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DOLLARISATION AND MACROECONOMIC PERFORMANCE: AN EMPIRICAL INVESTIGATION FROM VIETNAM

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Abstract

The paper examines the relationship between dollarisation and economic performance, focusing on the effects of dollarisation on macro variables for the Vietnamese economy. Using the Vector Error Correlation Model (VECM) model, the paper exhibits two key relationships: (1) the relation between the dollarisation of deposits and the monetary variables under the impact of ceiling policy of deposit interest rates, (2) the relation between the dollarisation of loans and economic growth and exports. The paper concludes by offering some recommendations for the control dollarisation in the economy.

Key Words

Dollarization; currency; international trade; macroeconomics.

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INTRODUCTION

Transition economies have attracted a considerable amount of foreign currency through various channels. These sources are essential resources in seeking to boost economic growth. However, these countries have thereby encountered a dollarised economy, which is the phenomenon of currency substitution. The attraction of dollarisation can reduce transaction costs and eliminate exchange rate risk (Dornbusch, 2001; Fischer, 1982; De Grauwe and Polan, 2000). Thereby promoting international trade and global economic integration (Baliño et al., 1999; Edwards, 2001; Gruben and McLeod, 2004); as well as controlling hyperinflation, and thereby mitigating against crises (Goldfajn et al., 2001; Beckerman and Cortés Douglas, 2002; Solimano, 2002; Pasara, 2020).

Nevertheless, dollarisation leads to difficulties concerning the foreign exchange market for the central bank's regulatory procedure of money supply (Yinusa, 2008). Vietnam has had a history of using the US dollar parallel with the Vietnamese currency since the 1960s. In South Vietnam, the US dollar was widely stored and used, and, by contrast, in North Vietnam, the government banned foreign currencies under Decree 102/CP dated July 6, 1963. After the country's reunification in 1975, the Vietnamese economy went through a long period of difficulties and failures in domestic currency and monetary policies.

The outcome was a loss in confidence in the Vietnam Dong, increased gold and foreign currency attractiveness, and complex control of dollarisation. The rate of foreign currency deposit out of M2 was officially announced in 1991 as 41.2% (without globalisation data), and from here, the issue of dollarisation became a concern of researchers Dodsworth (1996); Nguyen (2002); Hauskrecht and Nguyen (2004); Goujon (2006) and Watanabe (2006).

The paper investigates the effects of dollarisation on the real economy with the economic variables of growth, employment, and volatility. According to its supporters, dollarisation will positively affect change through two channels: firstly, dollarisation will result in lower interest rates, higher investment, and faster growth (Dornbusch, 2001). Secondly, by eliminating currency risk, a common currency encourages international trade; this, in turn, results in more rapid growth. In contrast, following a view that goes back at least to Meade (1951), countries with a hard peg – including dollarised countries – will have difficulties accommodating external shocks. This, in turn, will be translated into greater volatility and may even lead to lower economic growth (Parrado and Velasco, 2002, Broda, 2001).

At a general level, dollarisation has been presented to achieve credibility, growth, and prosperity. Following this view, countries that give up their currencies will be unable to engage in macroeconomic mismanagement, with the outcome that their public finances stay in balance and their external accounts move within reasonable bounds. Dollarisation-imposed

macroeconomic stability leads to lower interest rates, higher investment, and superior economic performance. Current arguments favoring dollarisation have gone beyond traditional discussions on optimal currency areas. Indeed, dollarisation proponents have recently argued that giving up the national currency is the right option for the vast majority – if not for all – of the emerging nations.

Most researches on dollarisation in Vietnam focused on analysing and evaluating the status of dollarisation with common theories, including (i) replacing assets with assets in foreign currencies and (ii) replacing currency positions in various economic sectors, households, businesses, and commercial banks. The question then becomes: How to limit this phenomenon to an acceptable level while exploiting the positive effects of dollarisation? In Vietnam's socio-economy, the reality of dollarisation has increased due to the complicated developments of the past years.

Therefore, a concern must be how this will impact the stability and economic growth in the integration process in the Vietnamese economy. Determining the relationship between dollarisation and macroeconomic indicators represents a necessary research direction aimed at optimizing the situation in the economy.

The remains of the paper are organised as follows. Section 2 presents a literature review of the phenomenon of dollarisation. Section 3 presents an analysis of how dollarisation affects economic performance. Section 4 presents the results of our investigation, and Section 5 provides some concluding remarks.

THEORETICAL AND LITERATURE REVIEW

Literature review

The issue of dollarisation has attracted many pieces of research on both the causes and impacts of foreign currency holdings and macroeconomic indicators and management policies. Edwards (2001), Edwards and Magendzo (2003) provide empirical evidence that dollarised economies have lower inflation rates, lower GDP growth rates, and more significant variation in output than economies using local currency. Nicolo et al. (2003) argue that dollarisation directs the financial system of developing countries in the condition of an inflationary economy. Reinhart et al. (2003) demonstrate that dollarisation can partly curb inflation and create currency imbalances in developing countries.

Ize and Yeyati (2003) argue that the only way to limit dollarisation is to discourage the use of the dollar and increase the attractiveness of the local currency. Neanidis and Savva (2009) used monthly data for 11 transitional economies in Central and Eastern Europe (Armenia, Bulgaria, the Czech Republic, Estonia, Georgia, Kyrgyz, Lativia, Poland, Romania, Russia and Ukraine) to reveal the influence of the interest rate differential between local and foreign currencies. Kamin and Ericsson (2003) for Argentina,

Clements and Schwartz (1993) for Bolivia; and Mueller (1994) for Lebanon, provide empirical evidence that the need to hold foreign currency will be higher when inflation is high and prolonged.

In addition, Menon (2007) states that for transition economies in Southeast Asia such as Cambodia, Laos and Vietnam, dollarisation is a "symptom" of macroeconomic instability, political instability, an underdeveloped monetary and financial system, and a lax legal system on foreign exchange management. Carranza et al. (2009), using data from 124 countries (including Vietnam), analyse empirically the exchange rate pass-through mechanism in economically affected economies and find that the higher the level of dollarisation, the greater the pass-through effect of exchange rate fluctuations on inflation.

However, the focus of this study is the transmission mechanism of the exchange rate in dollarized economies. Musoke (2017) used a GARCH model for Tanzania, concluded that an increase in dollarisation leads to an increase in exchange rate volatility. Brown et al. (2018) use the inflation index (CPI) in 71 regions of Russia and apply the OLS method to examine the relationship between the inflation index and financial dollarisation. Then, the results confirm that higher inflation leads to an increase in deposit dollarisation and a reduction in loan dollarisation. Bannister et al. (2018) analyse panel data following a GMM method on 77 developing countries from 1996 to 2015 to examine the relationship between dollarisation and financial development and determine that dollarisation impedes financial development, leading to slow economic growth in developing countries.

Recently, Tweneboah et al. (2019) examined the macro variables that determine the state of dollarisation in Ghana and, based on an ARDL model with a data set from January 2002 to March 2016, affirm that a low inflation rate and stable exchange rate lead to a reduction in the dollarisation. Edy-Ewoh and Binuyo (2019) provide empirical evidence with data series from 1972 to 2017 showing that dollarisation in Nigeria does not positively impact macroeconomic variables such as lending rates, inflation, unemployment, and GDP growth.

Hauskrecht and Nguyen (2004) use a qualitative analysis method to evaluate the status of the dollarisation in Vietnam based on the ratio of foreign currency deposits to total deposits. The study shows that there are two main drivers of dollarisation in Vietnam: firstly, the loss of credibility of monetary policy due to a very high and unstable inflation rate in the long run, which combined with exchange rate decline, leads to an increase the riskiness of nominal assets in VND; secondly, the level of savings in the form of local currency assets is low and relatively short term. However, this study only assessed the dollarisation of Vietnam from 1988 to 2003. In this period, the Vietnamese economy was standing on the threshold of the World Trade Organization (WTO) and still not yet profoundly integrated into the world economy and even without sources of foreign currency transfers into the country.

Goujon (2006) argues that the Vietnamese economy suffered from

dollarisation in 1991-1999 due to the necessity to control the exchange rate and money supply M2 to control inflation. Nevertheless, this study explains the relationship between inflation and exchange rate fluctuations and the M2 money supply in the economy suffering. It does not focus on the relationship between dollarisation and exchange rate instability. Also, this study shows that countries with a foreign exchange market ineffectively operate on a large scale. The tendency to suffer from dollarisation is higher. The research indicates the government makes an appreciation changes in Vietnam in implementing the Foreign Exchange Law in the period 1996-2005.

Nguyen (2002), using the method of integrated research and analysis, synthesizes the dollarisation picture in Vietnam in the period 1991-2001, pointing out the main influences such as international trade and financial integration, ineffective coordination between exchange rate policy and interest rate policy.

Most research in this area has been conducted before the WTO 2007 and the global financial crisis of 2008. Moreover, very few articles using econometric models determine the relationship between dollarisation and macroeconomic indicators. Thus, this paper finds out the impact of dollarisation on macro variables using econometric models. To date, most cross-country studies have been restricted to “independent currency unions” and have included very few observations on strictly dollarised countries. More comprehensively, this paper seeks to enlighten the impact of dollarisation on Vietnam’s economic performance.

The relationship between dollarisation and macroeconomic indicators

The relationship between deposit dollarisation and the macro indicators

High inflation increased the interest rate because inflation reduces the purchasing power of the local currency. Then, Vietnamese tend to switch to gold or foreign currencies, this has been confirmed in the researches of Calvo, and Végh Gramont (1992), Clements and Schwartz (1993), Mueller (1994), Kamin and Ericsson (2003), Bahmani-Oskoee and Domac (2003), Yeyati (2006) found out. In contrast, Kurasawa and Marty (2007), Payne (2009), and Kim et al. (2004) argue that the dollarization leads to lower inflation. The reason is that in these countries with a history of instability currencies, they rely on a strong foreign currency with low inflation to control their inflation

For deposit rate and exchange rate, Uncovered Interest Rate Parity (UIP) ($r - r^* = \Delta E$, r interest rate of the local currency, r^* interest rate of the foreign currency, E spot exchange rate, ΔE expected change in the exchange rate) only occurs when two currencies have the same credit rating. In the case of countries with weak currencies, the trade balance is often in deficit, leading to abnormal exchange rate fluctuations, especially after exchange rate shocks.

Thus, deposits dollarisation has a positive relationship with exchange rate fluctuations. This result has been proved by Girton and Roper (1981), Corrado (2008), Akçay et al. (1997), Bahmani-Oskoee, Domac (2003), Lay et al. (2012), Oomes (2003), Honohan (2007). In addition, Yeyati and Ize (2005) indicated a positive relationship between deposit dollarisation and exchange rate volatility in a stable environment when inflation is controlled at a low level for the developing countries.

Regarding the interest rate, Oomes (2003) demonstrated that the current exchange rate is stable, the expected interest rate of the domestic currency may decrease, making foreign currencies more attractive. Bofinger et al. (2001), Vetlov (2001), Civcir (2005), Yeyati (2006), Kessy (2011), Lay et al. (2012) provided the evidence on this relationship, the result that the deposit dollarisation has a positive relationship with foreign currency interest rates and negative with domestic currency interest rates.

For deposit dollarization and parallel market profit, Bahmani-Oskooee et al. (2002) presented the positive correlation between parallel market profit and depost dollarization in 27 developing countries. The result is similar to the studies from Reinhart and Rogoff (2004) and Bahmani-Oskooee and Tanku (2006).

The relationship between loan dollarisation and macroeconomic indicators

Regarding loan dollarisation and exchange rate, According to the law of interest rate parity, the foreign currency borrowers have to pay $r^*+\Delta E$ while local currency borrowers only cost r. Therefore, if the exchange rate fluctuates continuously, foreign currency borrowers will be at risk and vice versa. It can be said that the exchange rate is a factor that has a negative impact on the decision to borrow foreign currency. This is confirmed by the research result of Barajas and Morales (2003), Luca and Petrova (2008), Rosenberg and Tirpák (2008), Neanidis and Savva (2009), Steiner (2012). In addition, Basso et al. (2007) found that in the short run, loan dollarisation is more likely to cause exchange rate shocks than in the long run.

Loan dollarisation and interest rate, the countries with weak currencies had higher domestic interest rate (r) than the foreign currency interest rate (r^*). In this case, if the financial market is perfect, investors will borrow foreign currency, invest domestically to enjoy profits, thereby increasing loan dollarisation. Barajas and Morales (2003) show an important factor promoting the loans dollarisation is the difference in interest rates between domestic and foreign currencies. This is also the same finding of Basso et al. (2007, 2011), Rosenberg and Tirpak (2008), Brown and De Haas (2010).

Loan dollarisation and deposit dollarisation have the same direction because the commercial banks must balance to avoid currency deviations to ensure liquidity and making profits from foreign currency trading. The relationship between loan dollarisation and deposit dollarisation is found a lot in the studies: Yeyati and Ize (2005), Basso et al. (2007), Brown et al.

(2011), Luca and Petrova (2008), Neanidis and Savva (2009), Rosenberg and Tirpák (2008), Steiner (2012).

The connection between loan dollarisation and export, Dalgic's study (2018) provided evidence that most large firms with foreign currency revenues borrow in foreign currencies in emerging economies. Alp and Yalcin (2015) and Dalgic (2018) prove that foreign currency borrowing has a positive impact on the export growth of firms.

METHODOLOGY

VECM model

The paper chooses the Vector Error Correlation Model (VECM) because all the variables included are macroeconomic indicators with time-series data that are often correlated. Furthermore, VECM is useful in studying the relationships from the previous period that have affected the demand for foreign currency holding of individuals. Moreover, many previous studies use the VECM model to measure the relationship between dollarisation and macroeconomic variables. Studies on deposit dollarisation are from Vetlov (2001), Civcir (2005), Kessy (2011), Mengesha and Holmes (2015), Krupkina and Ponomarenko (2017), Fabris and Vujanović (2017). The studies on loan dollarisation are Arteta (2005), Luca and Petrova (2008), Rosenberg and Tirpák (2008), Neanidis and Savva (2009), Zettelmeyer et al. (2010). Besides, VAR/VECM models are applied to solve the exogenous and endogenous variables. This method is suitable for available data series from general to specific econometric models, simple in use, and high reliability.

The VECM (Vector Error Correlation Model) model proposed by Johansen and Juselius (1990) and Johansen (1995) is used in the case that the data series is non-stationary at the original order I(0), stops at the order difference I(1) and contains a cointegration relationship. In fact, VECM is a general form of VAR model, using Error Correlation Model (ECM) method. The overall regression equation for the time series Y_t and X_t has the following form (t is time):

$$Y_t = \beta_0 + \beta_1 X_t + u_t \tag{1}$$

and, thus,

$$u_t = Y_t - \beta_0 - \beta_1 X_t \tag{2}$$

If Y_t and X_t are time series that do not stop at the origin I(0) and stop at the first difference I(1), the remainder from (2) is also stationary. It contains r cointegration relationships, then the model VECM form:

$$\Delta Y_t = \alpha_0 + \alpha_1 \Delta X_t - \varphi u_{t-1} + \varepsilon_t \tag{3}$$

Here Δ is the first difference 1; α_1 is the short-run effect that measures the direct effect when a change in X_t will change Y_t; φ is the adjustment effect representing how much of the imbalance will be properly corrected; ε_t error; u_{t-1} is one-stage delay value of the error correction term (error correction term - ECT), $u_{t-1} = Y_{t-1} - \beta_0 - \beta_1 X_{t-1}$ (β_1 indicates the long-term effect of X_t *on* Y_t).

Methodology for deposit dollarisation

Data

Data for the study were collected monthly from January 2008 to December 2017 from reliable sources such as the State Bank of Vietnam (SBV), the International Monetary Fund (IMF), and the State Bank of Vietnam. The study selects this period because of the period (from 2008 to 2017) when Vietnam's economy is heavily affected after joining the WTO and the 2008 global financial crisis. Moreover, deposit dollarisation in Vietnam has decreased sharply since the State Bank applied the policy of ceiling deposit dollarisation. The selected variables are as follows:

- Deposit Dollarisation (DDI): the two general indicators that researchers used to measure the deposit dollarisation status in the economy are: the rate of deposits in foreign currencies in total deposits (DDI) and the rate of deposits in foreign currency in money supply (M2 DDI). The study uses the ratio of deposits in foreign currencies to total deposits (DDI). In the Vietnamese economy, the number of foreign currencies is statistically recorded in the form of deposits in the commercial banking system. Besides that, the foreign currency also exits considerably as the cash holding, but for which there have no accurate statistics for measuring M2 DDI.
- Inflation: is measured by the consumer price index, CPI. The higher the inflation rate, the more the devaluation of the domestic currency, and the more the tendency to change to holding foreign currencies.
- USD/VND exchange rate (ER): reflecting the increase or decrease in the value of VND against the USD, is a signaling tool to regulate the exchange rate policy and monetary policy of the SBV. The exchange rate used in the model is the official rate (from January 1, 2016, the central rate) announced by the SBV.
- Deposit interest rate VND (R_VND) and deposit interest rate USD (R_USD) are two crucial variables measuring the return when holding VND or USD, showing the attractiveness of that type of asset in the investment portfolio. These are two variables that directly affect the deposit dollarization status.
- Parallel market profit (PERF): is the percentage difference between the selling rate of USD/VND on the free market (ER_F) and the official bank (ER_C selling rate of commercial banks). Unofficial payments coexist with the authorized bank with higher regular exchange rates. Therefore, this is a factor affecting people's decisions to hold foreign currency:

$$PERT = \frac{ER_F - ER_C}{ER_C} \times 100\%$$

- Foreign Exchange Reserve (RES): reflects the government's ability to intervene to keep the foreign exchange market stable and are a measure of public confidence in macroeconomic stability and the value of the VND.
- The distance between the ceiling rate of the interest rate (DIF_CE): is the difference between the ceiling deposit of the interest rate of the domestic currency (R^{ce}_{VND}) and the ceiling deposit of the interest rate of the foreign currency (R^{ce}_{USD}). This variable reflects the limit of nominal profit of domestic currency against foreign currency. It simultaneously transmits a signal to regulate the monetary policy of the SBV in a certain period. R^{ce}_{VND} applied by the SBV from April 2011, thus, in the period from January, 2008 to March, 2011, the study uses the US dollar deposit interest rate with a term of less than 6 months by commercial banks as the ceiling deposit for foreign currency interest rates:

$$DIF_CE = R^{ce}_{VND} - R^{ce}_{USD}$$

The variables of deposit dollarisation (DDI), foreign exchange reserves (RES_t), the exchange rate (ER_t), and inflation (CPI_t) are trend variables without standard division, for which the right deviation is very high. The study converts to the natural logarithmic base to reduce the right-*skew* and approximate a normal distribution.

Model for deposit dollarization

The State Bank has applied the policy of ceiling interest rate since 2008 until now; divided into 2 phases: from January 2008 to March 2011 – using the ceiling of VND; from April 2011 to present – applied on both VND and USD. The purpose of the article is to find out the relationship between dollarization and macro variables in-ceiling deposit interest rate policy. Therefore, the study selects the data series starting from January 1/. 2008 to December 2017 and divided model (4) into 2 phases to assess the role of the operating mechanism with a ceiling of VND (from January 2008 to March 2011 – referred to as phases 1) compared with the working mechanism of ceilings on both VND and USD interest rates (from April 2011 to present - referred as phases 2).

The VECM model is used to determine the relationship between the deposit dollarization and macroeconomic variables:

$$Y_t = [DDI_t, RES_t, DIF_CE_t, PERF_t, R_USD_t, R_VND_t, ER_t, CPI_t] \quad (4)$$

Methodology for loan dollarization

Data

The SBV and the IMF publish the official data on foreign currency loans by year (from 2015 to 2017, IFM statistics every six months). Therefore, the research period has been extended from 1992 to 2017. The data is collected from the SBV and the IMF to get a larger sample. In addition, in 1992 Vietnam officially opened the economy and entered the world economy. The selected variables are defined as follows:

- Loan dollarisation (LDI): is the rate of credit in foreign currency (FCL) in the total credit of commercial banks (TL)
- Deposit Dollarisation (DDI): is the rate of deposits in foreign currencies (FCD) in the total deposits of commercial banks (TD)
- Payable cost difference (IRD): is the difference in the cost of paying when borrowing VND versus borrowing USD. This ratio is calculated as follows:

$$\mathrm{IRD} = \mathrm{LSCV}_{\mathrm{vnd}} - \mathrm{LSCV}_{\mathrm{usd}} - \Delta\mathrm{ER}$$

$\mathrm{LSCV}_{\mathrm{vnd}}$ is a short-term lending rate of commercial banks

$\mathrm{LSCV}_{\mathrm{usd}}$: Short-term USD lending interest rate of commercial banks

$\Delta\mathrm{ER}$: USD / VND exchange rate fluctuations of the SBV:

$$\Delta\mathrm{ER} = \frac{\mathrm{ER}_{\mathrm{t}} - \mathrm{ER}_{\mathrm{t-1}}}{\mathrm{ER}_{\mathrm{t-1}}} \times 100$$

- GDP economic growth: GDP growth index (%)
- Export (EX): USD Export Price Indexes are calculated in U.S. dollar terms

The variables take a natural logarithm (except for the variable IRDt because this variable has a negative number period) to ensure stability.

Model for loan dollarisation

Previous studies using the VECM model find a relationship between loan volatility status and macroeconomic variables (Arteta, 2005; Luca and Petrova, 2008; Rosenberg and Tirpák, 2008; Neanidis and Savva, 2009; Zettelmeyer et al., 2010). Therefore, the model is applied to determine the relationship between the status of loan dollarization and macroeconomic variables:

$$Y_t = [LDI_t, GDP_t, DDI_t, EX_t, IRD_t] \qquad (5)$$

FINDINGS

In this part, we used the VECM estimation model (4) and (5) with the following sequence (model (4) estimation in two stages): (1) Checking the VECM estimation conditions, including (i) Testing the stationarity of the data series, (ii) Choosing the optimal delay based on the reduced VAR model estimation results, (iii) Testing the optimal lagged cointegration relationship by Johanson method, (iv) (1) Test to remove the variable; (2) Estimating the VECM model; (3) The residual test of VECM includes: (i) Normal distribution of residuals, (ii) Series correlation of residuals, (iii) Overall stability of the model to ensure reliable estimation results; (4) Analysis of VECM estimation results.

Deposit dollarization

Verify the VECM estimation conditions

Stationary test

We use Augmented Dickey Fuller (ADF for one unit root and Phillips - Person (PP)) method for a unit root to detect the stationarity in time series data. The results of the Table 1 test show that all variables do not stop at the original order I(0), but all stop at the first difference I(1) with the significance level of 1% and 5%.

