test was performed using a Zwick / Roell pendulum machine with a free fall of 7.5 J.

2.3.2. Thermal properties

A. Thermogravimetric analysis (TGA)

Thermogravimetric analysis (TGA) were carried out using a TGA50H Thermal Instruments TA Q-50 at a linear heating rate of 10°C/min between 20 to 500°C under air atmosphere. The airflow was 40 ml/min. Samples were measured in a sealed aluminum pan with a mass of about 10 mg.

B. Differential scanning calorimeter (DSC)

Glass transition temperatures were determined using SETRAM SETSYS differential scanning calorimeter. The sweepings were made between 0°C and 600°C at a speed of 10°C / min. Capsules are subjected to a nitrogen flow of 10 ml / min.

Table 1: Designation and composition of samples

Sample designation	Composition	Parts (Phr)
F22	HDPE/PS/SBS-g-MA/nanoclay	65/30/5/0
F22/05	HDPE/PS/SBS-g-MA/nanoclay	65//30/5/0.5
F22/1	HDPE/PS/SBS-g-MA/nanoclay	65//30/5/1
F22/3	HDPE/PS/SBS-g-MA/nanoclay	65//30/5/3
F22/5	HDPE/PS/SBS-g-MA/nanoclay	65//30/5/5
F22/7	HDPE/PS/SBS-g-MA/nanoclay	65//30/5/7

RESULTS AND DISCUSSION

3.1. Thermal properties

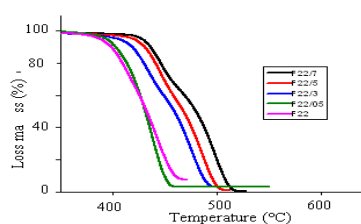
3.1.1. Thermogravimetric analysis

The influence of thermal degradation of polymer/clay nanocomposites can be explained from the following results:

First, the effect of degradation on the viscoelastic behavior is due to the prediction of mechanical properties of reprocessed industrial and post-consumer plastic wastes [4]. Second, the thermal degradation of a polymer is identical to a reduction in its molecular weight that implies the analysis of the time dependent response of nanocomposite melts at various temperatures for various time durations [5].

Table 2: Degradation temperature values results of nanocomposites

Sample designation	Nanoclay Content (Wt. %)	T _d °C	Résidu at 500°C (%)
F22	0	394.590	0.2572
F22/05	0.5	388.598	0.6869
F22/3	3	420.906	2.9030
F22/5	5	426.129	3.3640
F22/7	7	433.390	5.9740

**Fig.1** TGA curves different nanoclay content [%]

The incorporation of nanoclay into the polymer matrix results in a significant improvement in the thermal stability of the nanocomposites. This conclusion is reported elsewhere [6]. The enhancement in the thermal stability of the nanocomposites has been attributed to the decreased permeability of oxygen caused by the exfoliated nanoclay in the polymer matrix. Fig.1 shows a significant increase in thermal stability. The temperature degradation increased by the incorporation of nanoclay which is strongly dependent on the rate and on the state of dispersal of nanoclay within the polymer mixture [7]. The increased thermal stability of nanocomposites might be attributed to the organic-inorganic interaction between the polymer and nanoclay. The temperature of degradation is increased from 394.59 °C to 433.39 °C [8].

3.1.2. Differential calorimetric analysis DSC

Differential scanning calorimetric analysis provides further information concerning intercalation, reaction heat, crystallization and the processing window of the material. The interactions formed in the intercalated chains of the polymer reduce its rotational and translational mobility [9].

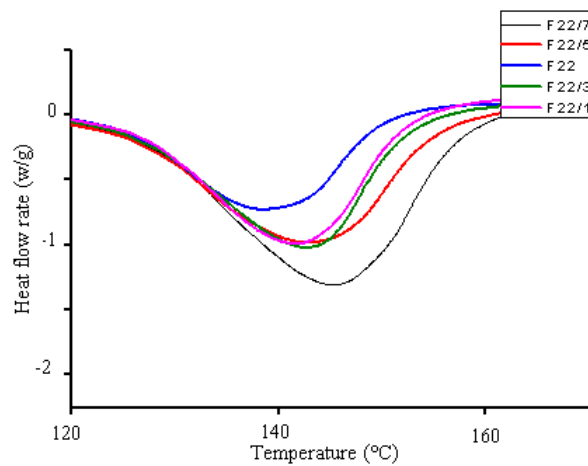


Fig. 2 DSC curves at different rates of nanoclay content

The DSC results are listed in table 3, we observe that the nanoclay addition affects the glass temperature (T_g), this improvement can be allotted to the influence of nanoclay on the mobility of the chains.