Table 1: Results of detecting the stationarity and variance of DDI model data

Variable	t-statistic				Variable	t-statistic			
	Stage 1		Stage 2			Stage 1		Stage 2	
	ADF test	PP test	ADF test	PP test		ADF test	PP test	ADF test	PP test
$LDDI_t$	0.3511	-0.1413	-2.6336	-2.6336	$D(LDDI_t)$	-3.0673***	-3.2267***	-7.3921***	-7.3101***
$LRES_t$	0.1839	0.1347	-1.4244	-1.8232	$D(LRES_t)$	-5.6380***	-5.6356***	-5.3209***	-5.3354***
DIF_CE_t	-2.2400	-1.8110	-1.9979	-1.8970	$D(DIF_CE_t)$	-3.4221**	-4.4884***	-6.4011***	-6.5780***
$PERF_t$	-1.5683	-1.4601	-3.4367*	-3.5252*	$D(PERF_t)$	-6.2268***	-7.1712***	-9.3335***	-9.3635***
R_USD_t	-0.7487	-0.4014	-1.9402	-1.9582	$D(R_USD_t)$	-4.6209***	-4.5778***	-9.3220***	-9.3220***
R_VND_t	-0.4546	-0.0387	-0.7678	-1.0767	$D(R_VND_t)$	-3.2798***	-3.2876***	-6.3666***	-6.4520***
LER_t	0.5685	1.2015	0.7874	0.6475	$D(LER_t)$	-6.6845***	-6.7349***	-7.4985***	-7.4844***
$LCPI_t$	0.2996	-1.2903	-0.6122	-1.1598	$D(LCPI_t)$	-3.0557**	-3.0063**	-6.7185***	-12.099***

*, **, *** denote rejection of null hypothesis at the 10%, 5% and 1% level of significance.
Source: Own survey.

Lag Determination

The optimal model lag is selected according to SC standards and based on a consideration of model stability.

Table 2: Lag Determination of DDI model

Lag	LogL	LR	FPE	AIC	SC	HQ
			Stage 1			
0	-30.37291	NA	1.10e-09	2.074211	2.422518	2.197006
1	240.1156	409.3880	1.69e-14	-9.087329	-5.952570*	-7.982179
2	346.0451	114.5184*	2.93e-15*	-11.35379*	-5.432579	-9.266286*
			Stage 2			
0	372.1353	NA	9.52e-15	-9.582507	-9.337167	-9.484457
1	1059.037	1211.116	7.30e-22*	-25.97466	-23.76659*	-25.09221*
2	1120.177	94.92775	8.30e-22	-25.89939	-21.72860	-24.23254

Source: Own survey.

Cointegration test

By Johansen's method, the selected research results are passed by both Trace and Maximum Eigenvalue tests: at least 3 cointegrating equations are shown in Table 3.

Table 3: Cointegration test results of DDI model

Stage 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.885037	324.3050	187.4701	0.0000
At most 1 *	0.848635	244.2686	150.5585	0.0000
At most 2 *	0.840989	174.4104	117.7082	0.0000
At most 3 *	0.604208	106.3754	88.80380	0.0015
At most 4 *	0.546829	72.08132	63.87610	0.0087
At most 5	0.397267	42.79638	42.91525	0.0514
At most 6	0.370121	24.06396	25.87211	0.0826
At most 7	0.171510	6.961560	12.51798	0.3486

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.885037	80.03645	56.70519	0.0001
At most 1 *	0.848635	69.85823	50.59985	0.0002
At most 2 *	0.840989	68.03498	44.49720	0.0000
At most 3	0.604208	34.29407	38.33101	0.1355
At most 4	0.546829	29.28494	32.11832	0.1068
At most 5	0.397267	18.73241	25.82321	0.3236
At most 6	0.370121	17.10240	19.38704	0.1041
At most 7	0.171510	6.961560	12.51798	0.3486

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Stage 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.770508	327.0224	187.4701	0.0000
At most 1 *	0.498580	212.2151	150.5585	0.0000
At most 2 *	0.478208	158.3709	117.7082	0.0000
At most 3 *	0.386365	107.6329	88.80380	0.0012
At most 4 *	0.295872	69.54120	63.87610	0.0155

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.770508	114.8073	56.70519	0.0000
At most 1 *	0.498580	53.84424	50.59985	0.0223
At most 2 *	0.478208	50.73797	44.49720	0.0093
At most 3	0.386365	38.09170	38.33101	0.0532
At most 4	0.295872	27.36199	32.11832	0.1707

At most 5	0.203023	42.17920	42.91525	0.0591	At most 5	0.203023	17.70046	25.82321	0.4005
At most 6	0.178074	24.47874	25.87211	0.0738	At most 6	0.178074	15.29621	19.38704	0.1781
At most 7	0.111059	9.182530	12.51798	0.1694	At most 7	0.111059	9.182530	12.51798	0.1694
Trace test indicates 5 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values					Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

Source: Own survey.

Variable elimination test

Variables rejection tests have no long-run impact

With three cointegration equations with long-run relationship coefficient matrix β, the study examines whether each variable has a long-run relationship according to the following model hypotheses:

$$\begin{cases} H_0^{LFCD}: & \beta_{11}=\beta_{12}=\beta_{13}=0 \\ H_0^{LRES}: & \beta_{21}=\beta_{22}=\beta_{23}=0 \\ H_0^{DIF_CE}: & \beta_{31}=\beta_{32}=\beta_{33}=0 \\ H_0^{PERF}: & \beta_{41}=\beta_{42}=\beta_{43}=0 \\ H_0^{R_USD}: & \beta_{51}=\beta_{52}=\beta_{53}=0 \\ H_0^{R_VND}: & \beta_{61}=\beta_{62}=\beta_{63}=0 \\ H_0^{LER}: & \beta_{71}=\beta_{72}=\beta_{73}=0 \\ H_0^{LCPI}: & \beta_{81}=\beta_{82}=\beta_{83}=0 \end{cases}$$

The hypothesis H0 is rejected if the statistic $X^2_{statistic} > X^2_{critical}$ with the degree of freedom = 3 (number of cointegrating equations) or the p-value is < 5%. The testing results of each of the above hypotheses are summarized as follows.

Table 4: The results of the test of variable elimination have no long-run impact on DDI model

	LDDI	LRES	DIF_CE	PERF	R_USD	R_VND	LER	LCPI
Stage1								
Chi-square(3)	13.09***	13.14***	41.71***	37.13***	25.63***	37.06***	29.04***	18.66***
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stage 2								
Chi-square(3)	68.33***	22.37***	18.09***	8.71**	15.62***	14.71***	13.67***	7.84**
Probability	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.04

*, **, *** denote rejection of null hypothesis at the 10%, 5% and 1% level of significance
$X^2_{critical}$ with degree freedom 3 at the 10%, 5% and 1%: 6.251, 7.815, 11.345
Source: Own survey.

The long-run variable rejection test results in Table 4 reveal that no variable was removed in the long-run relationship at the 5% significance level.

Variable elimination test has no short-run impact

Although no variables are removed in the long-run relationship, the findings cannot conclude that there is a short-run effect on the correction to the long-run equilibrium after each stroke. Therefore, determining which variable has no short-term impact or has a very weak effect on the long-run balance in each period is essential to assess the relationship between deposit dollarization status and the macro variables. The study can then compare the impact of the policy of two ceiling interest rates: how to change the position of deposit dollarization compared to the policy of one ceiling interest rate. From the short-term relationship coefficient matrix, α is obtained in the test of three cointegration equations, and the study examines the elimination of variables with no short-term effects established for each specific variable:

$$\begin{cases} H_0^{LFCD}: & \alpha_{11} = \alpha_{12} = \alpha_{13} = 0 \\ H_0^{LRES}: & \alpha_{21} = \alpha_{22} = \alpha_{23} = 0 \\ H_0^{DIF_CE}: & \alpha_{31} = \alpha_{32} = \alpha_{33} = 0 \\ H_0^{PERF}: & \alpha_{41} = \alpha_{42} = \alpha_{43} = 0 \\ H_0^{R_USD}: & \alpha_{51} = \alpha_{52} = \alpha_{53} = 0 \\ H_0^{R_VND}: & \alpha_{61} = \alpha_{62} = \alpha_{63} = 0 \\ H_0^{LER}: & \alpha_{71} = \alpha_{72} = \alpha_{73} = 0 \\ H_0^{LCPI}: & \alpha_{81} = \alpha_{82} = \alpha_{83} = 0 \end{cases}$$

Similar to the long-run variable rejection test, the hypothesis H0 will be rejected if the statistic $X^2_{statistic} > X^2_{critical}$ with the degree of freedom = 3 or the p-value is < 5%. The inspection results are summarized as follows.

Table 5: The results of the test of variable elimination have no short-run impact on DDI model

	LDDI	LRES	DIF_CE	PERF	R_USD	R_VND	LER	LCPI
Satge 1								
Chi-square(3)	6.28*	9.63**	5.19	27.53***	10.84**	21.62***	19.94***	7.69*
Probability	0.09	0.021	0.15	0.00	0.01	0.00	0.00	0.05
Stage 2								
Chi-square(3)	12.23***	11.73***	25.25***	7.63*	74.16***	8.61**	8.53**	11.04**
Probability	0.00	0.00	0.00	0.05	0.00	0.03	0.03	0.01

*, **, *** denote rejection of null hypothesis at the 10%, 5%, and 1% level of significance
$X^2_{critical}$ with degree freedom 3 at the 10%, 5% and 1%: 6.251, 7.815, 11.345
Source: Own survey.

Looking at Table 5, it is clear that, in both periods, the variables are statistically significant at 10%, except for the variable DIF_CE in phase 1 ($X^2_{statistic} = 5.19 < X^2_{critical} = 6.251$). This result shows that, in the short-run, deposit rate ceiling gap in the phase 1 does not affect DDI; in other words, the deposit dollarization is affected by the policy of two ceiling interest rates (VND and USD) more substantial than the policy of one ceiling interest rate in VND.

VECM Estimation

Model (4) has met the conditions for VECM estimation, and the study has estimated and obtained the results of regression, pulse response function, and variance decomposition, precisely:

Regression Results

Table 6 and Table 7 shows only the regression results that are statistically significant in phase 1 and phase 2.

Table 6: Vector Error Correction Estimates of DDI model (Phase 1)

Vector Error Correction Estimates
Sample (adjusted): 2008M03 2011M03
Included observations: 37 after adjustments
Standard errors in ( ) and t-statistics in [ ]

Cointegrating Eq:	CointEq1	CointEq2	CointEq3
LDDI(-1)	1.000000	0.000000	0.000000
LRES(-1)	0.000000	1.000000	0.000000
DIF_CE(-1)	0.000000	0.000000	1.000000
PERF(-1)	0.031611***	-0.089233**	0.671988***
	(0.00916)	(0.01165)	(0.11433)
	[3.45040]	[-7.65844]	[5.87780]
R_USD(-1)	0.234022***	-0.268941**	3.273722***
	(0.03358)	(0.04271)	(0.41906)
	[6.96891]	[-6.29716]	[7.81214]
R_VND(-1)	-0.156490***	0.183494**	-2.344740***
	(0.01734)	(0.02206)	(0.21644)
	[-9.02248]	[8.31840]	[-10.8331]
LER(-1)	-9.173265***	4.380193*	
	(1.80960)	(2.30146)	
	[-5.06922]	[1.90323]	
LCPI(-1)	3.296831**		
	(1.49535)		
	[2.20472]		
@TREND(08M01)	0.040389***		0.368934***
	(0.01081)		(0.13495)
	[3.73474]		[2.73380]
C	71.35708	-42.09609	299.2841

Error Correction:	D(LDDI)	D(LRES)	D(DIF_CE)	D(PERF)	D(R_USD)	D(R_VND)	D(LER)	D(LCPI)
CointEq1		-0.177649*		24.73035***			0.114329***	
		(0.09394)		(5.49243)			(0.03565)	

		[-1.89111]		[4.50263]			[3.20687]	
CointEq2				29.11585***	-2.319055**		-0.051762*	-0.036239**
				(4.57528)	(0.98769)		(0.02970)	(0.01524)
				[6.36373]	[-2.34797]		[-1.74294]	[-2.37790]
CointEq3	-0.013339**		-0.550901**	1.036653**	-0.226107**		-0.012645***	
	(0.00586)		(0.25298)	(0.44735)	(0.09657)		(0.00290)	
	[-2.27596]		[-2.17761]	[2.31733]	[-2.34136]		[-4.35479]	
D(LDDI(-1))	0.395730*						0.255354**	
	(0.22907)						(0.11349)	
	[1.72756]						[2.25001]	
D(LRES(-1))							0.169126*	
							(0.08024)	
							[2.10763]	
D(DIF_CE(-1))		-0.013706*		0.838459*	0.249764**	0.480361***		
		(0.00754)		(0.44067)	(0.09513)	(0.16325)		
		[-1.81852]		[1.90268]	[2.62551]	[2.94243]		
D(PERF(-1))				0.281166*		-0.097608*	0.002184**	
				(0.15147)		(0.05611)	(0.00098)	
				[1.85630]		[-1.73951]	[2.22106]	
D(R_USD(-1))				2.113304**				
				(0.96247)				
				[2.19571]				
D(R_VND(-1))	-0.011327*			1.214964**			-0.012229***	
	(0.00673)			(0.51340)			(0.00333)	
	[-1.69401]			[2.36652]			[-3.66956]	
D(LER(-1))	0.716516**	-1.341521**			11.89107*			
	(0.39646)	(0.51756)			(6.53256)			
	[1.80728]	[-2.59199]			[1.82028]			
D(LCPI(-1))				154.5411***				0.481218***
				(49.6965)				(0.16553)
				[3.10970]				[2.90706]
C				-2.597500				0.005930
				(0.75132)				(0.00250)
				[-3.45725]				[2.36940]
R-squared	0.532933	0.376597	0.442661	0.767438	0.499118	0.755667	0.609222	0.674718
Adj. R-squared	0.327424	0.102299	0.197431	0.665111	0.278729	0.648160	0.437279	0.531593
Sum sq. resids	0.019280	0.032857	35.92181	112.3211	5.234356	15.41532	0.004732	0.001246
S.E. equation	0.027770	0.036253	1.198696	2.119633	0.457574	0.785247	0.013759	0.007060
F-statistic	2.593233	1.372950	1.805088	7.499832	2.264720	7.029032	3.543173	4.714209
Log likelihood	87.35243	77.48976	-51.95362	-73.04394	-16.32076	-36.30293	113.3377	138.0229
Akaike AIC	-4.073104	-3.539987	3.456952	4.596969	1.530852	2.610969	-5.477713	-6.812051
Schwarz SC	-3.550644	-3.017527	3.979412	5.119429	2.053312	3.133429	-4.955253	-6.289591
Mean dependent	0.000620	-0.021189	0.070270	-0.043987	-0.016216	0.136054	0.006880	0.009631

S.D. dependent	0.033862	0.038263	1.338036	3.662772	0.538781	1.323835	0.018341	0.010316

Determinant resid covariance (dof adj.)	1.38E-16
Determinant resid covariance	5.99E-18
Log likelihood	313.6281
Akaike information criterion	-10.30422
Schwarz criterion	-4.949007

Value [ ] is t-statistical; (***),(**), (*) statistical significance level 1%, 5% and 10%
Source: Own survey.

Table 7: Vector Error Correction Estimates of DDI model (Phase 2)

Vector Error Correction Estimates
Sample (adjusted): 2011M07 2017M12
Included observations: 78 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1	CointEq2	CointEq3
LDDI(-1)	1.000000	0.000000	0.000000
LRES(-1)	0.000000	1.000000	0.000000
DIF_CE(-1)	0.000000	0.000000	1.000000
PERF(-1)		0.160766***	-0.302652***
		(0.02896)	(0.08425)
		[5.55116]	[-3.59237]
R_USD(-1)	0.148998***		0.762172***
	(0.01773)		(0.25674)
	[8.40328]		[2.96864]
R_VND(-1)	-0.007682*		-0.863359***
	(0.00443)		(0.06421)
	[-1.73238]		[-13.4456]
LER(-1)	-5.576675***		
	(1.37062)		
	[-4.06872]		
LCPI(-1)		-9.013048***	17.08450**
		(2.44878)	(7.12364)
		[-3.68064]	[2.39828]
@TREND(11M04)	0.021382***		
	(0.00308)		
	[6.95351]		
C	56.09303	83.74925	-102.1323

Error Correction:	D(LDDI)	D(LRES)	D(DIF_CE)	D(PERF)	D(R_USD)	D(R_VND)	D(LER)	D(LCPI)
CointEq1	-0.230712***		5.193282***	4.094139*	-3.738149***	1.936894*	-0.013169*	
	(0.07866)		(1.03380)	(2.42166)	(0.31305)	(1.01701)	(0.00775)	

	[-2.93292]		[5.02351]	[1.69064]	[-11.9412]	[1.90450]	[-1.69820]	
CointEq2		-0.307505***			0.812886***		0.012740***	-0.014659**
		(0.07223)			(0.15096)		(0.00374)	(0.00631)
		[-4.25740]			[5.38493]		[3.40712]	[-2.32262]
CointEq3		-0.082100***			0.405961***		0.004417***	-0.009608***
		(0.02648)			(0.05533)		(0.00137)	(0.00231)
		[-3.10095]			[7.33660]		[3.22246]	[-4.15277]
D(LDDI(-1))					3.284083***	3.902471**		
					(0.57472)	(1.86712)		
					[5.71424]	[2.09010]		
D(LDDI(-2))			-3.613014**		1.964383***			
			(1.72592)		(0.52263)			
			[-2.09338]		[3.75863]			
D(LRES(-1))	-0.194637**	0.322399**						0.039660***
	(0.07418)	(0.14126)						(0.01234)
	[-2.62373]	[2.28238]						[3.21303]
D(LRES(-2))	-0.133764*		-1.908130*	4.041740*		-2.351661**		
	(0.07485)		(0.98368)	(2.30426)		(0.96771)		
	[-1.78710]		[-1.93978]	[1.75403]		[-2.43013]		
D(DIF_CE(-1))					-0.183708**			0.007051*
					(0.08752)			(0.00366)
					[-2.09908]			[1.92679]
D(DIF_CE(-2))								0.006613**
								(0.00328)
								[2.01759]
D(PERF(-1))	0.010207**	0.015068*			-0.043134**			
	(0.00463)	(0.00882)			(0.01843)			
	[2.20367]	[1.70844]			[-2.34000]			
D(PERF(-2))					-0.032818*			
					(0.01820)			
					[-1.80369]			
D(R_USD(-2))			-0.684504**	-2.091646**		-0.686095**		
			(0.34177)	(0.80060)		(0.33623)		
			[-2.00279]	[-2.61259]		[-2.04058]		
D(R_VND(-1))					0.226740***			
					(0.08110)			
					[2.79574]			
D(LER(-1))					-37.85836***			
					(5.81301)			
					[-6.51270]			
D(LER(-2))					-22.96778***			

					(6.11833)			
					[-3.75393]			
D(LCPI(-2))					-4.903740*			-0.357499***
					(2.60436)			(0.10889)
					[-1.88290]			[-3.28311]
C			-0.187825**	-0.479907**	0.113634***		0.001586***	0.003542***
			(0.07981)	(0.18696)	(0.02417)		(0.00060)	(0.00101)
			[-2.35334]	[-2.56691]	[4.70180]		[2.64879]	[3.50561]
R-squared	0.477786	0.540782	0.557150	0.434953	0.771341	0.482058	0.312866	0.530941
Adj. R-squared	0.306716	0.390349	0.412078	0.249852	0.696436	0.312387	0.087771	0.377284
Sum sq. resids	0.027210	0.098657	4.699606	25.78793	0.430934	4.548243	0.000264	0.000753
S.E. equation	0.021660	0.041243	0.284654	0.666798	0.086197	0.280032	0.002135	0.003604
F-statistic	2.792923	3.594830	3.840515	2.349808	10.29753	2.841136	1.389926	3.455358
Log likelihood	199.7967	149.5626	-1.117232	-67.51192	92.06467	0.159538	380.5151	339.6834
Akaike AIC	-4.610172	-3.322118	0.541467	2.243895	-1.847812	0.508730	-9.243977	-8.197009
Schwarz SC	-4.005887	-2.717834	1.145752	2.848180	-1.243528	1.113014	-8.639693	-7.592725
Mean dependent	-0.008472	0.015263	-0.070513	0.011014	-0.038462	-0.118256	0.001082	0.003544
S.D. dependent	0.026013	0.052821	0.371242	0.769876	0.156447	0.337704	0.002236	0.004567

Determinant resid covariance (dof adj.)	1.19E-22
Determinant resid covariance	1.11E-23
Log likelihood	1175.873
Akaike information criterion	-25.35571
Schwarz criterion	-19.70565

Value [ ] is t-statistical; (***),(**), (*) statistical significance level 1%, 5% and 10%
Source: Own survey.

Results of decomposition of variance

The details of the decomposition of variance result are presented in Table 8.

Table 8: Decomposition of variance of DDI

Period	S.E.	LDDI	LRES	DIF_CE	PERF	R_USD	R_VND	LER	LCPI
					Stage 1				
1	0.027770	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	0.125164	76.24983	0.977780	0.814130	8.265729	0.895367	1.903191	0.495861	10.39811
12	0.194637	57.70258	4.680728	0.397342	16.58884	3.265310	4.381352	0.339740	12.64411
18	0.236380	55.86788	5.136346	0.374577	17.33024	3.501780	4.763238	0.277985	12.74795
24	0.273699	54.76843	5.331833	0.347594	17.81935	3.621221	4.940965	0.256544	12.91406
					Stage 2				
1	0.021660	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	0.052690	64.03969	13.03996	6.742469	4.791721	1.580599	3.805531	4.944178	1.055848
12	0.076284	58.08687	8.468995	12.01313	7.053852	0.833253	8.377084	3.550828	1.615985
18	0.098187	54.48493	7.178807	18.11458	5.079157	0.505543	10.15376	2.623592	1.859640

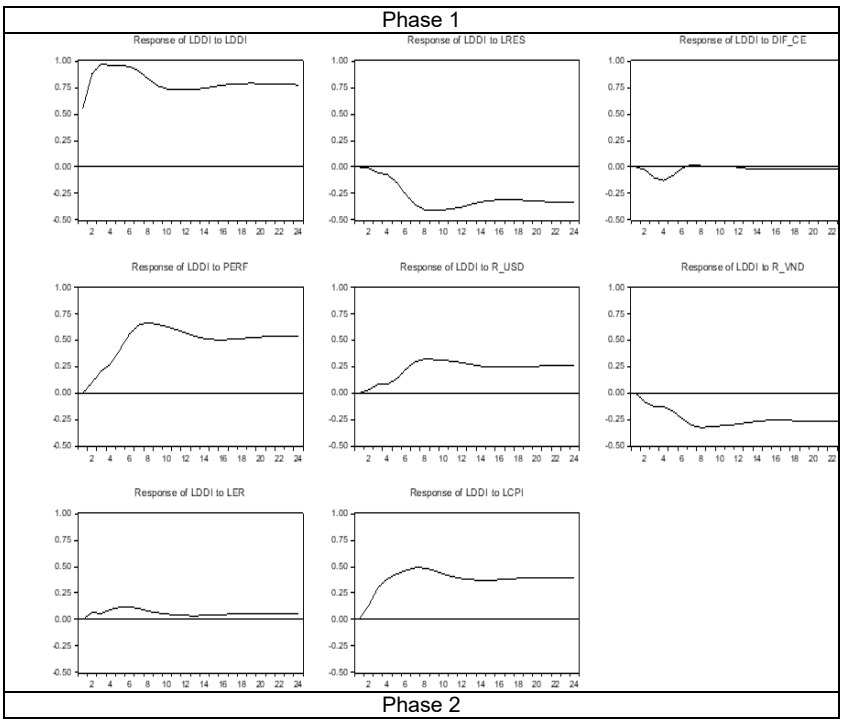
24	0.118687	51.15597	6.100142	22.88908	3.850554	0.378118	11.52954	2.033982	2.062618

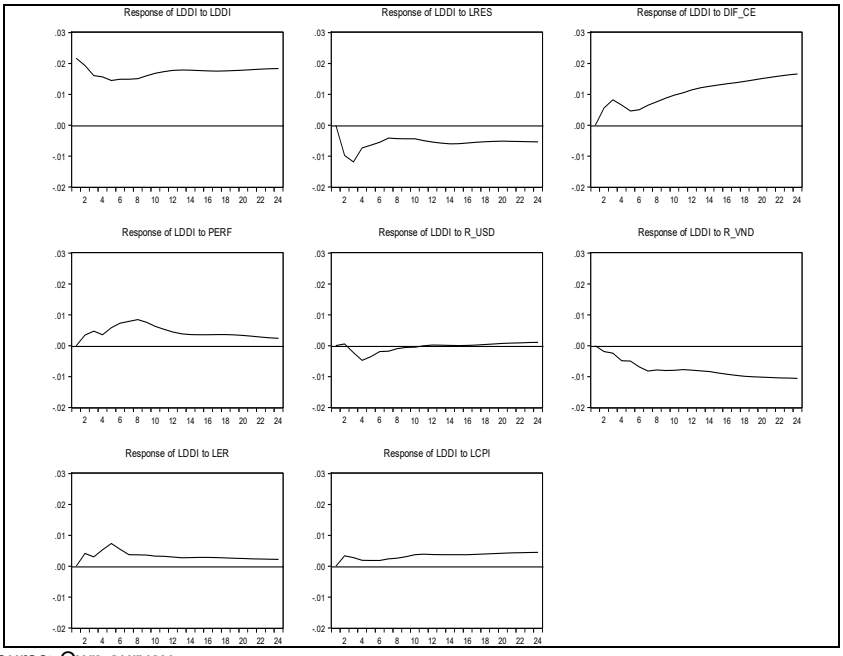
Source: Own survey.

Impulse response function results

Impulse response function results of deposits dollarization before shock 1% of variables as Figure 1.

Figure 1: Response of deposits dollarization before shock 1% of variables





Source: Own survey.

VECM residue test

The VECM's residual verification was tested. The Portmanteau and LM test results show that the residue of the VECM has no auto-correlation. The White test indicates that there is no variance of variance and that the characteristic solutions are in a single circle indicating that the model is stable (details in Table 9).

Table 9: VECM residual tests of DDI model

Stage 1						**Stage 2**					
VEC Residual Portmanteau Tests for Autocorrelations						VEC Residual Portmanteau Tests for Autocorrelations					
Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df	Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	45.50295	NA*	46.76692	NA*	NA*	1	19.86510	NA*	20.12309	NA*	NA*
2	98.22657	0.7160	102.5033	0.6049	107	2	50.40402	NA*	51.46567	NA*	NA*
3	146.6941	0.9108	155.2474	0.8004	171	3	119.5224	0.1922	123.3487	0.1334	107
4	209.1341	0.8866	225.2559	0.6646	235	4	195.0457	0.1004	202.9544	0.0478	171
5	248.9899	0.9840	271.3392	0.8730	299	5	242.4517	0.3554	253.6074	0.1929	235
6	303.7962	0.9894	336.7532	0.8349	363	6	303.4849	0.4169	319.7267	0.1960	299
7	365.8395	0.9853	413.2732	0.6744	427	7	368.4705	0.4103	391.1194	0.1486	363
8	429.9724	0.9779	495.0980	0.4397	491	8	428.7255	0.4674	458.2606	0.1429	427
9	478.9580	0.9912	559.8289	0.4347	555	9	485.2073	0.5652	522.1096	0.1602	491
10	524.2777	0.9976	621.9337	0.4593	619	10	555.8367	0.4820	603.1256	0.0771	555
11	572.5260	0.9992	690.5947	0.4119	683	11	597.3383	0.7271	651.4410	0.1774	619
12	619.3715	0.9998	759.9260	0.3633	747	12	661.2548	0.7179	726.9787	0.1184	683
*The test is valid only for lags larger than the VAR lag order. df is degrees of freedom for (approximate)						*The test is valid only for lags larger than the VAR lag order. df is degrees of freedom for (approximate) chi-					

chi-square distribution

VEC Residual Serial Correlation LM Tests

Lags	LM-Stat	Prob
1	59.16094	0.6479
2	61.53095	0.5643
3	47.40582	0.9402
4	76.04845	0.1440
5	42.66743	0.9816
6	60.68048	0.5946
7	91.10607	0.0146
8	83.32281	0.0528
9	58.36486	0.6751
10	68.59161	0.3245
11	51.65381	0.8666
12	60.24077	0.6102

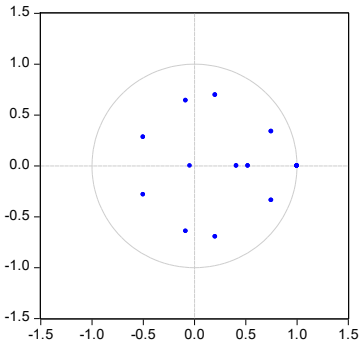
Probs from chi-square with 64 df.

VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Joint test:

Chi-sq	df	Prob.
814.0000	792	0.2862

Inverse Roots of AR Characteristic Polynomial



square distribution

VEC Residual Serial Correlation LM Tests

Lags	LM-Stat	Prob
1	65.92945	0.4099
2	82.36621	0.0609
3	80.76247	0.0768
4	73.93012	0.1856
5	44.42497	0.9704
6	64.90730	0.4448
7	65.89190	0.4112
8	59.12782	0.6490
9	62.53141	0.5286
10	79.25844	0.0947
11	39.69445	0.9927
12	69.72775	0.2910

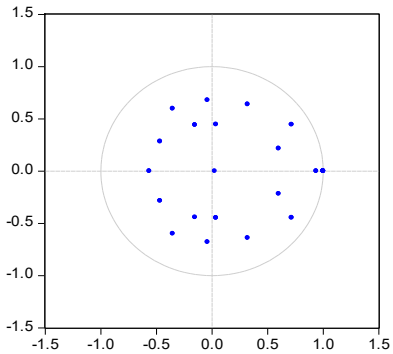
Probs from chi-square with 64 df.

VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Joint test:

Chi-sq	df	Prob.
1344.175	1368	0.6720

Inverse Roots of AR Characteristic Polynomial



Source: Own survey.

VECM estimation's discussion

Factors affecting the status of deposit dollarization in phase 1 and phase 2 are determined through the estimation results of the VECM model, pulse response function, and variance decomposition of the model. The study determined the following outcomes.

First - for foreign exchange reserves (RES)

In both phases, the foreign exchange reserves play a considerable role in reducing the status of dollarization deposits. In Phase 2, the impact of RES on DDI is more clearly revealed through the estimated coefficients (Table 6 and Table 7), which are statistically significant at the 5% level. At the same time, the reaction of DDI after the shock of 1% RES in Figure 1 (Phase 1, column number two, row number one) shows that phase 1 takes 9 months for foreign exchange reserve to fully affect while Phase 2 takes only 3

months (Phase 2, column number two, row number one). This indicates that the larger the foreign exchange reserves, the faster and stronger the ability to intervene to stabilize the foreign exchange market, creating public confidence in the VND value and macroeconomic stability.

Secondly - for operating interest rate ceiling gap (DIF_CE)

Phase 1, DIF_CE either did not impact or had only a very weak impact on DDI, so that the estimated coefficient was not statistically significant (Table 6), while in phase 2, this variable significantly reduced DDI (Table 7). This indicates that the two-ceiling policy of deposit rate VND and USD effectively limits the status of dollarization deposit and is more significant than the policy of a one-ceiling deposit rate VND.

The effect of the double ceiling interest rate policy on deposit guarantee status is clearly seen through the results of the cumulative reaction of DDI due to the shock of DIF_CE which has opposite manifestations in two phases in Figure 1 (Phase 1 and Phase 2, column number three, row number one). Phase 1, the interest rate ceiling only applies to VND to prevent the deposit interest rates of commercial banks in the context of tight monetary policy to prevent inflation and exchange rate fluctuation, while R_VND is always in a close position. This shock of DIF_CE depends on the change of R_USD. When R_USD increases, DIF_CE decreases, and DDI increases as people tend to switch to hold foreign currencies. Inference in the opposite direction can be explained as in Figure 1 (Phase 1, column number three, row number one).

The reaction of the DDI has the opposite effect in the period when the SBV applies two ceilings R_{VND}^{ce} and R_{USD}^{ce}, especially R_{USD}^{ce} = 0%, so DIF_CE is completely dependent on R_{VND}^{ce}. In theory, for R_{VND}^{ce}, a downward trend should stimulate investment and promote growth On the other hand, R_{VND}^{ce} will increase only in the case of economic instability. In this case, it becomes necessary to use a tighter monetary policy to control inflation.

Thus, DIF_CE increases when the economy is unstable or inflation increases, leading to the tendency to switch to holding foreign currencies to avoid inflation, preserve the value of assets, and increase the dollarization of deposits in the economy (Figure 1, Phase 2, column number three, row number one). In recent years, especially from the beginning of 2016 up to the present, the macroeconomy has been stable, the exchange rate has been less volatile, and inflation has been low, R_{USD}^{ce} =0%, R_{VND}^{ce} deep decrease, as compared to the beginning of the ceiling deposit rate policy, since when the dollarization of deposits has dropped to a very low level.

The cumulative reaction of DDI due to the DIF_CE shock in Figure 1 also shows that DIF_CE has a positive effect with DDI during the period of stable exchange rate and low inflation, ie DIF_CE > ΔER + CPI (phase 2).

Otherwise, DDI has mixed reactions. It indicates that in the R_{USD}^{ce} =0%, R_{VND}^{ce} >ΔER + CPI, DDI will drop.

Besides, the decomposition of variance results in Table 8 clarifies the ceiling interest rate policy's role in the status of dollarization of deposits. Before April of 2011, the gap of ceiling deposit rate does not explain the evolution of the dollarization deposit, but after April of 2011, the gap of ceiling interest rate is one of the vital determinants (after values of DDI in the past) to the evolution of deposit dollarization.

Thirdly - for parallel market returns (PERF)

The results in Table 7 show that parallel market profits impact the status of deposit dollarization. The impulse response function of DDI due to the PERF shock in Figure 1 shows that, in both phases, DDI increases after the PERF shock, reaching the highest level in the 8th month, then decreasing gradually to reach equilibrium in different levels.

This result correctly reflects that the high rate of training is due to the existence of an informal foreign currency market. Because of the convenience, simple transactions, no cumbersome procedures, and the ability to fully respond, when there is a demand for foreign currencies, individuals and businesses still have a preference for trading on this market. Therefore, they are willing to accept transactions at a higher rate than commercial banks, making the rate on unofficial payment centers always higher than official payment centers. Therefore, when this difference increases, the psychology is that the holding of foreign currencies is expected to be more profitable from this market.

The role of parallel market profit in explaining the evolution of deposit dollarization status also differs between the two phases. Table 8 shows that in the first stage (except for past values of DDI), the PERF fluctuation is the leading determinant of DDI's evolution; but in stage 2, the PERF's role is significantly reduced in explaining the DDI's volatility. This shows the holding of foreign currency due to the expectation of gaining profits from unofficial financial markets, although remaining, has been much reduced, indicating that the exchange rate difference between the two markets has gradually narrowed, denoting an initial success in the SBV's exchange rate management mechanism, especially the flexible central rate each day, as it closely follows the market rate.

Fourthly - for foreign currency deposit rate (R_USD)

In theory, the interest rate of a foreign currency indicates the return earned from holding that currency, so that R_USD should have a positive impact on DDI. Figure 1 (Phase 1 and 2, column number two, row number one) shows that a 1% shock of R_USD causes the DDI to increase, following two distinctly different reactions. Before April 2011, the DDI increased rapidly, reaching the highest level of 1.42% after 8 months.

After the SBV applied the policy R_{USD}^{ce}, the very weak DDI increased 0.06% in the second month, then decreased to 0.47% in the 4th month, and gradually increased before reaching a new balance after 11 months. The results of the variance decomposition in table 8 provide clear evidence of the difference in the impact of R_USD on the evolution of DDI in the two periods. When the SBV started to apply the ceiling interest rate for USD, the R_USD only explained about 1% of DDI movements after 12 months.

Fifthly - for domestic currency deposit rate (R_VND)

The cumulative response of DDI in Figure 1 shows that aftershock increases of 1% R_VND, in general, in both phases, DDI has the lowest decrease of about 0.1% after 7 months before reaching a new equilibrium. However, the decisive role of DDI evolution in the stage after April 2011 has increased significantly compared to the previous stage through the decomposition of variance in Table 8.

Sixthly - for the exchange rate (ER) and inflation (CPI)

Similar to previous studies such as Vegh and Sahay (1995), Basso et al. (2007), Kamin and Ericsson (2003), Clements and Schwartz (1993), Mueller (1994), Catão and Terrones (2016), the model provides additional evidence of the positive effects of exchange rates and inflation on deposit dollarization status based on impulse response function results (Figure 1). In addition, the results of the decomposition of variance in Table 8 reveal the decisive role changes in deposit dollarization status situation of inflation and exchange rate. This result once again confirms the problem: in order to restore confidence in VND and to limit the status deposits in foreign currencies, the exchange rate must be kept stable and inflation controlled at a low level.

Loan dollarization

Verify the VECM estimation conditions

The study conducted a stationary test, determining delay and cointegration testing of the time series data of model (5). The results are summarized in Table 10.

Table 10: Results of VECM estimation conditions of LDI model

<table>
<tr><th>Item</th><th>Details</th></tr>
<tr><td>I</td><td>
Results of detecting the stationarity and variance of LDI model data
<table>
<tr><th rowspan="2">Variable</th><th colspan="2">Statistical value t</th><th rowspan="2">Variable</th><th colspan="2">Statistical value t</th></tr>
<tr><th>ADF test</th><th>PP test</th><th>ADF test</th><th>PP test</th></tr>
</table>
</td></tr>
</table>

$LLDI_t$	0.848273	0.536896	$D(LLDI_t)$	-3.495372**	-3.436475**
$LGDP_t$	-2.524268	-2.218291	$D(LGDP_t)$	-4.464323***	-4.518549***
$LDDI_t$	0.927885	0.927885	$D(LDDI_t)$	-4.601406**	-4.601499***
IRD_t	-1.177460	-2.113680**	$D(IRD_t)$	-3.832400***	-7.392106***
LEX_t	-1.764633	-1.807598	$D(LEX_t)$	-4.141977***	-4.173269***

II

Lag Determination

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-72.68135	NA	0.000446	6.473446	6.718873	6.538558
1	52.48667	187.7520*	1.12e-07	-1.873889	-0.401322*	-1.483217
2	86.46901	36.81419	7.22e-08*	-2.622417*	0.077290	-1.906184*

III

Cointegration test results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.950140	127.6620	69.81889	0.0000
At most 1 *	0.665829	55.69685	47.85613	0.0077
At most 2	0.583993	29.39041	29.79707	0.0556
At most 3	0.291750	8.341160	15.49471	0.4297
At most 4	0.002587	0.062173	3.841466	0.8031

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.950140	71.96510	33.87687	0.0000
At most 1	0.665829	26.30644	27.58434	0.0721
At most 2	0.583993	21.04925	21.13162	0.0513
At most 3	0.291750	8.278987	14.26460	0.3510
At most 4	0.002587	0.062173	3.841466	0.8031

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Own survey.

VECM estimations

The estimation results of the cointegration equation in Table 11 show that loan dollarization status, in the long run, is inversely related to economic growth, the same relationship with deposit dollarization and payable cost difference at the 1% significance level; export and loan dollarization have no long-term relationship.

Considering the short-term relationship from Table 11 shows that the status of loan dollarization affects export value but has no impact or has only a very weak effect on economic growth (the estimated coefficient is not statistically significant).

Table 11: Vector Error Correction Estimates of LDI model

Vector Error Correction Estimates
Sample (adjusted): 1992 2017
Included observations: 26 after adjustments
Standard errors in ( ) and t-statistics in [ ]

Cointegrating Eq:	CointEq1
LLDI(-1)	1.000000
LGDP(-1)	1.658370***
	(0.14700)
	[11.2817]
LDDI(-1)	-1.030840***
	(0.11159)
	[-9.23796]
LEX(-1)	-0.076727
	(0.04475)
	[-1.71443]
IRD(-1)	-0.013747***
	(0.00416)
	[-3.30706]
C	-2.070719

Error Correction:	D(LLDI)	D(LGDP)	D(LDDI)	D(LEX)	D(IRD)
CointEq1	0.094474	-0.272626**	0.087534	0.181678**	-10.21177**
	(0.09764)	(0.10743)	(0.09266)	(0.08316)	(3.91625)
	[0.96758]	[-2.53762]	[0.94465]	[2.18475]	[-2.60753]
D(LLDI(-1))	0.414154**	0.353578	-0.166709	0.288957*	6.932820
	(0.19712)	(0.21690)	(0.18708)	(0.16789)	(7.90649)
	[2.10098]	[1.63017]	[-0.89113]	[1.72115]	[0.87685]
D(LGDP(-1))	0.186365	0.125015	-0.118600	0.094007	-2.794130
	(0.17049)	(0.18759)	(0.16180)	(0.14520)	(6.83823)
	[1.09311]	[0.66642]	[-0.73300]	[0.64742]	[-0.40860]
D(LDDI(-1))	0.108857	-0.233210	0.135593	-0.266499	-18.39190
	(0.28284)	(0.31121)	(0.26843)	(0.24089)	(11.3446)
	[0.38486]	[-0.74935]	[0.50514]	[-1.10630]	[-1.62120]
D(LEX(-1))	-0.730150**	0.109063	0.002875	-0.375976	8.716294
	(0.27277)	(0.30013)	(0.25886)	(0.23231)	(10.9404)
	[-2.67683]	[0.36339]	[0.01111]	[-1.61843]	[0.79671]
D(IRD(-1))	0.002022	0.001045	0.005575	0.002188	-0.588921***
	(0.00458)	(0.00504)	(0.00435)	(0.00390)	(0.18383)
	[0.44120]	[0.20728]	[1.28165]	[0.56063]	[-3.20364]
C	0.100023	-0.019800	-0.058350	0.247128	-3.752492
	(0.06004)	(0.06607)	(0.05698)	(0.05114)	(2.40827)
	[1.66586]	[-0.29971]	[-1.02401]	[4.83265]	[-1.55817]

R-squared	0.440023	0.471687	0.160587	0.556604	0.432083
Adj. R-squared	0.242384	0.285224	-0.135676	0.400111	0.231641
Sum sq. resids	0.208403	0.252307	0.187697	0.151165	335.2657
S.E. equation	0.110720	0.121826	0.105076	0.094298	4.440891
F-statistic	2.226396	2.529652	0.542043	3.556737	2.155655
Log likelihood	22.90152	20.60744	24.15726	26.75472	-65.69696
Akaike AIC	-1.325127	-1.133953	-1.429772	-1.646226	6.058080
Schwarz SC	-0.981528	-0.790354	-1.086173	-1.302627	6.401679
Mean dependent	-0.056987	-0.007102	-0.058404	0.180516	-1.207187
S.D. dependent	0.127204	0.144097	0.098600	0.121749	5.066267

Determinant resid covariance (dof adj.)	2.92E-08
Determinant resid covariance	5.20E-09
Log likelihood	58.62058
Akaike information criterion	-1.551715
Schwarz criterion	0.411708

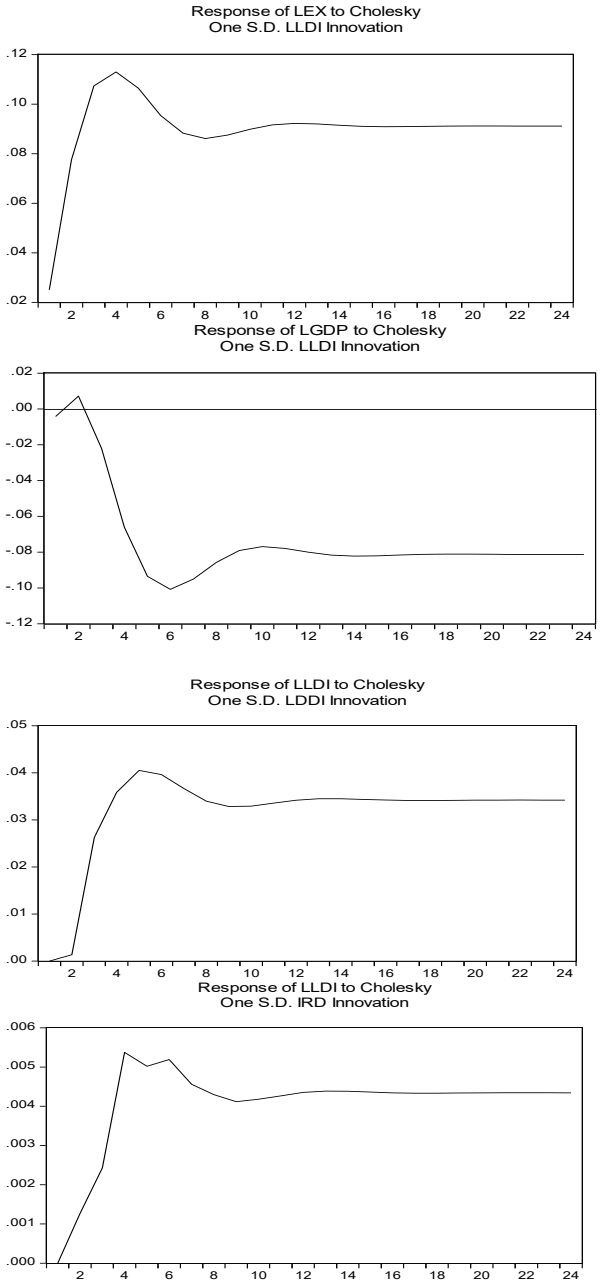
Value [ ] is t-statistical; (***),(**), (*) statistical significance level 1%, 5% and 10%
Source: Own survey.