Table 3: DSC results of different Formulation

Sample designation	Nanoclay content (Wt.%)	T_g (°C)	Enthalpie (J/g)
F22/0	0	133.305	94.0082
F22/01	0.1	133.777	123.8792
F22/1	1	134.060	124.4528
F22/3	3	134.570	136.2713
F22/5	5	147.771	191.23837

3.2. The effect of nanoclay rate on the mechanical properties of nanocomposites

The nanocomposite has a behavior which remains appreciably constant, but the behavior is more fragile. However if we are interested only in the elastic diet, we note a clear growth of the module of Young with the increase of the mass fraction of nanoclay with regard to the only matrix. The size and the dispersal of the nanoclay are responsible for this increase [10].

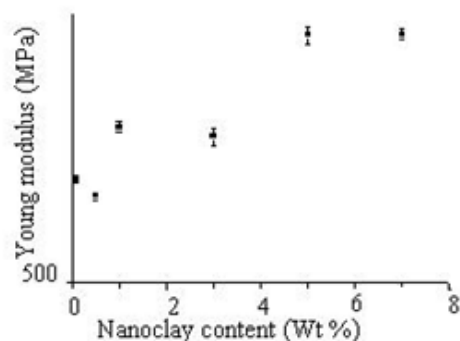


Fig. 3 Modulus as a function of nanoclay content

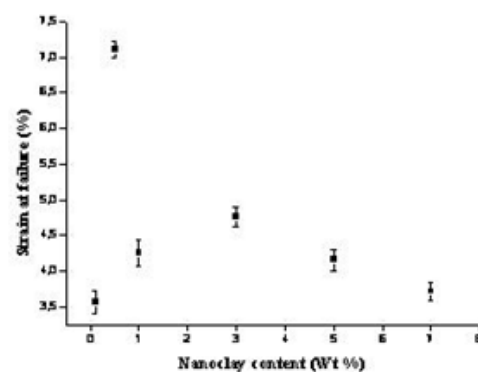


Fig. 4 Strain at failure as a function of nanoclay content

According to the authors, this decrease is due to the urban area (conglomeration) of the particles of nanoclay above a critical rate.

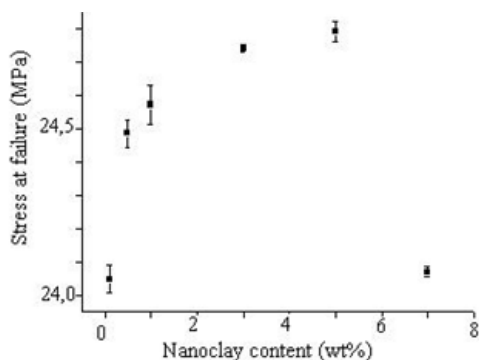


Fig. 5 Stress at break as a function of nanoclay content

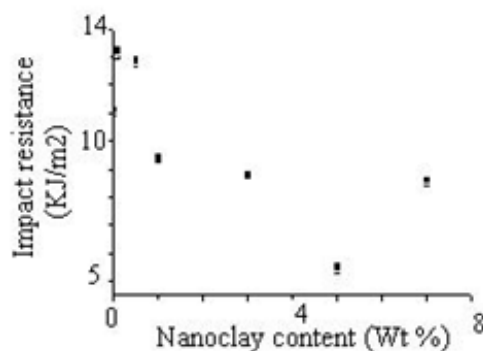


Fig. 6 Impact resistance as a function of nanoclay content

The stress at break increased with the increase of nanoclay content until 5% because the bad distribution of nanoclay in the matrix. The impact resistance decreases with the increase of the rates of nanoclay a similar result was observed [11].

CONCLUSION

This study concerns the behavior of a mixture of HDPE / PS, compatibilized with SBS-g-MA and reinforced by nanoclays; the experimental results allow pulling the following information:

- The introduction of the nanoclay increases the degradation temperature of nanocomposites. This improvement of the thermal stability is strongly dependent on the percentage and on the state of dispersal of the load within the mixture.
 - The presence of nanoclay can increase the temperature of glass transition temperatures.
 - The additions of the particles of nanoclay improve the mechanical properties of nanocomposites.
- After this study, we deduct that from it the best results are obtained at 5% of nanoclay.

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