The cumulative response of economic growth and export value due to the 1% LDI shock in Figure 2 shows that EX increases, whereas GDP decreases. This indicates that foreign currency credit has a negative impact on economic growth because the businesses face difficulties when they borrow capital in foreign currency with exchange rate risk. With the contract's maturity, companies must buy foreign currencies at a high price on the free market to repay the banks. This can quickly occur, and the rate increases more than decreases. These risks affect the results of business activities, thereby affecting economic growth.

Besides, although there are no official data, many businesses likely borrow foreign currency not to import goods or invest in production but to speculate or invest in real estate creating speculative "fever" in the market and bringing instability to the economy.

Despite facing many risks, many businesses still choose to borrow foreign currencies because there are no transaction costs. More importantly, the cost of lending VND is higher than borrowing USD. On the other hand, commercial banks also find ways to "release" the foreign currency capital they have mobilized to avoid risks in forex trading. Estimating the long-term relationship (Table 11) and the increased cumulative response of loan dollarization under the shock of the difference of payables and the shock of dollarization deposit (Figure 2) reveal a positive relationship between these variables.

Figure 2: Response of variables of LDI model due to 1% shock



Source: Own survey.

CONCLUSION

The study has used the VECM model to confirm: (1) The relationship between the deposit dollarized and the monetary variables under the interest rate ceiling policy, and (2) the relationship between dollarization loans with economic growth and exports.

For the relationship between the deposit dollarized and monetary

variables with the ceiling interest rate policy, the USD deposit rate changed from 3% to 0%. The dollarization of deposits decreases when the macroeconomic economy is stable. This finding suggests that the State Bank of Vietnam needs to pay more attention to maintaining the U.S dollars deposit rate to limit dollarization.

Additionally, the model finds empirical evidence that official and unofficial foreign currency market returns are vital factors influencing dollarization. This issue is consistent with observed reality. In particular, when the exchange rate difference between the official and the unofficial market is large, people tend to transfer their assets to a foreign currency.

The paper also finds that the exchange rate and inflation positively correlate with the deposit dollarization rate. Thus, this finding recommends that Vietnam seek to stabilize the macroeconomic environment, control the exchange rate stable and control the inflation rate at a low level, thereby limiting dollarization in the economy.

The paper provides empirical evidence that loans dollarization positively affects exports in the short term, and the interest payment for borrowing USD is more preferable to borrowing VND. However, loan dollarization in the long term has not brought any benefits for the economy, and the paper has concluded that there is a negative correlation with economic growth. This finding affirms the correct policy of the government to control dollarization. Moreover, the State bank of Vietnam should promote the ability of commercial banks to lend foreign currency to businesses when the enterprises need in the export and import activities. This finding shows that the State Bank of Vietnam wants to limit the loan dollarisation. They need to have supportive policies for businesses borrowing VND to export at a lower interest rate than borrowing foreign currency.

The paper still has some limitations which can be improved in further researches. Firstly, there are no accurate statistics for measuring M2 DDI (the deposit dollarization index). The article used the ratio of deposits in foreign currencies to total deposits (DDI) to measure the foreign exchange rate is not yet thoroughly assessing the degree of foreign exchange in the economy. Because in Vietnam, besides the statistical amount of foreign currencies in the commercial banking system, there is a vast amount of foreign currency in cash that people are storing. Secondly, the article has not assessed why Vietnamese people still prefer to keep and deposit foreign currency at commercial banks while the profit is none.

REFERENCES

Akçay, O. C., Alper, C. E., Karasulu, M. (1997). Currency substitution and exchange rate instability: The Turkish case. European Economic Review, 41(3–5), 827–835.

Alp, H. B., Yalcin, C. (2015). Liability dollarization and growth performance of non-financial firms in Turkey.

Arteta, C. O. (2005). Exchange rate regimes and financial dollarization: Does flexibility reduce currency mismatches in bank intermediation? The BE Journal of Macroeconomics, 5(1).

Bahmani-Oskoee, M., Domac, I. (2003). On the link between dollarisation and inflation: evidence from Turkey (1). Comparative Economic Studies.
Bahmani-Oskooee, M., Miteza, I., Nasir, A. B. M. (2002). The long-run relation between black market and official exchange rates: evidence from panel cointegration. Economics Letters, 76(3), 397–404.
Bahmani-Oskooee, M., Tanku, A. (2006). Do the black market and the official exchange rates converge in the long run? Journal of Economics and Finance, 30(1), 57–69. https://doi.org/10.1007/BF02834275
Baliño, T. J. T., Bennett, A., Borensztein, E. (1999). Monetary policy in dollarized economies 171. International Monetary Fund.
Bannister, M. G. J., Turunen, M. J., Gardberg, M. (2018). Dollarization and financial development. International Monetary Fund.
Barajas, M. A., Morales, M. A. M. (2003). Dollarization of liabilities: Beyond the usual suspects. International Monetary Fund.
Basso, H. S., Calvo-Gonzalez, O., Jurgilas, M. (2007). Financial dollarization: the role of banks and interest rates. ECB Working Paper 748/10.
Basso, H. S., Calvo-Gonzalez, O., Jurgilas, M. (2011). Financial dollarization: The role of foreign-owned banks and interest rates. Journal of Banking & Finance, 35(4), 794–806.
Baumol, W. J. (1952). The transactions demand for cash: An inventory theoretic approach. The Quarterly Journal of Economics, 545–556.
Beckerman, P., Cortés Douglas, H. (2002). Ecuador under dollarization: Opportunities and risks. Crisis and Dollarization in Ecuador, 81–126.
Bofinger, P., Reischle, J., Schächter, A. (2001). Monetary policy: goals, institutions, strategies, and instruments. Oxford University Press on Demand.
Broda, C. (2001). Coping with terms-of-trade shocks: pegs versus floats. American Economic Review, 91(2), 376–380.
Brown, M., De Haas, R. (2010). Foreign currency lending in emerging Europe: bank level evidence. European Banking Center Discussion Paper, 2010–31.
Brown, M., De Haas, R., Sokolov, V. (2018). Regional Inflation, Banking Integration, and Dollarization. Review of Finance, 22(6), 2073–2108.
Brown, M., Ongena, S., Yeşin, P. (2011). Foreign currency borrowing by small firms in the transition economies. Journal of Financial Intermediation, 20(3), 285–302.
Calvo, G., Végh Gramont, C. A. (1992). Currency Substitution in Developing Countries: An Introduction. IMF Working Papers, 92(40), i. https://doi.org/10.5089/9781451845884.001
Carranza, L., Galdon-Sanchez, J. E., Gomez-Biscarri, J. (2009). Exchange rate and inflation dynamics in dollarized economies. Journal of Development Economics, 89(1), 98–108.
Catão, M. L., Terrones, M. M. (2016). Financial de-dollarization: A global perspective and the Peruvian experience. International Monetary Fund.
Civcir, I. (2005). Dollarization and its long-run determinants in Turkey. Emerald Group Publishing Limited.
Clements, B., Schwartz, G. (1993). Currency substitution: The recent experience of Bolivia. World Development, 21(11), 1883–1893.
Corrado, G. (2008). An open economy model with currency substitution and real dollarization. Journal of Economic Studies.
Dalgic, H. C. (2018). Financial dollarization in emerging markets: An insurance arrangement. University of Mannheim, 248.
De Grauwe, P., Polan, M. (2000). Is inflation always and everywhere a monetary phenomenon? Mimeo, University of Leuven.
Dodsworth, J. R. (1996). Vietnam transition to a market economy. International Monetary Fund.
Dornbusch, R. (2001). Fewer monies, better monies. American Economic Review, 91(2), 238–242.
Edwards, S. (2001). Dollarization and economic performance: an empirical investigation. National Bureau of Economic Research.
Edy-Ewoh, U., Binuyo, B. (2019). The Prospect of Dollarization in Nigeria: An Empirical Review. International Journal of Business and Economics Research, 8(4), 220.

Fabris, N., Vujanović, N. (2017). The Impact of Financial Dollarization on Inflation Targeting: Empirical Evidence from Serbia. Journal of Central Banking Theory and Practice, 6(2), 23–43.
Fischer, S. (1982). Seigniorage and the Case for a National Money. Journal of Political Economy, 90(2), 295–313.
Friedman, M. (1956). The quantity theory of money: a restatement. Studies in the Quantity Theory of Money, 5, 3–31.
Girton, L., Roper, D. (1981). Theory and implications of currency substitution. Journal of Money, Credit and Banking, 13(1), 12–30.
Goldfajn, I., Olivares, G., Frankel, J., Milesi-Ferretti, G. M. (2001). Full dollarization: the case of Panama [with Comments]. Economía, 1(2), 101–155.
Goujon, M. (2006). Fighting inflation in a dollarized economy: The case of Vietnam. Journal of Comparative Economics, 34(3), 564–581.
Gruben, W. C., McLeod, D. (2004). Currency competition and inflation convergence. Federal Reserve Bank of Dallas, Center for Latin American Economics.
Hauskrecht, A., Hai, N. T. (2004). Dollarization in Vietnam. 12th Annual Conference on Pacific Basin Finance, Economics, Accounting and Business, Bangkok, 10–11.
Honohan, P. (2007). Dollarization and Exchange Rate Fluctuations. Banking and Financial Institutions.
Kamin, S. B., Ericsson, N. R. (2003). Dollarization in post-hyperinflationary Argentina. Journal of International Money and Finance, 22(2), 185–211.
Kessy, P. (2011). Dollarization in Tanzania: empirical evidence and cross-country experience, International Growth Centre Working Paper11/0251. International Monetary Fund, Washington.
Kim, C.-J., Nelson, C. R., Piger, J. (2004). The less-volatile US economy: a Bayesian investigation of timing, breadth, and potential explanations. Journal of Business and Economic Statistics, 22(1), 80–93.
Krupkina, A., Ponomarenko, A. (2017). Deposit dollarization in emerging markets: modelling the hysteresis effect. Journal of Economics and Finance, 41(4), 794–805.
Kurasawa, K., Marty, A. L. (2007). “Optimal” inflation under dollarization. Journal of International Money and Finance, 26(2), 251–264.
Lay, S. H., Kakinaka, M., Kotani, K. (2012). Exchange rate movements in a dollarized economy: The case of Cambodia. ASEAN Economic Bulletin, 65–78.
Levy-Yeyati, E. L. (2003). Financial dedollarization: a carrot and stick approach. Available at SSRN 412369.
Luca, A., Petrova, I. (2008). What drives credit dollarization in transition economies? Journal of Banking and Finance, 32(5), 858–869.
Meade, J. E. (1951). The theory of international economic policy (Vol. 2). Oxford University Press.
Mengesha, L. G., Holmes, M. J. (2015). Does dollarization reduce or produce inflation? Journal of Economic Studies, 42(3), 358–376.
Menon, J. (2007). Dealing with dollarization: What options for the transitional economies of Southeast Asia? Asian Development Bank. http://hdl.handle.net/11540/3651
Mishkin, F. S., Serletis, A. (2016). The economics of money, banking and financial markets, 6th. Pearson Canada Inc.
Mueller, J. (1994). Dollarization in Lebanon. International Monetary Fund, Working Paper No.129.
Müller, H. (1999). From dollarisation to euroisation. Intereconomics, 34(6), 286–296.
Musoke, Z. (2017). An empirical investigation on dollarization and currency devaluation: A case study of Tanzania. Economics Discussion Papers.
Neanidis, K. C., Savva, C. S. (2009). Financial dollarization: Short-run determinants in transition economies. Journal of Banking and Finance, 33(10), 1860–1873.
Nguyen, T. H. (2002). Dollarization of financial assets and liabilities of the household sector, the enterprises sector and the banking sector in Vietnam. SBV and JICA, Dollarization and Its Effect on Monetary and Foreign Exchange Rate Policies and the Development of Financial Systems: Vietnam, Lao PDR and Cambodia, Proceedings of Joint Research Project Workshop. Hanoi (July).

Nicolo, G., Honohan, P., Ize, A. (2003). Dollarization of the banking system: good or bad? The World Bank.
Oomes, N. (2003). Network externalities and dollarization hysteresis: The case of Russia (Issues 3–96). International Monetary Fund.
Parrado, E., Velasco, A. (2002). Optimal interest rate policy in a small open economy. National Bureau of Economic Research.
Pasara, M. T., Garidzirai, R. (2020). The Boomerang Effects: An Analysis of the Pre and Post Dollarisation Era in Zimbabwe. Economies, 8(2), 32. https://doi.org/10.3390/economies8020032
Payne, J. E. (2009). Official dollarization in El Salvador and the inflation–inflation uncertainty nexus. Applied Economics Letters, 16(12), 1195–1199.
Rancière, R., Tornell, A. (2009). Systemic Risk Taking and the US Financial Crisis. Unpublished Manuscript, International Monetary Fund and UCLA (September).
Reinhart, C. M., Rogoff, K. S. (2004). The modern history of exchange rate arrangements: a reinterpretation. The Quarterly Journal of Economics, 119(1), 1–48.
Reinhart, C. M., Rogoff, K. S., Savastano, M. A. (2003). Addicted to dollars. National Bureau of Economic Research.
Rosenberg, M. C. B., Tirpák, M. (2008). Determinants of foreign currency borrowing in the new member states of the EU (Issues 8–173). International Monetary Fund.
Solimano, A. (2002). Crisis, Dollarization, and Social Impact: An Overview. Crisis and Dollarization in Ecuador. Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 1–16.
Steiner, K. (2012). Households' exposure to Foreign currency Loans in ceSee eu member States and croatia. Focus on European Economic Integration, Q1/11.
Tobin, J. (1956). The interest-elasticity of transactions demand for cash. The Review of Economics and Statistics, 241–247.
Tweneboah, G., Gatsi, J. G., Asamoah, M. E. (2019). Financial development and dollarization in Ghana: an empirical investigation. Cogent Economics and Finance, 7(1), 1663699.
Vegh, C., Sahay, R. (1995). Dollarization in Transition Economies; Evidence and Policy Implications. International Monetary Fund.
Vetlov, I. (2001). Dollarization in Lithuania: An Econometric Approach. BOFIT Discussion Paper, No. 1/2001(https://ssrn.com/abstract=1016037), http://dx.doi.org/10.2139/ssrn.1016037.
Watanabe, S. (2006). Dollarization, Remittances and Monetary Policies in Cambodia, Lao PDR and Viet Nam. Tokyo: ADB Institute. Downloadable from:< Www. Adbi. Org/Files/2006.05, 10.
Yeyati, E. L. (2006). Financial dollarization: evaluating the consequences. Economic Policy, 21(45), 62–118.
Yeyati, M. E. L., Ize, M. A. (2005). Financial De-Dollarization: Is It for Real? (Issues 5–187). International Monetary Fund.
Yinusa, D. O. (2008). Between dollarization and exchange rate volatility: Nigeria's portfolio diversification option. Journal of Policy Modeling, 30(5), 811–826.
Zettelmeyer, J., Nagy, P. M., Jeffrey, S. (2010). Addressing private sector currency mismatches in emerging Europe. European Bank for Reconstruction and Development London.

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THE ROLE OF STRATEGIC HUMAN RESOURCE MANAGEMENT, ORGANIZATIONAL PERFORMANCE: AN EMPIRICAL EVIDENCE FROM MANUFACTURING SECTOR IN THAILAND

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Abstract

Strategic human resource management (SHRM) has emerged as a critical issue concurrently with businesses' growing emphasis on strategy. Due to the increasing instability in its setting, the business's response has been to establish a comprehensive internal structure that includes human resource management systems. The key to providing an efficient response is to have an HRM system adapted to strategic needs. This study attempted to investigate the relationship between strategic HR influences and improve organizational engagement and performance. A questionnaire survey was employed in this study, and approximately 406 firms participated. Employees from Thailand's manufacturing sector were sampled for the study. Findings from our study revealed that administrations could help increase employees' integration with the business by providing training, participation of the staff in planning and decision-making, and career growth opportunities that they drive observe to be advantageously aimed at them.

Key Words

Strategic human resource management; organizational engagement; organizational performance.

INTRODUCTION

In recent years, many organizations and researchers have considered the value of human resource functions such as employee selection, development, and retention. Researchers in this field have shifted their focus from a resource-based perspective to describe the effects of strategic human resource management practices on firm performance. Firms have realized that their human capital can provide a sustainable competitive advantage by developing strategic human resource management (Barney, 1991; Ulrich, 1997). Many functions and departments of organizations have attempted to implement their strategies, practices, and processes with the business strategy since the introduction of human resource departments in firms. Human resource management is perhaps one of them, and strategic human resource management emerged when businesses attempted to integrate their human resource strategies and practices with their business strategy (Wright and McMahan, 1992). The organization's most valuable resource, "human intellectual capital", departs your premises (Bakker and Demerouti, 2017). This valuable resource is a company's mind and inspiration, and without it, no approach relies on and uses all of the company's resources. Henceforth, an organization must understand how to manage the roles and actions of its employees. As a result, companies must define the methods by which they can ensure that their employees return to work the next day. Scholars have been exploring various ways and opportunities to help focus on this topic. One of the intelligence cadres suggests that those organizations prepare and strive for long-term success with their other tangible capital in the same way they can do the same for human resources (Morgeson, Brannick and Levine, 2019).

Strategy is a multifaceted phenomenon that encompasses far more than traditional strategies. Strategies are broad statements that outline a plan of action. Strategies are a collection of explicit, observable, and attainable plans that are carefully constructed with the input of an institution's stakeholders. These action statements are associated with a person or people accountable and authorized to achieve a specific outcome within a specified timeframe. They are action plans, decisions, and policies that assist a community in achieving a vision or goals. Strategic human resource management is known to help businesses meet the needs of their employees while still meeting company goals. SHRM stands for strategic human resource management, and it is designed to assist businesses in better meeting the needs of their employees while also achieving organizational goals. Hiring and firing, compensation and benefits, training, and administration are all aspects of human resource management that impact employees. Job rewards, information on safety procedures, and sick or vacation days are examples of human resources. Strategic human resource management is the constructive management of people.

Moreover, According to Bamberger and Meshoulam (2000), strategic human resources management is a competency-based approach to personnel management that focuses on improving durable, imitable, and non-tradable human resources. Some scholars define strategic human

resources management as the linkage of human resource occupations with strategic goals and organizational objectives to improve business performance and promote an organizational culture that embraces innovation and versatility, taking both process and outcome into account (Truss and Gratton, 1994). In such circumstances, it is deemed appropriate to hold the role of the human resource accountable on a strategic level, implying the need to propose the best practice for contributing to the organization's mission, vision, and strategic goals.

Human resources were once considered primarily an administrative activity, focusing on operational tasks that operated so minor role in the development and implementation of an organization's strategy. Employees, operations, and individual activities are frequently used as performance indicators in human resource management (HRM) in the traditional model (selection, training, simulations, and the like). The traditional human resource management model is predicated on the assumption that improving individual employee performance will inevitably lead to more tremendous organizational success. Many studies have recently been conducted to investigate the position and relationship between how businesses can grow and work efficiently toward achieving their goals and improving employee outcomes. Numerous studies, for example, have demonstrated the significance of strategic human resource management deliberation in a variety of outcomes (Channa, Shah and Ghumro, 2019; Alzyoud and Ogalo, 2020).

Notably, numerous studies on strategic human resource management have found a correlation between strategic human resource management, organizational engagement, and success (Huselid and Schuler, 1997; Tzafrir, 1999; Shanshi, 2008). According to recent theoretical works on business strategy, human resources can promote organizational efficiency (HR). We can gain a long-term competitive advantage by creating value in a unique and challenging way by adopting a resource-based perspective (Barney, 1986). As Human resource becomes integrated into the operating framework, it becomes an intangible asset that adds value to its ability to deal with adversity. As a result, the essence of strategic human resource management is to use an HRM structure, and HRM activities focused on strategic priorities and organizational orientation to maximize competitive advantage and improve business efficiency.

This study aims to analyse the role of strategic human resource management in improving a company's ability to engage in organizational engagement. It will investigate how strategic recruitment and selection, strategic training and growth, strategic working standards, and strategic performance assessment affect organizational engagement. Participation in an organization has an impact on its outcomes.

LITERATURE REVIEW

Strategic Human Resource Management

Human resource management started to emerge from academic research in the United States in the 1960s and 1970s and has steadily gained global acceptance since then (Brewster, 1994). In the literature, the significance of HRM is not well defined; different authorities suggest or publicize different meanings and rely on other evidence. Many people have attempted to categorize the various fields covered by HRM. Employee influence, human resource flow (into and out of the organization), compensation systems, and employment systems, for example, are all described in one of the classic texts in a four-part typology (Beer et al., 1985). HRM has been divided into four fields, including acquisition, maintenance, motivation, and development of human resources, according to others (DeCenzo and Robbins, 1988). Others see it as a set of tasks, such as the five-step selection, efficiency, evaluation, incentives, and growth cycle (Fomburn et al., 1984).

Some academics believe that HRM and strategic HRM are the same concept and use the terms interchangeably. HRM, for example, is defined by Mathis and Jackson (1985) as an organization's strategic planning and management of human resources. HRM has a broader scope and is more strategic. They distinguish between human resource management and the older definition of personnel management. Human resource management (HRM) is a strategic task that focuses on jobs such as human resource planning and developing restoration guidelines and strategies. Although employee management is primarily viewed as an administrative-operational action distributing duties such as hiring and selecting employees or addressing worker complaints, HRM is viewed as a strategic occupation focused on human resource planning and developing compensation procedures and strategies.

Besides, strategic human resource management is the systematic, consistent, and long-term planning, as well as the short-term management, control, and tracking of an organization's human resources to ensure the maximum added benefit and to position the organization to achieve its goals and missions (Harrison, 1993). Furthermore, strategic human resource management entails aligning HR operations with the long-term strategy of the company. According to some human resource and strategy development experts, businesses must engage in strategic HR planning when appealing to corporate strategy development (Walker, 1980). Many studies have been conducted to outline the individual and relationship between how industries can change and efficiently improve their objective attainment and operational effects. Education, for example, has demonstrated the significance of strategic human resource management application in a variety of scenarios (Channa, Shah and Ghumro, 2019; Alzyoud and Ogalo, 2020).

Consequently, there are studies with a more generalist approach to view HR operations and observations to get the most out of people. It is also critical for the commercial to change a strategy throughout the entire organization that is slightly constituent or movement and act associated with the commercial's human resources is not solely the responsibility of the personnel department but entails broader attention from all curves of the initiative, predominantly top organization and unit skulls (Delery and Roumpi, 2017). Human resource management must be measured more effectively

from now on to achieve better results and profits from employees (Paauwe and Boon, 2018; Richard and Johnson, 2001).

Strategic Recruitment and Selection

Armstrong (2001) defined recruitment and selection strategy as "the plan " that would discover approaches, enlisting the required number of people with necessary skills and knowledge, who are resourcing plan possible to distribute the necessary type of behavior, and who will fit into the administration's nation, so these are good at teamwork. Also, strategic recruitment is a specific replication of the employment plan to achieve the employment concept as a specific strategy. It encompasses employees, workforce requirements, and revenue to interest capacity, employment networks, ideal selection, and employment time. Indeed, a profitable employment strategy will assist businesses in quickly locating appropriate skills and leading their beneficial change (Jiawen Liang, 2020). Hence, we tested the following hypothesis:

H1: Strategic recruitment and selection positively associates with organizational engagement.

Strategic Training and Development

Armstrong (2001) defines training as the systematic alteration of behaviour through knowledge events, computer operator, and education that allow individuals to attain the stages of acquaintance, ability, and aptitude required to perform their jobs successfully. SHRM scholars describe human resource management practices such as training as the kinds of events that influence individuals' performance in their pains to articulate and instrument the administration's strategic needs (Huselid et al., 1997; Becker et al., 1996; Deery et al., 1994; Guest, 1987; Iles et al., 1990; Meyer and Allen, 1997).

A structured, planned activity intended to enable contributors to gain knowledge and skills on a specific topic is referred to as training (Dessler, 2013). Training is essential for any organization to achieve its goals. Enterprises spend millions of dollars each year on employee training activities to help them achieve the capability level required to perform the assigned roles and responsibilities (Elnaga and Imran, 2013). Besides, the primary focus of the training was on improving administrative flexibility, invention, and the ability to engage high-level energetic competencies. According to Redding and Catalanello (1989), numerous prominent administrations, including Motorola, General Electric, and Hewlett-Packard, attribute their corporate success to training.Training has several advantages for businesses, including increased employee satisfaction (Aguinis and Kraiger, 2009) and improved organizational performance (Kessy and Temi, 2010).

However, the data are limited; academic work advises that trained workers effort and significantly influence increasing appointment levels (Fletcher, 2016). Related statements can be created from Shuck and

Wollard. They stated that when administrations focus on human capital by planning HRD strategies that focus on conniving training opportunities that would advantage the worker for a longer-dated to continue operative and practical, it will improve their engagement with the corporate. However, Trainers should understand that all training and development curriculums should link with the group's complete strategic objectives. The trainers would support the learning aims and commercial goals to create the training further applicable (Fomi and Shriya, 2017). Thus, we tested the following hypothesis:

H2: Strategic training and development positively associates with organizational engagement.

Strategic Working Standard

According to Wood and Albanese (1995), "job plan" is roughly what administration deliberately does to provide works with a high smooth of essential gratification. Strategic human resource performs believe that positions are insecure and that jobs are changing in response to a changing environment. Its significance in the context of a broader range of job design. Increased autonomy and the ability to work effectively will result in a less rigid process of working. A strategic working standard is one of the principles of the manufacturing sector. It requires three elements: takt time: the rate at which parts or products must be produced to meet customer demand. Work sequence: the steps operators need to perform within takt time, in the order in which they must be completed. Standard inventory (or in-process stock): Minimum quantity of parts and raw materials needed to run operations (Robert H. Simonis, 2017). As a result, we tested the following hypothesis:

H3: Strategic working standard positively associates with organizational engagement.

Strategic Performance Evaluation

By examining performance and provided that response to support the achievement of strategic aims, performance evaluation expedites the incorporation point (Werbel and DeMarie, 2005). According to Gratton et al. (1999), this is critical for SHRM. The performance evaluation procedure assigns a ranking to anticipated performances. Supposing that workers want progressive performance evaluations, they are possible to accept performance appraisal-related behaviours. Similarly, performance appraisal response is intended to support expected behaviours and abilities while also proposing practical censures to future leader variations to endorse integration.

However, Hunger and Wheelen (2011) presented that outcomes of strategic performance estimation are vital in promoting deed if the practice indicates any difficulties that change the firm's working towards its aim. Thus, companies want to appraise their plans constantly (King'ola, 2001; Tunji,

2013) so that educative achievement can be carried to eradicate the complications that impede the attainment of secure goals (David, 2011). Gonçalves (2009) acquiesced that sporadic appraisal retains the strategic design supply associated with the business capabilities. We put the following hypotheses to the test:

H4: Strategic performance evaluation positively associates with organizational engagement.

Strategic Staff Participation

Some strategic HRM scholars have argued that employee participation and statement are precarious roles that all human resource management must play to improve stable performance (Wright and Snell, 1998). According to empirical research, productive worker engagement efforts can significantly impact administrative business efficiency (Huselid, 1995; Ostroff, 1995). Furthermore, Armstrong (2009) contends that staff participation in planning has a significant impact on developing an effective performance management system, which, among other things, necessitates the involvement of fearful stakeholders. Draft, Kendrick, and Vershinina (2010) concurred with the previous works but added that employee participation in planning and decision-making could improve performance and job satisfaction and help employees improve their skills. Correspondingly, According to Abdulai and Shafiwu (2014), when employees are involved in decision making in various forms, decision implementation becomes more evident, a good working environment is created, commitment and satisfaction on decisions made rises, and employee morale rises because employees feel predictable and as part of the team in the organization. One reason for reduced employee work performance in terms of efficiency and effectiveness, according to Owino Ogachi and Olel (2011), was a low level of participation in decision making. Strategic human resource actions encourage employee participation in job operations, the permitting instrument, forming effort groups, and other methods. Considering the above mentioned works, the following hypothesis was tested:

H5: Strategic staff participation positively associates with organizational engagement.

Organizational Engagement and Organizational Performance

Engagement is a positive work-based development that instils desire, absorption, and commitment (Schaufeli et al., 2006). Organizational engagement increases an employee's connection, immersion, and dedication to a company (Saks, 2006). Workers involved are more likely to work harder, faster, and more efficiently (Bakker and Bal, 2010). According to research studies, organizations always want their employees to be involved in the corporate to be willing to make an effort when they require it (Barrick, Thurgood, Smith and Courtright, 2015). Organizational

engagement enables businesses to achieve much more than traditional workers, particularly when it relates to company benefits and events outside of independently assigned jobs (Saks, 2006).

Additionally, Employee engagement is widely regarded as a reliable predictor of a wide array of employee and organizational outcomes (Rowe and Frewer, 2005). As a result, some scholars have declared the possibility and necessity of empirical consideration in protecting engagement (Rich LePine and Crawford, 2010), implying that engagement can produce better outcomes by increasing the impact of available predictors. We attempted to strategize how having organizationally engaged employees could help the business increase socially responsible activities on thriving organizational enactment. The performance here is measured by the number of workers and the amount of revenue generated.

Moreover, the outcome of a person, group, association, or procedure can be performed (Mahfouz, 2019). Corporate typically assesses organizational implementation from a financial standpoint (Ranasinghe et al., 2018). However, it can be elevated in terms of social involvement and individual satisfaction (Ranasinghe, 2018). Similarly, mystical viewpoint, consumer perception, knowledge, and progress perception have an impact on organizational implementation. (Ranasinghe et al., 2018). An integrated concept of administrative enactment results in the transfer of ever-increasing charges to customs and shareholders, enabling organizational sustainability, improving the administration's overall competencies and efficiency, and principals to improved enactment (Evans, 2017). In this study, indicators of organizational performance include financial performance, interior or applicable enactment, customer gratification, worker gratification, and knowledge and evolution (Abusa and Gibson, 2011). Based on the above studies, the following hypothesis was tested:

H6: Organizational engagement positively associates with organizational performance.

METHODOLOGY AND MEASUREMENT

Data Collection the Sample

This study investigates the relationship between strategic recruitment and selection, strategic training and development, strategic working standards, strategic performance evaluation, strategic staff participation, organizational engagement, and organizational performance.

This research chooses the manufacturing sector (https://asianinsiders.com/thailand-manufacturing-trends-2021/) as a basis for this investigation of the role of strategic human resource management, organizational engagement, and organizational performance: An empirical evidence from the manufacturing sector in Thailand. Especially in the manufacturing sector resulting from the addition of human resources in the strategic management process, the organization guaranteed competitive

ability and advantage in contemporary, indeterminate, and highly competitive business environments. In such situations, strategic management and the discovery of new changes entail a strongly built tram within the organization explanations in ensuring organizational performance. A better situation about competitors develops the foundational precondition for both the improvement and the organization's survival.

In this study, the data was collected from all the population, 1,248 firms. A mail survey procedure via questionnaire was used for data collection. The key participants in this study were employees. Concerning the questionnaire mailing, of the surveys completed and returned, only 406 were usable. The effective response rate was approximately 32.53 %. According to Aaker, Kumar and Day (2001), the response rate for a mail survey, without an appropriate follow-up procedure, and greater than 20%, is considered acceptable.

Additionally, a non-response bias test was performed by comparing early and late responses. Characteristics of the firms comprise industry types, amount of capital funding, time in business, number of employees, and key informants who self-reported all constructs (Armstrong and Overton, 1977). As for non-response bias, t-test statistical tests were performed, and the results exhibited no significant differences. Therefore, a non-response bias is of no concern in this data.

Sample Measurements of the Constructs

The survey instrument is a multi-item measure. All the variables were measured using five-point Likert scales. The key informants were asked for the levels of agreement with statements of items ranging from1 (strongly disagree) to 5 (strongly agree). The items were developed from the existing scales of each variable for this study specifically. Data were collected by mail survey questionnaire to develop all constructs in the conceptual model as scales from a comprehensive literature review. Also, two expert academics reviewed the instrument and improved it to the best possible scale measure. Following this, a pre-test method was appropriated to conduct the test for the validity and reliability of the questionnaire. In this research, the first thirty returned mail surveys were chosen to test the validity and reliability of the overall construct.

DATA ANALYSIS AND RESULTS

In this study, factor analysis is used to study the construct validity of several constructs in the conceptual model developed as scales. Factor analysis was used to assess the basis of many items and determine whether they could be reduced to a smaller set of factors. All factor loadings are higher than the rule-of-thumb 0.40 cut-off and are statistically significant (Nunnally and Berstein, 1994). On the scale, Cronbach’s alpha coefficients are higher than 0.70 (Nunnally and Berstein, 1994). Thus, scales of all measures are shown to result in inconsistency.

Consequently, these measures are considered appropriate for further analysis because they show the validity and reliability of this study. The result shows factor loadings and the Cronbach's alpha coefficient for multiple item scales used in this study in Table 1.

Table 1 presents all variables that have factor loading scores between 0.725 – 0.967. Besides, Cronbach's alpha for all variables is shown between 0.730 – 0.901. Therefore, all constructs of the validity and reliability of measurement can be applied for further analysis.

Table 1: Results of Measure Validation

Items	Factor Loadings	Cronbach's Alpha
Strategic Recruitment and Selection (SRS)	0.752-0.886	0.779
Strategic Training and Development (STD)	0.818-0.967	0.901
Strategic Working Standard (SWS)	0.731-0.850	0.730
Strategic Performance Evaluation (SPE)	0.754-0.867	0.759
Strategic Staff Participation (SSP)	0.752-0.920	0.821
Organizational Engagement (OE)	0.725-0.904	0.861
Organizational Performance (OP)	0.734-0.924	0.874

Source: Own survey.

Table 2 Means and Standard Deviations. Note: There are no substantial multicollinearity problems encountered in this study.

Table 2: Means, Standard Deviations

Variables	SRS	STD	SWS	SPE	SSP	OE	OP	FA	FS
Mean	4.065	3.843	3.945	3.951	3.950	3.936	3.934	4.152	4.054
S.D.	0.663	0.760	0.653	0.681	0.722	0.697	0.706	0.757	0.808
SRS	1								
STD	0.610**	1							
SWS	0.782**	0.786**	1						
SPE	0.744**	0.950**	0.865**	1					
SSP	0.717**	0.610**	0.782**	0.744**	1				
OE	0.704**	0.811**	0.768**	0.827**	0.593**	1			
OP	0.690**	0.812**	0.762**	0.819**	0.593**	0.954**	1		
FA	0.021	-0.028	-0.041	-0.041	0.009	-0.040	-0.023	1	
FS	-0.007	-0.045	-0.049	-0.059	-0.020	0.006	0.000	0.422**	1

***p < 0.01, **p < 0.05, *p < 0.10
Source: Own survey.

Table 3 presents the results of OLS regression. The first relationship between strategic recruitment and selection and organizational engagement is significant (H1: b1= 0.111, p < 0.05), thus, Hypothesis 1 is supported. The

relationship between strategic training and development and organizational engagement is significant (H2: b2 = 0.105, p < 0.01), therefore, Hypothesis 2 is supported. The relationship between strategic working standard and organizational engagement is significant (H3: b3 = 0.144, p < 0.05), thus, Hypothesis 3 is supported. The relationship between strategic performance evaluation and organizational engagement is significant (H4: b4 = 0.304, p < 0.01), Hypothesis 4 is supported. The relationship between strategic staff participation and organizational engagement is significant (H5: b5 = 0.275, p < 0.01), Hypothesis 5 is supported.

Table 3: Results of Regression Analysis

Independent Variables	**Dependent Variables** Organizational Engagement (OE)
Constant	0.171 (0.170)
Strategic Recruitment and Selection (SRS)	0.111** (0.047)
Strategic Training and Development (STD)	0.105*** (0.032)
Strategic Working Standard (SWS)	0.144** (0.065)
Strategic Performance Evaluation (SPE)	0.304*** (0.109)
Strategic Staff Participation (SSP)	0.275*** (0.085)
Firm Age (FA)	- 0.041 (0.027)
Firm Size (FS)	0.056** (0.025)
Adjusted R^2	0.720

***p < 0.01, **p < 0.05, *p < 0.10, Beta coefficients with standard errors in parenthesis
Source: Own survey.

Table 4 presents the results of OLS regression analysis of the relationships between organizational engagement, and organizational performance is significant (H6: b6= 0.968, p < 0.01), thus, Hypothesis 6 is supported.

Table 4: Results of Regression Analysis

Independent Variables	**Dependent Variables** Organizational Performance (OP)
Constant	0.095 (0.091)
Organizational Engagement (OE)	0.968*** (0.015)
Firm Age (FA)	0.020 (0.015)
Firm Size (FS)	-0.013 (0.014)

Adjusted R^2	0.909

***p < 0.01, **p < 0.05, *p < 0.10, Bera coefficients with standard errors in parenthesis
Source: Own survey.

DISCUSSION AND FINDINGS

The study aimed to establish a link among strategic recruitment and selection, strategic training and development, strategic working standards, strategic performance evaluation, strategic staff participation, and organizational engagement. Also, establish a relationship between organizational engagement and organizational performance in Thailand's manufacturing sector.

These findings support previous research (Juliet and Proscovia, 2018; Ogutu, 2020; Rrezarta, 2013; Edward, Scott, and Richard, 2014), which found a significant positive relationship between strategic human resource management and organizational engagement, and organizational performance. According to the study, organizations with all of these can essentially manage and increase employee engagement with the organization through strategic human resource management. Rendering to the study, when organizations plan and provide training programs for their employees that will improve their skills, knowledge, and expertise in the long run, this will result in developing a greater sense of connectivity, engagement, and passion for the organization, thus improving their organizational engagement.

Correspondingly, the organization develops the careers considered necessary for organizational performance. Harky (2018) discovered that recruitment has an impact on organizational performance. This will assist the organization in recruiting staff who are always meeting the organization's needs. Organizations seek to improve execution capabilities by recruiting employees with practice experience. The newly hired employees would add to the organization's experience. The findings revealed that strategic human resource management of the organization should integrate recruitment plans with administrative plans.

Training in an organization was identified to advance the organizational engagement knowledge. The design of training programs and their implementation were shown to imitate the welfares of teaching gained by organizations. Musa and Tulay (2008) demonstrated that training improves worker skills, which positively impacts organizational engagement overall. The findings revealed that when workers subsidize the training enterprise, training aims become clear to them, enhancing the welfares increased since training to attain organizational performance. Besides, Employees' attitudes toward organizational engagement will improve as they realize that employee excellence is part of organizational success. Career development has improved employee behaviour, mainly when associated with the organization's integrated strategic human resource management.

The study has underlined that organizations can effectively work on supervising and improving employee engagement with the organization through designing HR functions strategically. In a way, the findings are parallel to the empirical assertions of Ahmed, Majid and Zin (2016), who established training opportunities provision with individual engagement. Thus, organizations need to introduce training interventions that improve individual skills, knowledge, and performance for the current role and enhance their expertise for future endeavors to boost their engagement with the enterprise.

Ultimately, the study also stated that when organizations offer career advancement opportunities to employees, promoting them, in the long-term, increases their engagement with the business. Employees, in this case, will be more engaged with the company and gain more benefits as a result. Besides this, innovative training for employees, education, and improving overall working requirements are required because current market changes necessitate a strongly built connection within the organization or company seeking to compete towards a more robust organizational performance worldwide.

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to analyse the effect of strategic human resource management on organizational engagement. Also, to establish a relationship between organizational engagement and organizational performance. The research was conducted on Thailand's manufacturing sector. According to the findings, most of those polled believe that recruitment practices should be aimed at manipulating the human resources strategy and achieving the company's excellence. The managers agreed that the company should improve its human resource capabilities to improve organizational engagement and performance. The research suggests that the organization develop an organizational strategy and investigate the human resource requirements to achieve it.

The results indicated that most of the people who participated in the questionnaire survey have indicated that the recruitment practices should be directed to manipulate the human resources strategy and focus on the performance of the business. Employees were satisfied that the business should develop its human resources capabilities for performance and connect the technology requirements to achieve organizational performance.

The research recommends that the organization devise a performance strategy and examine the human resources requirements to achieve it. However, it is necessary to highlight the use of methodology particularly that of self-analysis, as it allows self-assessment, evaluation of others, and strategically designed specific training by professional profile or job function. In this case, the process followed by experts from the quality vision is to identify the sequence of study over a group of capabilities established. From this, professionals determine at which point of the training development they

are. This alternative gives professionals a chance to enhance themselves. If they become conscious of their development level and what they are missing to achieve organizational performance, their training will be strategically planned. Lastly, the present study has confirmed the significance of strategic training and career growth opportunities for enhancing organizational engagement. The study has underlined the critical role and relationship between the strategic provision of HR factors towards enabling employees to connect with the organization and articulate more commitment and dedication.

FUTURE RESEARCH

Longitudinal studies on the framework may be considered for future studies. Our study only included employees from one industry. As a result, we may even consider looking into other sectors in this regard. Monitoring customer attitudes would result in radical change when organizational performance was analysed from the organization's external environment. Ultimately, the results can be compared to the data collected from the organization's internal environment to determine its suitability to achieve organizational performance.

REFERENCES

Aaker, David A., Kumar, V., Day, George S. (2001). Marketing research, New York: John Wiley and Sons.

Abdulai, A.I., Shafiwu, B. A. (2014). Participatory decision making and employee productivity. A case study of community banks in the upper east region of Ghana. Business Economics, 5(99), 2151–6219.

Abusa, F. M., Gibson, P. (2011). TQM implementation in developing countries: a case study of the Libyan industrial sector. Benchmarking: An International Journal, 20(5), 693–711.

Aguinis, H., Kraiger, K. (2009). Benefits of training and development for individuals and teams, organizations, and society. Annual Review of Psychology, 60(1), 451–474.

Adel Ali Yassin Alzyoud, Habil Slade Ogalo. (2020). Strategic management of health and safety at work: critical insights for HR professionals in the construction sector. Annals of Contemporary Developments in Management and HR, 2(1), 42–47.

Ahmed, U., Majid, A. H. A., Zin, M. L. M. (2016). HR moderating HR: Critical link between developmental HR practices and work engagement in a moderated model. Management Review: An International Journal, 11(2), 4.

Armstrong, J.S. Overton, T.S. (1977). Estimating non-response bias in mail surveys. Journal of Marketing Research, (3), 396.

Armstrong, (2001). A Handbook of Human Resource Management Practice. 7th ed. Arnold, B., Bakker, P., Matthijs, P., Matthijs, B. (2010). Weekly work engagement and performance: A study among starting teachers. Journal of Occupational and Organizational Psychology, 83(1), 189–206.

Asian insiders. (2021). Thailand Manufacturing Trends 2021. Retrieved 20 April 2021 from https://asianinsiders.com/thailand-manufacturing-trends-2021/.

Bakker, A. B., Demerouti, E. (2017). Job demands-resource theory: Taking stock and looking forward. Journal of Occupational Health Psychology, 22(3), 273–285.

Bamberger, P., Meshoulam, I. (2000). Human resource strategy: formulation, implementation, and impact. The Academy of Management Review, 25(4), 883–885.

Barney, J. B. (1986). Organizational culture: Can it be a source of sustained competitive advantage?. The Academy of Management Review, 11(3), 656–665.
Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of management, 17(1), 99–120.
Barrick, M. R., Thurgood, G. R., Smith, T. A., Courtright, S. H. (2015). Collective organizational engagement: Linking motivational antecedents, strategic implementation, and firm performance. Academy of Management Journal, 58(1), 111–135.
Beer et al., (1985). What is human resource management? Human Resource Management, 62–95.
Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. Academy of Management Journal, 39(4), 779 –801.
Brewster, (1994). Data Communications and Networks. 3rd Ed.
Channa, N. A., Shah, S. M. M., Ghumro, N. H. (2019). Uncovering the link between strategic human resource management and crisis management: Mediating role of organizational resilience. Annals of Contemporary Developments in Management & HR, 1(2). 15–27.
Charles J Fombrun, Noel M Tichy, Mary Anne Devanna. (1984). Strategic human resource management, New York : Wiley.
David, F. (2011). Strategic Management: Concepts and Cases 13th ed. Essex: Pearson Education Limited.
Deery, S. J., Iverson, R. D., Erwin, P. J. (1994). Predicting organizational and union commitment: The effect of industrial relations climate. British Journal of Industrial Relations, 32(4), 581–97.
Delery, J. E., Roumpi, D. (2017). Strategic human resource management, human capital and competitive advantage: is the field going in circles?. Human Resource Management Journal, 27(1), 1–21.
Dessler, G. (2013). Fundamentals of human resource management. Pearson, 3rd Ed. Draft, R.L., Kendrick, M. Vershinina, N. (2010). Management, Cengage Learning EMEA. London.
Edward G. Mahon, Scott N. Taylor, Richard E. Boyatzis. (2014). Antecedents of organizational engagement: exploring vision, mood and perceived organizational support with emotional intelligence as a moderator. Frontiers in Psychology, 5.
Elnaga, A., Imran, A. (2013). The effect of training on employee performance. European Journal of Business and Management, 5(4), 137–147.
Evans, J. R. (2017). Quality and performance excellence: Management, organization, and strategy. 8th ed. Boston, USA: Cengage Learning.
Fletcher, L. (2016). Training perceptions, engagement, and performance: comparing work engagement and personal role engagement. Human Resource Development International, 19(1), 4–26.
Fomi, D., Shriya R. (2017). A Study on the significance of strategic training for human development systematic approach to training for human resource development. Strategic Need of Training for Human Resource Development for Effective Make in India Movement. Conference: National - Make in India Theme by MSU, Gujarat.
Gedaliahui H. ,Harel, Shay S.m Tzafrir, T.(1999). The effect of human resource management practices on the perceptions of organizational and market performance of the firm. Human Resource Management, 38(3), 185–199.
Guest, D. H. J. (1987). Human resource management and industrial relations. Journal of Management Studies, 24(5), 503–521.
Gonçalves, H. S. (2009). Proposal of a strategy model planning aligned to the balanced scorecard and the quality environments. The TQM Journal, 21(5), 462–472.
Gratton, L., Hope-Hailey, V., Truss, K., et al. (1999) Strategic Human Resource Management. Oxford University Press, New York.
Harky, Y. (2018). The significance of recruitment and selection on organizational performance: The case of private owned oganizations in Ebril, North Iraq. International Journal of Contemporary Research and Review, 9(2), 20393-20401.
Harrison, R. (1993). Human resource management issues and strategies. New York: Addison-Wesley.
Hunger, J. D., Wheelen, T. L. (2011). Essentials of strategic management, Saint Petersburg, Florida: Prentice Hall.
Huselid, M. A., Jackson, S. E., Schuler, R. J. (1997). Technical and strategic HRM effectiveness as determinants of firm performance. Academy of Management Journal, 40(1), 171–188.

Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. Academy of Management Journal, 38(3), 635–700.
Iles, P., Mabey, C., Robertson, I. (1990). RM practices and employee commitment: possibilities, pitfalls and paradoxes. British Journal of Management, 1(3), 147–157.
Irene H. Chow, Jia-Chi Huang, Shanshi Liu, (2008). Strategic HRM in China: Configurations and competitive advantage. Human Resource Management, 47(4), 687–706.
James W. Walker. (1980). Human resource planning. Manpower Planning, McGraw-Hill.
Jiawen Liang. (2020). Recruitment and selection. Financial Forum, 9(3), 153.
John, C., Ralph, F. Catalanello, F. (1989). Strategic Readiness: The Making of the Learning Organization 1st ed.
Juliet, A., Proscovia, N. S., (2018). Staff participation and quality teaching and research in Private Universities in Uganda, Journal of Education and Practice, 9(17).
King'ola, S. N. (2001). Challenges of strategic implementation at Geomax Consulting Engineers (GEC), Master Thesis, University of Nairobi, Kenya.
Kessy, S., Temu, S. S. (2010). The impact of training on performance of micro and small enterprises served by microfinance institutions in Tanzania. Research Journal of Business Management, 4(2), 103–111.
Mahfouz, S.S.A. (2019). TQM practices and organizational performance in the manufacturing sector in Jordan: The mediating role of HRM practices and innovation. Journal of Management and Operational Research, 1(22).
Meyer, J. P., Allen, N. J. (1997). Commitment in the Workplace: Theory. Research, and Application Thousand Oaks, CA: Sage.
Morgeson, F. P., Brannick, M. T., Levine, E. L. (2019). Job and work analysis: Methods, research, and applications for human resource management. Sage Publications.
Musa, P.,Tulay, G. (2008). Investigating the impact of organizational excellence and leadership on achieving business performance: An exploratory study of Turkish firms. SAM Advanced Management Journal, 73(1), 29–45.
Nunnally, J.C., Bernstein, I.H. (1994). Psychometric Theory. 3rd ed. McGraw-Hill Series in Psychology, New York: NY, (21). 451–468.
Ogutu Joseph Odhiambo. (2020). Strategic management of HRM: Implications for organizational engagement. Annals of Contemporary Developments in Management & HR, 2, (3). 1–8.
Orlando, C., Nancy, J. (2001). Strategic human resource management effectiveness and firm performance. The International Journal of Human Resource Management, 12(2), 299–310
Ostroff, C. (1995). SHRM/CCH survey. Human Resources Management: Ideas and Trends in Personnel, 356, 1–12.
Owino, G.C, Ogachi, O.I, Olel, M. A. (2011). Role of institutional managers in quality assurance: reflections on Kenya's University education. Australian Journal of Business and Management Research, 1(2).
Paauwe, J., Boon, C. (2018). Strategic HRM: A critical review. Human Resource Management, 49-73.
Ranasinghe, H. K. G. S., Yajid, M. S. A., Khatibi, A., Azam, S. M. F. (2018). A systematic literature analysis of entrepreneurial orientation and business performance. Journal of Business Economics and Finance, 7(3), 269–287.
Rich, B. L., Lepine, J. A., Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. Academy of Management Journal, 53(3),617-635.
Robert, H. (2017). Standard Work: A Standard, or More Like a Guideline?. Retrieved 25 April 2021 from https://www.industryweek.com/operations/continuous-improvement/article/22004731/standard-work-a-standard-or-more-like-a-guideline.
Robert L. Mathis, John Harold Jackson, (1985). Personnel: human resource management. Personnel Management, West Publishing Company.
Rowe, G., Frewer, L. J. (2005). A typology of public engagement mechanisms. Science, Technology, Human Values, 30(2), 251–290.
Rrezarta Gashi. (2013). Strategic human resources management: Human resources or human capital. Academic Journal of Interdisciplinary Studies, 2 (9).
Saks, A. (2006). Antecedents and consequences of employee engagement. Journal of Managerial Psychology, 21(7), 600–619.

Schaufeli, W., Bakker, A. B., Salanova, M. (2006). The measurement of work engagement with a short questionnaire: across-national study. Educational and Psychological Measurement, 66(4),701–716.

Tunji, S. T. (2013). Effective internal controls system as antidote for distress in the banking industry in Nigeria. Journal of Economics and International Business Research,1(5), 106–121.

Truss, C., Gratton, L. (1994). Strategic human resource management: A conceptual approach. The International Journal of Human Resource Management, 5(3), 663–686.

Ulrich, D. (1997). Measuring human resources: an overview of practice and a prescription for results. Human Resource Management, 36(3), 303–320.

Werbel, J. D., DeMarie, S. M. (2005). Aligning strategic human resource management and person-environment fit. Human Resource Management Review, 15(4), 247–262.

Wright, P., Snell, S. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resource management. Academy of Management Review, 23(4), 756–772.

Wright, P. M., McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. Journal of management, 18(2), 295–320.

Wood, S., Albanese, M. (1995). Can we speak of a high commitment management on the shop floor?. Journal of Management Studies, 32(2), 215–247.

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WASTE MANAGEMENT IN SLOVENIA

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Abstract

The aim of this paper is to give a brief insight on waste management today and tomorrow - focusing on applications, advantages and disadvantages, the progress and the sustainable future. Now more than ever the global community faces choices that can either lead us toward or away from a more peaceful and prosperous future. And the national waste management is one of the crucial areas where we can all contribute to come to the desired goal. On the basis of qualitative research which was done in the period 2018 - 2020 we give a critical view on different aspects of the waste management in Slovenia.

Key Words

Waste Management; Sustainability; Slovenia.

INTRODUCTION

Among the sustainability challenges waste management is probably the most visible and therefore the easiest recognized component. Waste disposal or so called waste management includes all the activities which are required to manage waste from its beginning to its end: collection, transport, treatment and disposal of waste. This also includes monitoring and regulation of the process.

Waste management deals with all kind of waste: solid, liquid, or gaseous; industrial, biological and household. Since waste can be a serious direct or indirect (through consumption of water or food) threat to human health and environment, waste management should reduce all these effects. Let us point out that in compliance with standard ISO14001, the goal of which is to improve environmental footprint, companies eliminate their waste through recovery practices such as recycling materials (glass or paper, for example).

Let us also mention different methods how to handle with all kind of waste to achieve our main goal – to minimize all negative effects to our environment:

- Landfill: disposal of waste by burial.
- Incineration: conversion of solid organic wastes into residue and gaseous products.
- Recycling: reuse of waste.
- Biological reprocessing: composting and digestion processes of organic waste.
- Energy recovery: conversion of non-recyclable waste into fuel, electricity, heat.
- Pyrolysis: conversion of industrial residues into a recovered fuel.
- Resource recovery: diversion of waste for a specific next use.

Successful waste management has a good influence on all three dimensions of sustainability.

- Environment: Minimizing negative effects of waste, helping in the process of greenhouse gas emissions, etc.
- Economy: Creating markets for different methods of waste management, production and consumption of products from “nature-friendly” materials, new jobs and entrepreneurial opportunities.
- Society: Minimizing negative effects of waste on health, new source of employment, helping in the cases of poverty, more inclusive society, etc.

On the other hand, we have to point out that proper waste management is expensive. In most developed countries, handling with waste takes about 20% to 50% of municipal budget (from national or local tax). And what is more worrying, the cheapest options dealing with waste (such as landfill) are the worst options for the environment.

However, having all the technology and knowledge needed to address the pertinent issues, we are still far from acting accordingly and a satisfactory level of achieving responsible conduct in the business and private

environments. Waste management is still a big challenge for many countries. Even more, successful waste management is expensive – it usually takes between 20% and 50% of municipal budget. It requires huge integrated sustainable and socially supported systems.

In our highly urbanised and overcrowded planet we simply cannot afford gradual and slow adjustments, we need to recognize the urgency of the situation and align our life styles and business models to the requirements for keeping our planet less polluted, healthier and safer.

WASTE MANAGEMENT IN SLOVENIA

Indeed, waste management is not uniform among countries. Here are big differences between developed and developing nations; urban and rural areas; residential and industrial parts. In Taipei, for example, households and industries are charged by the city government as much waste as they produce – this successfully increased the amount of recycling waste. In San Francisco, the council banned Styrofoam and plastic bags, put charges on paper bags and increased garbage collection rates. But the goal of all systems stays the same: to build sustainable society, environment and business.

In Europe, Waste Framework Directive follows the hierarchy: prevention (preferred option), preparation for reuse, recycling, recovery and disposal (landfilling and incineration as the last option). According to the Environmental Action Programme, the goal of waste policy in Europe is: to reduce the amount of waste generated; to maximize recycling and re-use; to limit incineration to non-recyclable materials; to phase out landfilling to non-recyclable and non-recoverable waste; to ensure full implementation of the waste policy targets in all member states. One of the targets is “the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 55%, 60% and 65% by weight by 2025, 2030 and 2035 respectively” (EU Commission, 2019).

As the member of European Union, Slovenia has to follow the rules of the EU Waste Management Policy which was not the case 30 years ago, when 90% of all collected waste in Slovenia was putted in landfills. The biggest and the hardest change was in the approach of dealing with waste and people’s mindsets.

According to the data from the Statistical Office of the Republic of Slovenia, almost 3,6 million tons of waste was recycled in 2018 in Slovenia, which is 38% of all waste generated in or imported into Slovenia. Moreover, in the same year, 4.1 million tons of waste was recovered, which is 43% of all waste; 207.000 tons of waste was utilized for energy, which is more than 2% of all waste in 2018 in Slovenia and 39.000 tons of waste was removed, which is less than 1% of all waste generated in or imported into Slovenia in 2018. You can see the latest data in the following table.

Table 1: Generated Waste in Slovenia in 2019

Generated municipal waste	1.064.321 t
Generated municipal waste per capita	509 kg
Generated hazardous municipal waste	7.748 t
Generated hazardous municipal waste per capita	3,7 kg
Share of separately collected municipal waste	72,8 %
Landfilled municipal waste per capita	32 kg

Source: Statistical Office of the Republic of Slovenia (https://www.stat.si/StatWeb/en/Field/Index/13/70).

According to the date, we can claim that Slovenia has made crucial progress in waste management in a line with European Union's standards - with the main goal of protecting its environment.

"Slovenia is one of the cleanest and most environment-friendly countries, both in Europe and globally. As of today, it is the only European country with a zero waste capital, whilst 'green' tourism is also on the rise within Slovenia," wrote Rossella Recupero, communications officer at Zero Waste Europe, in a blog where she interviewed Katjo Stres, head of public relations and communications at Ecologists Without Borders, the leading non-governmental organisation in Slovenia dedicated to our environment.

According to Katja Stres, waste care is becoming a Slovenian lifestyle and this is a good basis for the national waste management. Let us just mention that Slovenia has a zero waste capital, annual zero waste events (for example, 300.000 people gather in one day to clean Slovenia), zero waste hotels and shops, people leaving in Slovenia are nature lovers and eager to even improve. Moreover, the Zero Waste Movement in Slovenia managed to prevent 15 thousand tons of mixed waste (Recupero, 2020).

Here, we should point out that Ljubljana – the capital of Slovenia - was the first capital city in Europe that commit to going zero-waste. Twenty years ago, Ljubljana began to separate waste. In 2013 they already had bins for paper and packaging and scheduled collections of bulky waste. More than ten years ago, the city recycled less than 30% of its rubbish. Today this number is more than 65%. And people of Slovenia can be proud that Ljubljana is at the top of the recycling board of European capitals. Let us also mention the Regional Centre for Waste Management which was opened in 2015 and uses natural gas to produce heat and electricity. "It processes 95% of residual waste into recyclable materials and solid fuel, and sends less than 5% to landfill. It even turns biowaste into high-quality gardening compost," wrote Luka Dakskobler (2019).

Of course, Slovenia still have many challenges and space to improve on the field of the waste management, in Ljubljana and elsewhere. For example, a disposal of glut of cemetery candles. And, what is even more important, one of the main goals in Slovenia should be to educate and reinforce good practices via different institutions, municipalities and governmental decisions.

WASTE MANAGEMENT IN SCHOOLS

Education institutions can make a great contribution to building general sustainability awareness, develop practical insights, and motivating young people to behave responsibly. They can achieve this role by respecting sustainability in two senses:

a) Integrating the concept into their curricula in various subjects, prepare their pupils to become responsible members of the society and responsible in their future professional roles as well as in their private lives.
b) Functioning of the institutions to be in line with principles of sustainability. The institutions of "knowledge and wisdom" have a natural responsibility in society for "being role models" – with great educational impact, but making also a broader contribution to local society and beyond.

We already introduced several methods of managing waste among which at least the following are proper to deal with waste on the school grounds. All these actions are ways to get rid of school waste and, on the other hand, to teach and acquaint young people with responsible behaviour towards the environment. The first step is to properly separate waste and to avoid sending waste to landfill. At schools we should also think about reusing waste around the school and in the local community (for example, reusing cloths, plastic bags, etc.). The next step is recycling – pupils should be introduced to the possibility of correct recycling of, for example, paper, plastic, glass, etc., and how this is essential for nature conservation and for the future generations. Moreover, separating organic food and compost it on the school gardens if this is possible is also a good practice.

In the last school year, the company ZEOS from Slovenia, conducted free eco workshops for primary schools in which the pupils and teachers were educated about proper waste management with an emphasis on how properly handle old appliances and waste batteries and why this is important (Dolinšek, 2021). Here, we also have to mention Eco-schools programme, which was founded in 1992 because of the need to integrate sustainable content into educational system worldwide. With the support of the European Commission, in 1994 the program was already present in Denmark (where Eco-Schools originated) Germany, United Kingdom, and Greece. It is a unique internationally recognized program of integrated environmental education, designed to promote and increase awareness of sustainable development among children, pupils and students through their education and through active participation in the local community and beyond. It is also the only nationally and internationally recognized program in Slovenian schools and faculties in accordance with the international criteria of the Foundation for Environmental Education (FEE).

Today more than 19 million pupils/students participate in the program in around 59.000 schools in 68 countries (also in US, China, Brazil, Japan) and these two numbers are rapidly growing. In Slovenia, more than 771 schools and faculties follow the program, 100.000 students and 8.600 teachers are involved in the project. And one of the priority areas of the program is, indeed, the area of waste management – teach young people how to simply manage our waste and how to minimize their impact on the environment. Moreover, pupils need to get acquainted with the importance of reducing waste, reusing goods and products and with recycling whenever possible.

Let us point out that, in general, food, paper, packages, some glass, metal, plastics are the main waste that are produced in schools and, by reducing their amount, schools can save money. Schools can also sell waste materials for recycling and get some extra money. Moreover, paper can be reused. In 2020, Slovenian Eco-schools programme carried out project with the title "We give new life to waste." Through the project activities, children and young people learn about the importance of circular economy. In particular, they increase the awareness about the importance of packaging: the composition of different types of packaging and the sources from which packaging is obtained.

Among others, the objectives of the projects were:

- Encourage and raise awareness among children and young people about the separation of different types of waste.
- Introduce and encourage children, young people and their mentors to learn about the composition of different types of packaging, the possibilities of their processing and recycling, and the use of new products from recycled materials.
- Raise awareness of the composition of different types of packaging and (natural) resources from which the package is obtained.
- Search and present examples of good practice in the field of waste separation, recycling and manufacturing, and the use of new products from recycled materials.

CONCLUSION

Our economic models and life styles have treated waste as an unavoidable by-product of production and consumption - to be disposed of as quickly and as inexpensively as possible. For far too long societies and governments have tolerated such an attitude, and now we have arrived at the stage when this is simply neither possible, nor acceptable any more. We should act much more sustainable and responsible towards coming generations.

Professor dr. Boris Cizelj (Cizelj et al., 2021), chairman of the board of directors of the Knowledge Economy Network wrote: "NGOs should keep alerting the authorities as well as the general public that fundamental change in our attitude towards waste is absolutely necessary. Secondly, there are the international organisations – particularly the entire UN system, including the UNEP who have developed and adopted a whole range of international conventions and action programmes (including the SDS 2030 Strategy), which are addressing the issues energetically and specifically with the intention to produce results. It is now up to the organised civil society, enjoying support from the scientists, who claim that too much time has already been wasted, to push the issue consistently. They have to insist that only a holistic approach, defined targets at the global level, and relentless efforts by all actors of civil society may be productive enough in exerting the pressure upon governments and parliaments. These have to urgently adopt

effective measures in favour of proper waste management practices, as well as to monitor the implementation of the measures at the national, regional and local levels."

If the entire regulatory system will encourage companies and individuals to behave sustainably, then we will be successful. At the same time everybody should understand the tangible benefits of a cleaner, healthier and safer environment. But for this to be achieved, everybody should be motivated to contribute consistently and according to their capacity.

Lack of funding is often a major obstacle in building the needed infrastructure. Let us point out that some waste management projects' funding conditions could be favourably adjusted since they directly serve the public interest. Unfortunately, this has been done only in some countries.

REFERENCES

Artasanchez, A. (2018). Nine reasons why your machine learning project fail. Available at: https://www.kdnuggets.com/2018/07/why-machine-learning-project-fail.html

Cizelj, B. et al. (2021). Waste management. KEN Weekly Brief No. 8.

Dakskobler, L. (2019). From no recycling to zero waste: how Ljubljana rethought its rubbish. The Guardian. Available at: https://www.theguardian.com/cities/2019/may/23/zero-recycling-to-zero-waste-how-ljubljana-rethought-its-rubbish

Dolinšek, U. (2021). Slovenian Children know e-waste well. AWARE. Available at: https://aware-eit.eu/2021/01/07/slovenian-children-know-e-waste-well/

European Commission (2019). Waste Framework Directive. Available at: https://ec.europa.eu/environment/topics/waste-and-recycling/waste-framework-directive_en

Goralski, M. A., Keong Tan, T. (2020). Artificial intelligence and sustainable development. *The International Journal of Management Education,* 18(1). https://doi.org/10.1016/j.ijme.2019.100330

Recupero, R. (2020).Chasing zero waste: How Slovenia has become a European frontrunner of the zero waste cities movement. Zero Waste Cities. Available at: https://zerowastecities.eu/chasing-zero-waste-how-slovenia-has-become-a-european-frontrunner-of-the-zero-waste-cities-movement/

Statistical Office of the Republic of Slovenia: https://www.stat.si/StatWeb/en/News/Index/8903

Statistical Office of the Republic of Slovenia: https://www.stat.si/StatWeb/en/Field/Index/13/70

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MANAGEMENT AND MANAGING HUMAN RESOURCES

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Abstract

Human resources management is an important strategic branch in every industry owing to its specific task of talent management, selection of competences, employees' knowledge and skills in order to achieve competitiveness in the market. The basic goals of human resources management are recognition of knowledge and skills and management of such information in coordination of employees in their work environment with the aim of employee growth and development which ultimately leads to growth and increased competitiveness in the market. Therefore, present-day human resources management is an important process of strategic management of a company as motivated and satisfied persons are the driving force of every company.

Key Words

Human resources management; knowledge; skills; growth and competitiveness in the market.

INTRODUCTION

In the ever-more-complex and turbulent economy of the late 20th century to present-day, there is an evident need for developing human resources and an exponential investment in the same. Hence, human resources have entered the strategic structure of market-oriented companies.

Recently, there has been an observed increase in reporting on the topic of the importance of employees as a powerful tool for achieving a unique (single, uniform) competitive advantage as, after all, it is only *man* who can make that "small" difference happen.

Managing human resources appeared as the key instrument in creating a company's strategy. Successful management of an individual's knowledge and skills leads to employee motivation within a business organization, and the quality of work performance important for the organization depends on motivation.

The human factor has a growing significance for the development of a company, business activity and competitiveness, making it the reason for increased interest of scientists and researchers in that particular area.

Human resources management, as a very significant business function, creates a specific manner of management with the philosophy which positions employees as the key competitive advantage. The direction of this philosophy places man in the central position in some elements of organizational success.

For a long time now, successful companies have regarded investing in their employees as investment rather than expense, aware that their employees are their major competitive advantage.

The aim of this paper is to give a short analysis of the trends in human resources management, its direction, key activities and challenges rather than an empirical validation of particular hypotheses.

The problem discussed in the paper is the human factor as one of the key factors in the business success (performance) of organizations. In compliance with the topic, a hypothesis was defined: Carefully selected and motivated employees, provided with adequate knowledge management and intellectual capital, jointly enable successful business activity and maintenance of a unique competitive advantage.

The aim of this paper is to present the importance of human resources in creating a competitive advantage.

The purpose of this paper is to raise awareness of the significance and scope that human resources have in the business processes of a company and also in the company's positioning with respect to competition.

The National Competitiveness Council of the Republic of Croatia in the working materials by the expert working group for education, growth and development states the following: "Each national economy and its competitive position depend primarily on the quality of its human resources. The use of those resources and investment in their quality are primary factors of development. Education is involved in the increase of competitiveness of an economy as it enables the acquisition of skills,

attitudes, values and knowledge necessary for individuals to meet the needs of work and social roles.

DIRECTION IN HUMAN RESOURCES MANAGEMENT IN ORGANIZATIONS WITH RESPECT TO TRENDS

With respect to the very demanding and turbulent business environment and globalization, organizations are more frequently directing focus on managing human resources. Focus and direction are set through managing the following activities:

- Managing competences
- Managing talents
- Managing knowledge
- Managing intellectual capital

Managing competences

The essential element in any organization is its employees. Only motivated and well-educated employees can meet the goals and tasks set before them. In order for employees to successfully do their work, they need particular skills and knowledge for each position.

Mere possession of particular competences is insufficient for establishing an advantage over competition. A combination of competences aligned with the company's business aims and development strategies is necessary. The goal is for employees and a company to develop together in the same direction. It is important to emphasize that the company can develop and be successful only if the skills needed by employees are clearly defined.

Professional staff, which progresses and is educated, which is capable of tackling challenges and open for innovativeness and creativity is staff which can successfully realize a company's plans and goals. Competence models are very useful when defining and analyzing skills necessary for particular positions and for estimation of necessary but also existing competences of individual employees, teams and organizations. They are a good tool for defining criteria for employee advancement in line with competences. At the same time, they make an exceptionally important link for carrying out company reorganizations where the company, most frequently, along with the reduction of employees must keep the necessary competences. The mentioned management model "detects" talented staff which is the foundation for talent management.

Successful competence management defines necessary knowledge, skills, characteristics and manners of behavior which are necessary for particular work, in particular positions to be carried out successfully, i.e., with improved and more efficient operational performance. In that way, an organized company has a basis for growth and development and increased profitability.

Support and cooperation with top management is crucial for organizing and implementing the competence model. Without support from “the top” it is impossible to get support and establish cooperation among all members in an organization, which is necessary for successful implementation of the model. The key task of human resources management is to educate and inform employees on the impact and influence this model has on them, their work and career development.

The structure of the competence model itself should be defined to be flexible with market changes and adaptable for upgrades and implementation of new competences. The aim of competence management is to recognize and define necessary competences for efficiently carrying out work assignments and success. What follows from the mentioned is the importance of the role of competence management within the system of human resources management.

Talent management

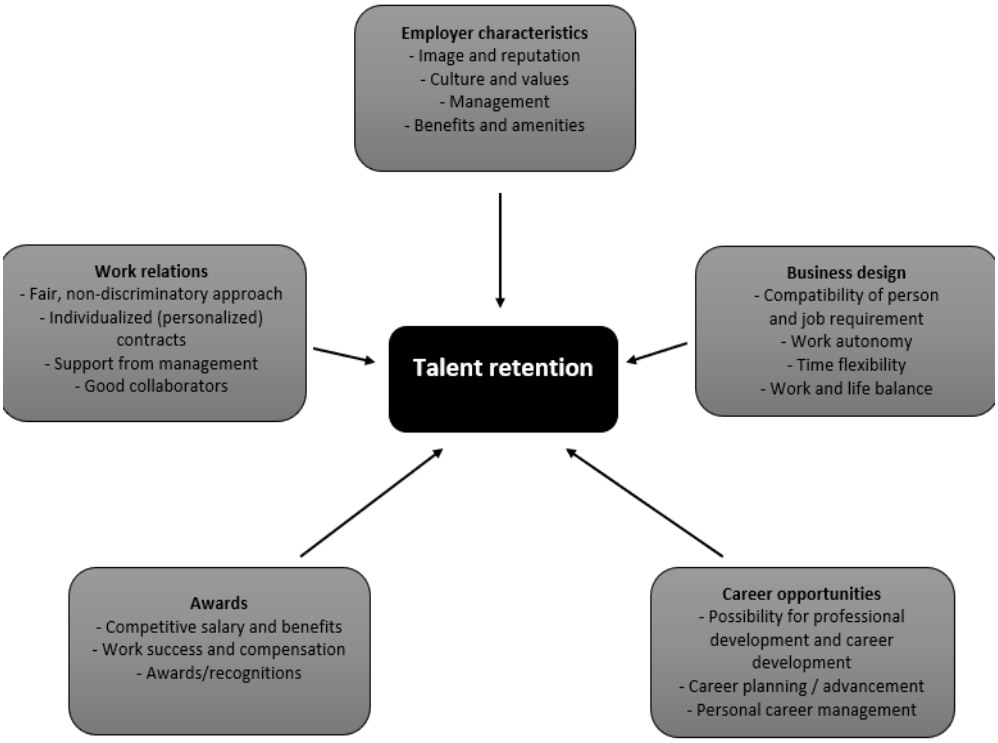
Along with competence management, talent management is one of the strategically greatest challenges for human resources managers. Focus is on employment strategy and retention, remuneration and estimate. The goal is retaining the best, i.e., most talented and most qualified employees and along with competence management is one of the most important tasks in human resources management. Taking into consideration the entire field, talent management today is possibly one of the most demanding tasks in managing human potentials. Globalization, opening of the labor market places entirely new challenges before management and demands, with all available tools, a large dose of innovation.

Having adequate persons in adequate positions is the aim of every successful organization and management of human resources. That is the reason why today organizations place particular attention on talent management.

The tasks which permeate this segment of human resources management are varied. Along with selecting and retaining talents and their development, focus on creating a desirable employer image is more evident. That is the foundation, basis for attracting talented staff and also retaining them.

Retaining talents is one of the key challenges but also one of the key issues of present-day organizations. As has been mentioned, globalization of the talent market and labor market opens new possibilities for talented staff and they are actually becoming most sought-for and most-mobile. On the other hand, this created new organizations which, in a sophisticated manner, search and attract talents for their clients.

Figure 1: Talent retention



Source: Bahtijarević-Šiber, F. (2014). Management ljudskih potencijala, Golden marketing, Zagreb.

In order to retain their employees, particularly the talented ones, companies must continuously motivate their employees. Motivation, which has developed to a much higher level than mere financial compensation, is the bond between employees and the company and is crucial for remaining in the company. Motivation can be defined as any enticement which creates, defines and maintains the targeted behavior of employees.

Employee motivation has an influence on a company's business, accomplishment of planned goals and success in carrying out projects. What is most likely fundamental today is that the success of implementing changes which are inevitable in the period before us depend on employee motivation.

In order to retain talents, it is necessary to create a rewards system which is not entirely "routine" but adapted to the preferences of the talent. Only through partial personalization of the rewards system will the organization be capable to retain talents in the organization and achieve among them the "new dimension of loyalty".

In that way, those employees actually become authentic ambassadors of a company and they co-create the desirable employer image. Word-of-Mouth Marketing is becoming more frequently used and is a very efficient manner of promotion companies use for communication with their customers. The same principle could actually be applied through employees

in creating a desirable employer image. According to the research by Mixon (2015) 84% of people trust a recommendation from a friend or acquaintance, while only 45% trust an advertisement. If we apply the same to the company and employees, as we are actually "selling" it to employees, we can conclude that the experience of employees and personalized approach to motivation is a powerful tool for retaining employees on the one hand and acquiring new talents on the other hand.

Knowledge management

Today, knowledge management is particularly challenging for a company's operations considering the velocity of changes. Maximum exploitation and increase of knowledge is an essential task of a modern organization. It is very important to mention that knowledge management is a procedure in which an organization aims to collect particular data and experience from an individual in order to apply such knowledge in certain problem-solving situations.

A significantly large number of employees in companies have hidden knowledge. According to some research almost 70-80%. It is interesting that the same can be transferred only through experience. That necessitates allocation of time, which appears to be a key problem. That is why mentorship, along with planned staff development, is an essential device in transferring hidden knowledge. Classification of knowledge (Gagne 1989):

- verbal information
- intellectual skills
- cognitive strategies

In recent times, knowledge is perceived from the point of assets and capital through which it obtains its commercial value. However, there is a significant difference between goods and other resources with respect to knowledge, i.e., knowledge cannot be exhausted by consumption. What is more, through transfer and sharing of knowledge its value increases and is unlimited as a resource.

With the use and upgrade of what has been mediated through an individual's personal contribution, knowledge can be used in several ways. Unfortunately, a lot of valuable knowledge leaves the company with an employee's departure. Therefore, it is very important to establish a system of management which combines existing knowledge, upgrades it and places particular attention on continuous review of additional space and potential in the existing knowledge along with systematic transfer of knowledge.

Structuring as the key to a successful system of knowledge management

Knowledge should be classified according to a structure considering that lack of structure and mere distribution of knowledge would lead to an overflow of useless data. Organization, identification, and control of knowledge are critical for the functioning of a workplace, product and phases of the process.

Knowledge transfer and sharing

Knowledge transfer and sharing is a crucial sub-process in knowledge management. It demands that persons who need to transfer particular knowledge or information are willing and ready to cooperate and engage additionally.

There are two ways of knowledge transfer and sharing. The first is research of the knowledge bank, databases, internet, i.e., use of information technology while the second is establishing direct contact with persons for which it is known or is assumed to possess particular knowledge.

Use and application of knowledge

The use and application of knowledge is a systematic activity which needs to be encouraged and organized. Conditions and postulates should be ensured for its continuous functioning. The conditions which must be met are individual and organizational prerequisites.

Knowledge processing can result in competitive advantage. Should a rival company achieve product quality and price, a company which is knowledge rich and adequately manages knowledge during that period can achieve a new level of quality, innovativeness and efficiency.

Managing intellectual capital

Intellectual capital is defined as a company's value observed through the sum of values of human, structural and consumer capital. A characteristic of intellectual capital is that it is not tangible as are material assets and that is the reason why it is sometimes very difficult to estimate. The definition derives three types of intellectual capital;

- Human capital – employees' knowledge, their possession of skills and their abilities,
- Structural capital, business processes, databases, patents, intellectual property
- Consumer capital – customer and supplier relationships, consumer capital implies a company's image.

Managing intellectual capital is a systematic managerial activity directed towards identifying, evolving, creating and drawing value from an organization's intellectual asset. The function of intellectual capital is the following:

- Transforming human capital into the organization's capital and asset.
- Measuring intellectual capital.
- Developing and increasing the value of intellectual capital in creating value.
- Drawing value and market capitalization of intellectual property.

Capital can be managed through the following four steps:

- Identifying and evaluating the role of knowledge in business activity as input, process and output – the first step in capital management demands determining the multifold specialization of business activity, who is paid for what knowledge, who is paying and how much and whether the one who possesses knowledge possesses greatest value.
- Matching realized profit with knowledge capital which produced it – the next step is establishing what value do expertise, ability, brand, intellectual capital and other intellectual capital create for the company (organization), i.e., which combination of human, organizational and social capital enables that.
- Developing a strategy for investing in intellectual capital and its exploitation - it is necessary to determine the propositional value, source of control and profit model, strategy for increasing knowledge use in business activity and manners through which the ability to use intellectual capital of a company can be increased.
- Increasing work efficiency through upgrading of employee knowledge – the final step in capital management is increase in employee knowledge productivity whose work does not follow a linear path as does manual work.

The synergy and successful management of all segments of intellectual capital (human, structural and consumer) sets the foundation for creating additional value to an organization and development of competitive advantage in the market.

Every organization has its specific intellectual capital through the three basic elements of intellectual capital (e.g., knowledge, image, organization, abilities) which can be transformed into market value. Managing intellectual knowledge is an opportunity every organization has as it influences the development but also maintenance of a unique competitive advantage. Along with that, successful management increases the market value of the organization itself and generates profitability growth.

Crisis and intellectual capital

In times of crisis, the most powerful tool of an organization in the fight for survival is intellectual capital. Intellectual capital makes the organization less vulnerable to various types of crises. Intellectual capital:

- Tradition, leadership, employees' experience, motivation
- Readiness for innovation and development of new product and service offers in line with market changes
- Image, brand, recognition, loyalty
- Readiness to carry out changes in an organization, process management, growth and development
- Trust and support / customer loyalty
- Process optimization, obstacle removal, introduction of change and improvements

- Satisfaction and loyalty of customers and other external stakeholders.

Human capital

Cohesion, joining into one entity - human capital, along with modern technologies and structural capital produces a synergy of “invisible capital” which, particularly in times of crises, is invaluable. However, the brain, pure technical knowledge, is not sufficient. What is inevitable is the synergy of knowledge and emotions which through product, service, or process innovation is transferred to the customer or employees.

Here it is particularly necessary to mention the importance of leadership. Leaders who “dare” to be innovative, different, less traditional, become a very valuable human capital of an organization. Each crisis brings along irretrievable changes in the habits of customers and employees. Leaders who are ready and who are focused on quick, not long term, planned solutions, who are ready to give their “soul” to the organization even in difficult times without neglecting traditional managerial skills are leaders which organizations will be in need of. Crises, such as the Corona crisis for example, are not a foreseeable crisis. Those who have the knowledge and skills, but also intuition and inspiration to elevate oneself and the organization/team beyond the actual situation and distribute their energy towards “change”, and who trust that unity can lead to a solution, they are the top human capital of an organization. Awareness of the importance of such human capital is becoming more prominent although it is not measurable through traditional value estimates of an individual company.

When referring to human capital, it is important to emphasize the development of each employee but also teams. Again, synergy is the key as the value of intellectual capital is not sufficient rather it is the development of teams and their interpersonal synergy.

Consumer capital

In present-day markets, the product itself is not critical for purchase as products are more or less balanced and the differences between competing products are actually minimal when compared. What counts is consumer trust, the consumer’s emotion relating to the organization and brand with which the consumer shares its life philosophy. The product itself today is taken for granted with all its characteristics, but the difference is in the emotion, in the “invisible”. Successful organizations involve the “consumer” as part of the team and answer to the customer’s needs. Segmentation and focus are crucial here and add value to the basic product.

Attentiveness to the consumer calls for analyses of necessary activities - what direction to take, what changes to introduce, create new or upgrade the existing? The consumer with his needs is the focal point of a successful organization and the purpose of such an organization.

CONCLUSION

The human factor in a company's development, business activity and competitive advantage, has an increasing significance. For that reason, managing human resources is an important process in strategic management of every company as motivated and satisfied persons are the driving force of a company. Considering the very demanding and turbulent business environment, globalization of the labor market, and the specificities of staff in industries, managing human resources is becoming the strategic peak of an organization. As emphasized in the paper, management of human resources develops a philosophy which considers the employee as the most important potential and key competitive advantage. That philosophy gains ground in any industry which necessitates staff with specific knowledge. The more specialized the industry, the greater the need for particular knowledge, talents and skills.

The paper analyzed basic strategic tasks of human resources management in organizations through competence management, talent management, knowledge management and management of intellectual capital.

In competence management, focus is on establishing, developing, and aligning organizational and individual competences with the aim of achieving business and strategic goals of an organization. Talent management presupposes a broad spectrum of activity of which particular emphasis is given to retaining talent as one of the key challenges in every organization. Globalization of the talent and labor market unlocks new possibilities for talented staff. At the same time, human resources managers are given space for innovativeness and personalization in the system of motivation. Only companies which will be able to apply innovation and personalized approach to talents will be able to retain their talents in the future, and by doing so create a competitive advantage in the market. In addition to the mentioned, it is important to say that the most authentic creator of the desirable employer image is a motivated employer.

In order to increase success of an organization, it is necessary to manage knowledge through enticing and creating conditions for increasing the creation and application of a company's knowledge. Here we particularly emphasize transfer and knowledge sharing as the key sub-process in knowledge management. Unfortunately, some valuable knowledge leaves the company with employee departure for the majority of companies, which opens potentially new areas for improving knowledge management in an organization.

In line with what has been mentioned and market trends, the future of successful organizations must be founded on knowledge. It is necessary to recognize the significance of intellectual capital and accordingly structure tools and techniques which will carry out the transformation of existing organizations to knowledge organizations.

The challenges that the market places before us demand a course of investment and management of intellectual capital as the key device for maintaining competitive advantage.

REFERENCES

Buble, M. (2006). Menadžment, Sinergija, Ekonomski fakultet. Split.
Bahtijarević-Šiber, F. (2014). Management ljudskih potencijala, Golden marketing, Zagreb.
Edvinsson, L. (2002). Corporate Longitude - Navigating the knowledge economy, BookHouse Publishing.
Edvinsson, L. (2003). Korporacijska longituda.-Navigacija ekonomijom znanja, Differo, Zagreb.
Evans, M. G. (1986). Organizational Behavior: The central Role of Motivation, Journal of Management.
Mixon, I. (2015). Word of Mouth Marketing Statistics That You Should Know. The Ambassador Blog. Ambassador.
Sikavica, P., Bahtijarević-Šiber, F., Pološki Vokić, N. (2008). Temelji menadžmenta, Školska knjiga, Zagreb.
Noe, R. A., Hollenbeck, J. R., Gerhart, B., Wright, P. M. (2006). Menadžment ljudskih potencijala: postizanje konkurentske prednosti, Zagrebačka škola ekonomije i managementa, Zagreb.
Branch, E., Robarts, M. (2014). Branch's Elements of Shipping, Routledge, New York.
Sundać, D. (2009). Intelektualni kapital: temeljni čimbenik konkurentnosti poduzeća, Ministarstvo gospodarstva, rada i poduzetništva, Zagreb.

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THE PERCEPTION OF WELL-BEING IN EUROPEAN COUNTRIES

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Abstract

This paper deals with the identification of factors that influence the level of subjective well-being of the population in selected countries. The analysis is based on the data from 30 countries, which are classified into groups with similar characteristics by a cluster analysis. The paper then further examines the functional relationship between well-being and the presumed factors with the use of the multiple regression model (OLS method). The factors used for the analysis were the relevant economic and demographic indexes. The results of the regression analysis demonstrate that significant factors included the net income indicator and the risk of poverty rate. The obtained models also indicated a negative impact of the risk of poverty rate and a positive impact of the net income on subjective well-being below the designated level of significance.

Key Words

Cluster analysis; multiple regression analysis; net income; risk of poverty rate; well-being.

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INTRODUCTION

Countries have always sought to coordinate their national policies in a way that contributes to increasing the prosperity, standard and quality of life of their citizens. This intention, according to Dalziel et al. (2018), is mostly fulfilled through efforts to increase economic growth. This is based on the assumption that poverty reduction is associated with a higher quality of life. A high economic level of a country undoubtedly contributes to better living conditions, higher wages, and possibly better job opportunities. Therefore, many economists have begun to wonder whether this is sufficient. There has been a growing interest in more comprehensive measures of economic activity and social development. In this context, the concept of subjective well-being has increasingly emerged to best capture an individual's subjective assessment based on individual judgements related to overall life. The notion of well-being first came to the public's attention with the publication by the eminent economists Stiglitz et al. (2009), which concluded that GDP is an unreliable measure of the state of a country and that other factors should be taken into account when making policy.

Among the authors of the research of the given issue, there are various conclusions and opinions on whether the economic level is at the same time a sufficient identifier of the aforementioned well-being of the population in a country. Experience also shows that the pursuit of growth may result in economies that, on the contrary, reduce well-being. Lovo (2014) notes that an essential reason for studying well-being is to obtain an international comparison by examining the determinants of potential migrants for choosing a target country. While governments primarily look at indicators such as GDP, people may consider other aspects as indicators that make a country more attractive. Lovo (2014) found that potential migrants are more attracted to countries with higher average life satisfaction. This implies that life satisfaction measures are more reflective of a country's level of success than the standard macroeconomic indicators. This has begun to highlight the importance of also considering aspects of people's satisfaction and subjective well-being for deciding what social goals to focus on and what policy decisions to take.

Over the past few decades, several studies have been conducted on various variables and their relationship to well-being in the search for answers to the question of what actually influences the well-being of the population of a country. These studies mostly focus on indicators of income, income inequality, unemployment, or the aforementioned GDP. However, the conclusions of these studies do not produce consistent results.

It is the existence of these different conclusions that has prompted our research of the links between subjective well-being and the factors chosen in this work from other expert studies. This study concentrates on examining the relationship between the selected determinants and well-being in selected European countries, and on classifying the countries into the groups based on their similarities.

THEORETICAL BACKGROUND

Income appears to be one of the most important determinants, with a logically expected positive effect on happiness and hence well-being. The relationship between income and well-being has attracted quite a lot of interest, as demonstrated by the largest part of literature and research dealing with this topic in comparison with other determinants of well-being. According to Stutzer (2004), it is assumed that people's well-being depends on how much income they have in absolute terms. Their study shows a positive correlation between income and well-being.

According to Blanchflower and Oswald (2005), the idea that "income buys happiness" is more or less based on deductive considerations than on real research. Caporale et al. (2009) confirmed the positive correlation between income and well-being, but this relationship, according to earlier research, may not necessarily be valid in every case. For example, Easterlin's (1974) results showed that when a country's real income increases continuously, happiness ceases to have an increasing tendency over time. He considers the existence of a certain point in the income level above which well-being ceases to be correlated with income. This fact is also known as the Easterlin paradox. Nevertheless, Degutis et al. (2010) clearly suggest that the denial of the relationship between income growth and life satisfaction defended by Easterlin is certainly incorrect. Haushofer and Fehr (2014) also recently found that the aforementioned point does not exist, and that higher income is also associated with greater life satisfaction. In the article Bencsik and Chuluun (2021) point out the importance of income for individuals in the population.

Blanchflower and Oswald (2004) further add that more than income itself, people respond to relative income - defined as the ratio of an individual's income to the national average income per capita. The assessment of one's subjective economic situation plays an important role in one's perception of one's own life. Hovi (2021) used micro-data from 30 countries in his study. The results also suggest that, despite aspirations, higher income improves life satisfaction even in high-income countries where aspirations totally offset emotional well-being. In this context, according to Stutzer (2004), it is not about the absolute level of income, but about the position of the individual in comparison to others. Caporale et al. (2009) demonstrated a negative relation between income inequality, defined as reference income, and well-being. They also pointed out differences between Western and Eastern European countries, whereby in Eastern European countries they found a positive effect of reference income. Therefore, a double effect of income inequality on well-being emerged. Probably less expected, a positive effect tends to be explained through Zagórski's hope factor (1994) or Hirschman's tunnel effect (1973). Both terms describe a kind of optimistic view of individuals about the increasing income of another group of people, as a signal of a potential increase in their income in the near future (Hirschman, 1973).

The results of the research conducted by Hajdu and Hajdu (2014) provide evidence that while income inequality is not a significant determinant of well-being in Western European countries, its effect in Eastern European countries is strongly negative. In addition, they also provide clear evidence that reducing income inequality positively affects an individual's well-being.

Kelley and Evans (2017) are partly inclined to the results of Hajdu and Hajdu (2014) by arguing that in developed countries income inequality is irrelevant to an individual's well-being. In developing societies, on the other hand, as economic growth increases, inequality and well-being increase simultaneously. This increase in well-being, despite rising inequality, is explained by the aforementioned hope factor, where individuals associate inequality with opportunities, i.e., hope for the future. In the effect of income inequality in less developed countries, the result is consistent with the study of Caporale et al. (2009).

Income and the amount of income are undoubtedly related to a lack of it. Haushofer and Fehr (2014) point out that poverty may lead to negative psychological consequences such as stress. Molotsky and Handa (2020) also agree with this statement, adding that material deprivation also affects an individual's future behavior and decision-making in this way. Of the 25 reviewed studies identifying the impact of poverty on well-being, 18 found a significant positive association between poverty alleviation and aspects of psychological well-being or stress (Haushofer and Fehr, 2014). However, studies have been conducted in countries with extreme poverty, where this factor has a significantly greater negative impact on the lives of individuals compared to European countries. Therefore, there is a slight assumption that this variable will not be significant in places without the presence of extreme poverty.

An important part of human life, and therefore also the issue at hand, is any factor relating to the working status of the population. The resulting effect of unemployment on well-being is, from a simple consideration, clearly negative. Nikolova and Graham (2014) confirm the expected negative impact of unemployment on well-being. The results of Knabe and Rätzel (2010) lean more towards a negative dependence. Although the employed are more satisfied with life than the unemployed, Knabe et al. (2010) explain that the unemployed may use more of their free time for more enjoyable activities than work, and therefore their level of well-being is ultimately not very different from that of the employed. This implies a neutral effect of unemployment. This neutral effect was confirmed in a study by Dolan et al. (2017). The work by Hoang and Knabe (2021), which builds on the study by Dolan et al. (2017), among others, points out that inconsistent research results may be due to the definition of work status and also the choice of how well-being is measured. According to them, two opposing effects operate between well-being and unemployment. On the one hand, the unemployed may suffer from feelings of inferiority and fear of no income. On the other hand, the employed tend to be more tired and stressed. In the article, Svetek and Drnovsek (2021) examine the impact of different types of business activities on subjective well-being of nations. Based on modeling,

they found that opportunity-driven entrepreneurial activity has a positive impact on subjective well-being.

At first glance, it may seem that there is not much to investigate in the link between education and well-being, and the impact of education is logically positive. However, many studies over the years have yielded results that contradict each other. The study by Blanchflower and Oswald (2004) shows that education has the expected positive effect on well-being as mentioned above. Their study also shows that education has an effect on its own, independent of the effect of the expected higher income associated with higher education. Stutzer (2004) argues that people with an average level of education report greater satisfaction than people with low or, conversely, high levels of education. Dockery (2010) found a negative relationship between education and well-being. However, he was unable to explain the reasons for this negative relationship.

Powdthavee et al. (2015) looked at both the direct and indirect effects of education on life satisfaction. They revealed the indirect effects by multiple modelling through five different channels: income, marriage, employment, number of children and health. This revealed a significant negative correlation between education and life satisfaction. On the other hand, the indirect effects of education on life satisfaction through income, employment, marriage, and health were positive and statistically significant, with the largest estimated indirect effect of education on life satisfaction being through the income channel. Kristoffersen (2018) explains that the often common negative correlation between education and well-being may seem illogical, but is in fact consistent with the idea of a link between higher education and higher expectations of life circumstances. Therefore, his research takes a different angle, one that focuses on these expectations of individuals. A positive correlation may only occur if the ability to meet these expectations were increased by education, which may not actually be the case. In general, a moderate positive correlation is observed, but due to real life situations, the overall association between education and well-being is neutral.

In support of a link between well-being and migration, Polgreen and Simpson (2011) suggest that the relationship between migration and well-being may be twofold. The first is where well-being affects migration and the opposite where migration affects well-being. The latter is based on the assumption that the presence of immigrants may affect the well-being of residents in a given country. It is the effect of the presence of immigrants in a given country that appears to be interesting to examine. The conclusions of their research come with the assertion that although the direction of causality between well-being and migration cannot be discerned in the context of the available data, a relationship between them does exist. Based on simple reasoning, one would expect that if this relationship were significant, it would be negative. However, given the lack of research and data in this area, it is not possible to say this with certainty.

Continuing with the assumption that high economic growth is the best means of contributing to improving the well-being of the population, the question of how these two facts relate to each other in reality arises.

Presumably, if there is any relationship between GDP and well-being, it will certainly be a positive one. Raising the economic level of a country should clearly have a positive impact on the population and increase their well-being. The problem here, however, is that this relationship seems to be questionable based on the research, and even differs in developed and developing countries. The research performed by Easterlin (1974) on the dependence of economic growth and well-being showed no clear relationship between these two variables in developed countries. Kenny (1999) wonders whether economic growth affects well-being or whether the direction of influence is opposite. He notes that it is possible that both factors influence each other. A certain economic level is necessary for individual happiness, but there may also be a causal link in the direction from happiness to greater economic growth. But this relationship is not considered important in rich countries, where the meaning of happiness has long been separated from the means of economic growth.

Using the specific example of oil purchases, Stiglitz et al. (2009) argue that such purchases increase GDP but do not lead to an increase in welfare or well-being. This tends to suggest that there is no relationship between economic growth and well-being, at least not a significant one. Thomas and Evans (2010) based their study on the publication by Stiglitz et al. (2010). They agree that the measurement of output (GDP) does not cover the relevant dimensions of subjective well-being. The results of their research, conducted on UK data, showed that over the 33 analyzed years GDP evolved significantly differently GDP evolved significantly differently to subjective life satisfaction. While GDP trended upwards, the satisfaction indicator remained constant. Because of the contentious relationship between GDP and well-being in developed countries, Kenny (2005) focused on less developed and developing countries, with the assumption that at least there the relationship may be strong and unambiguous. The research results suggest, however vaguely, that there is some sort of relationship between economic growth and increases in well-being in developing countries.

Di Tella et al. (2003) believed that macroeconomic aggregates, which include GDP, matter in relation to well-being. Their research shows that people's responses to happiness and satisfaction are strongly correlated with GDP per capita, which is a key finding of the study. An important question, according to Di Tella et al. (2003), is whether economic growth leads to a permanent or only temporary increase in national satisfaction. They concluded that, based on the statistical research conducted, both are possible. The time series analysis performed by Stevenson and Wolfers (2008) determined that in many cases happiness tends to increase in countries during periods of economic growth. An even larger increase is observed when economic growth is faster. Different results were determined for the US, where no significant increase in well-being in relation to GDP was observed. In contrast, Japan and Europe were mentioned as being prime examples of the upward trend in well-being during periods of rapid economic growth.

Stevenson and Wolfers (2008) reiterated that research providing data on well-being are limited and, therefore, may be less clear and biased. Nevertheless, they agree with the hypothesis of a positive relationship between GDP and well-being; therefore, like Di Tella et al. (2003), fall into disagreement with claims that economic growth does not bring happiness. In relation to this inconsistency with previous assumptions about the insignificance of the relationship between GDP and well-being, a study using correlation and regression analysis by Degutis et al. (2010) demonstrates that GDP is positively related to levels of life satisfaction. The findings also suggest that the relationship is particularly strong in Eastern European countries, but also remains positive in many Western countries, which partially confirms the assumptions of Kenny (2005) that the relationship is stronger in developing countries.

RESEARCH OBJECTIVE, METHODOLOGY AND DATA

For the purpose of the analysis, a period of three years was chosen, namely 2016, 2017 and 2018, with 30 selected EU countries being examined. The years and the countries were selected based on the availability of the necessary data. The data required to carry out this work were collected from credible public databases, specifically from the Eurostat and Gallup World Poll (GWP). The well-being data were taken from the GWP questionnaire survey, which is also the main underlying source for the World Happiness Report. GWP uses Cantril's ladder to measure subjective well-being. It is a scale with a range of 1-10, where 10 is the best possible imaginable life and 0 is the worst possible life (Cantril, 1965). Thereby, well-being is an artificial quantity without a unit.

Annual data of net income, the Gini coefficient, risk of poverty rate, unemployment rate, number of tertiary graduates, number of immigrants, and GDP per capita were selected as the assumed variables whose relationship with well-being will be examined in this paper. Table 1 summarized the basic characteristics of these variables.

Table 1: Characteristics of individual variables in 2018

Variable	Average	Min	Median	Max
Well-being	6.6336	5.099	6.591	7.858
Net income	16 459	6 278	17 110	27 529
Gini coefficient	29.7	20.9	29	39.6
Risk of the poverty rate	21.5	12.2	19.8	32.8
Unemployment rate	6.4	2.2	5.5	19.3
Number of tertiary graduates	74.3	21.2	72.1	146.2
Number of immigrants	157 958	7 253	74 424	893 900
GDP per capita	31 903	15 500	28 550	79 000

Source: Own survey.

The examination of the relationship between well-being and the variables considered is based on a multiple regression analysis, and on the ordinary

least squares method, which was also used in studies by Dolan et al. (2017), Zámková and Blašková (2013) and Adamec and Střelec (2012). The explained variable is well-being, whose determinants will be examined.

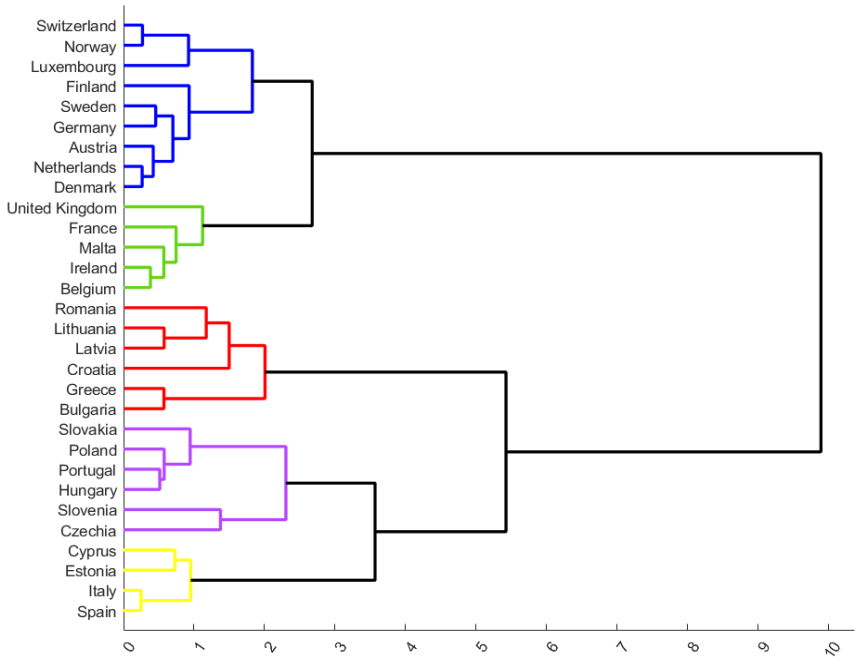
Cluster analysis is used to compare and classify the studied 30 European countries into groups based on the selected characteristics like in Kabát et al. (2014) and Blašková and Bohušová (2013). Clusters are formed on the basis of similarities. Similar to Staňková and Hampel (2017), Euclidean distance is used for clustering and Ward's method is used to calculate the differences between the clusters. The result of the cluster analysis is presented in the below dendrogram.

RESULTS

Cluster analysis

As part of the work, the years 2016–2018 were analyzed. In all of these years, the results of the analysis were approximately the same and, therefore, the year 2018 is further presented with the use of the below dendrogram. The best obtained outcomes for the three years were constructed based on well-being, net income, and the risk of poverty rate. Figure 1 shows the resulting dendrogram for 2018, demonstrating the classification of countries into five clusters.

Figure 1: Dendrogram using data from 2018



Source: Own survey.

The first cluster includes the developed countries of northern and western Europe, namely Denmark, Luxembourg, Switzerland, Norway, Finland, Sweden, Austria, Germany, and the Netherlands. For the countries Austria and Germany, there was a change in the cluster classification during the years under review. In 2016, they belonged to cluster 2, but in 2017 Austria joined cluster 5. The cluster is characterized by the highest average value of well-being compared to the other clusters, specifically reaching 7.45, while the highest value is achieved by Finland, followed by Denmark. This cluster has the highest average net income as well as GDP per capita among the clusters formed, which is typical for the countries in this cluster. The Gini coefficient, with an average value of 27.9, indicates the second lowest income inequality. It is also characterized by the best values of the risk of poverty and unemployment rates. The number of tertiary graduates in this group of countries is rather ambiguous. There is Luxembourg, with the lowest number of 21.2 per 1 000 inhabitants in the whole Europe, but also Denmark with 104.8, which ranks it among the countries with the highest number of graduates. The average number of immigrants of this cluster is comparable to the other clusters, despite the inclusion of Germany, which significantly exceeds all other European countries in terms of the number of immigrants.

The second cluster covers the economically developed Western countries, which include France, Belgium, the United Kingdom and Ireland, but also includes Malta. The countries show above-average values of net income, GDP, and well-being. They also have low values for the risk of poverty rate, the unemployment rate, and the Gini coefficient. In terms of the immigrant indicator, Malta and Ireland have significantly lower numbers than the other countries in this group.

The third cluster includes Romania, Greece, Bulgaria and, after 2017, Lithuania, Latvia and Croatia. The cluster is characterized by the largest income inequalities, with Bulgaria leading with above-average values. Furthermore, these countries have the lowest net income and GDP values. The high risk of poverty rate is also specific. Paradoxically, the unemployment rate here is not significantly higher than in other countries in Europe. The exception is Greece, which, at 19.3%, is above the cluster average. All this is reflected in well-being, which in these countries reaches the expected low point of 5.73 on average.

In the fourth cluster, mainly Central European countries are represented. These include Slovenia, Slovakia, Poland, the Czech Republic, Portugal, and Hungary. A common feature of these countries is the lowest income inequality within the countries considered. Well-being is average, but higher than in cluster 3. Both the risk of poverty rate and the unemployment rate are quite low. Although they are close to the countries in the second cluster in terms of net income, Hungary and Slovakia have the lowest net incomes, while Slovenia has the highest. GDP per capita decreased on average in 2018 compared to the previous year, bringing it closer to the third cluster. Low immigration numbers are also a common feature, with Poland being the exception, with a significantly higher number of 214 083.

The fifth cluster is the smallest of the clusters and consists of Italy, Cyprus, Spain, and Estonia. This cluster is characterized by relatively low well-being values in the countries compared to the others. It is also well characterized by relatively low incomes, GDP per capita, and greater income inequality. The average unemployment rate in these countries is around 9.1%, with the exception of Spain, which has 15.3%. The risk of poverty rates are higher than in the other clusters, with the highest rates being in the third cluster. In the case of immigrants, these countries differ considerably from each other. Cyprus and Estonia show low numbers, while Italy and Spain show significantly high numbers.

The average well-being values for 2018 are summarized in Table 2. For most of the clusters, they increased slightly year-on-year. The exception is the fourth cluster, where the average value decreased in 2018 compared to the previous year. This decrease is likely due to the inclusion of Portugal and Hungary, which were previously in the first cluster, and the values of 5.93 and 5.91 reduce the cluster average. In addition, the value of average net income also fell, making it lower than the average net income in cluster five. A similar situation in an upward direction occurred for the average value of the GDP per capita. In addition, the average value in cluster five increased considerably, presumably due to three countries moving from cluster five to cluster three, which paradoxically increased the average GDP per capita in cluster three by the inclusion of Lithuania, Latvia, and Croatia. There were no other significant differences in development between the clusters.

Table 2: Characteristics of the individual clusters

Cluster	1	2	3	4	5
Well-being	6.349	6.248	5.734	6.933	7.451
Gini coefficient	31.600	26.200	34.900	29.060	27.900
Net income	15 907	11 616	8 891	19 479	23 302
Risk of poverty rate	25.400	17.500	29.800	20.100	17.600
Unemployment rate	9.900	4.800	8.500	5.700	5.010
Number of tertiary graduates	71	72	67	97	70
Number of immigrants	254 249	73 635	64 579	250 576	182 174
GDP per capita	27 225	23 733	20 033	37 340	44 322

Source: Own survey.

In each year of the analysis, five clusters were formed, which are characterized by the same features in all three years and also consist of almost identical countries. It is possible to conclude that the clusters are relatively stable on a temporal basis. A final assessment of the five clusters based on the 2018 data can characterize the clusters as follows:

- The first cluster is a group of Southern European countries, which tend to be less developed countries, with higher unemployment rates, risk of poverty rates and income inequality.
- The second cluster is essentially made up of Central European countries, which are characterized by the most equal income distribution and also by low risk of poverty rates.

- The third cluster includes countries that may be considered to have even lower economic levels than those of the countries in the first cluster.
- The fourth cluster comprises economically advanced countries with above-average GDP.
- The fifth cluster also includes economically advanced countries. It may be argued that it includes the most advanced of those considered, which are primarily characterized by high economic levels and high incomes.

The outcome of the cluster analysis determined that the higher the net income and the lower the risk of poverty, the higher the well-being is in the countries, and vice versa. A regression analysis was then used to test this hypothesis.

Regression analysis

The models were constructed using the descending elimination method, whereby one starts with a model including all the explanatory variables considered and makes changes in the model based on a stepwise reduction of the insignificant variables. A p-value is used to examine their statistical significance. All of the models fulfilled all of the assumptions of a classical linear regression model.

Net income and the risk of poverty rate were identified as significant in all three of the examined years (see Table 3), to the detriment of the other factors considered, i.e., their significance crowded out the significance of the remaining factors. The optimal models including these factors explain 77.47% for 2016, 75.61% for 2017 and 78.78% of the variability in well-being for 2018. Based on these values of the coefficients of determination, it is possible to conclude that net income and the risk of poverty rate may appropriately determine the well-being of the population in the selected countries. This model is primarily designed to establish a good estimate close to the empirical value of the well-being of European countries.

Table 3: Summary of the estimated parameters of the created models

Variable	2016	2017	2018
Const	8.4162	8.7027	7.8250
Net income	0.000073	0.000067	0.000083
Logarithm of risk of poverty rates	-1.0166	-1.0541	-0.8402

Source: Own survey.

For all three of the developed models, the expected positive relationship between net income and well-being, and the negative relationship between the poverty risk rate and well-being were confirmed. For the parameters, there is an agreement between the expected signs based on theoretical assumptions and the signs in the constructed model.

Table 3 shows that net income would have to increase by €10,000 for well-being to increase by at least 0.8267 of its unit in 2018. Such an increase

in income is very large and unrealistic. Nevertheless, the factor is undoubtedly significant and has an impact on well-being. With a 1 p. p. increase in the risk of poverty rate, well-being would decrease by 0.008402 in 2018. Such an increase or decrease in the risk of poverty rate is quite common. Between the given years, the risk of poverty rates varied by more than 1 p. p. across the countries. The magnitude of the change in well-being may seem irrelevant, but this is not the case given the small scale on which its values move.

DISCUSSION

Five natural homogeneous clusters were obtained by applying a cluster analysis in each of the three years analyzed, based on indicators of well-being, net income and the risk of poverty rate. The first cluster represents mostly rather less developed countries, the second cluster consists of the Central European countries with the lowest Gini coefficient values, the third cluster contains the least developed of the studied countries, and the fourth and fifth clusters include economically developed countries, while the fifth cluster includes slightly more developed countries than the fourth. In addition, the fifth cluster has the highest average well-being. The results of the cluster analysis showed that the highest levels of well-being are found in the most developed Northern and Western European countries, namely Switzerland, Norway, Luxembourg, Sweden, Finland, the Netherlands, Denmark, and Austria. On the contrary, the levels of well-being are the lowest in the less developed countries, namely Romania, Greece, and Bulgaria, which were joined by Lithuania, Latvia, and Croatia in the last year of the analysis, i.e., 2018.

The results of the study further indicate a strong functional relationship between well-being and two variables, namely net income and the risk of poverty rate. In the case of net income, the findings are consistent with the research of Caporale et al. (2009), Stutzer (2004) and Haushofer and Fehr (2014). It may be argued that despite differences in terms of the period under study, the data sources, the methods used, and the sample of countries, the assumed conclusions are similar. The signs of the net income parameters obtained through the regression analysis performed are positive in all three of the analyzed years. This shows a clear positive relationship between net income and well-being. The relationship between the two variables was already shown to be strong in the correlation analysis, which is in line with the result of the analysis of Stutzer (2004). This author proposes that well-being depends more on the size of the gap between the desire for a certain income and the actual income. However, this gap is smaller for people with higher income, which explains the positive correlation between income and well-being. Although Easterlin (1974) argues that at a certain level of income the relationship between income and well-being ceases to be strong, later research has strongly rejected this argument (Haushofer and Fehr, 2014; Degutis et al., 2010). Net income values also increased slightly over the

period analyzed in this study, and the correlation between average net income and well-being did not decrease over time. On the contrary, it increased a little, which would also imply that evidence for the Easterlin paradox is not found here. Of course, the period under consideration is too short to make such conclusions.

Caporale et al. (2009) add that it is also important to analyze the relationship between income inequality and well-being. In this context, they looked at the reference income, discovering a negative effect of income inequality in developed countries and, conversely, a positive effect in Eastern European countries. For the analyses in this study, income inequality was represented in the form of a Gini coefficient, as in the studies by Kelley and Evans (2017) and Hajdu and Hajdu (2014). The aforementioned negative relationship was shown in the form of decreasing values of the Gini coefficient depending on well-being. Nevertheless, the Gini coefficient was eventually excluded from the models based on its large p-value of t-test, indicating that its effect on well-being was not significant.

This conclusion is in some form also reflected in the study by Kelley and Evans (2017), where they argue that in advanced economies income inequality on average neither helps nor hurts levels of well-being, and is thereby irrelevant. They justify this with the idea that, rather than comparing with the rich, what matters is the state of structural and existential security and safety, whereas objective standards are not so clear and certain in developing countries. This is also consistent with Festinger's (1954) formulation of social comparison theory. Therefore, in developing countries this indicator may appear to be significant, even with a paradoxically positive effect on well-being, and in more developed countries, such as those in Europe, it loses its significance. The positive effect may be due to Zagorski's (1994) so-called hope factor. The results of Hajdu and Hajdu (2014), as well as this paper, provide a similar perspective on the issue regarding the insignificance of income inequality; however, their findings of the insignificance of income inequality only apply to economically developed countries, differentiating the maturity of Western and Eastern European countries. For Eastern European countries, they found a strong negative effect of income inequality.

As for the second significant variable, the risk of poverty rate, a linear-logarithmic functional form was included in the model to represent the relationship. The resulting inferred relationship between the risk of poverty rate and well-being is negative. This conclusion is consistent with claims based on the results of Haushofer and Fehr (2014) or Molotsky and Handa (2020) of a causal negative relationship between poverty and well-being. But here it is important to draw attention to the fact that the approaches used to reach their conclusions are completely different from the approach in this study. Both of the aforementioned studies dealt with the impact of poverty based on data obtained from an experiment of money transfers to a random sample of people in extremely poor countries.

Although the log GDP per capita variable eventually dropped out of the optimal model due to its non-significance, the correlation analysis revealed a correlation coefficient between log GDP per capita and well-being with a

value of 0.8 in all three models, indicating a strong positive dependence. In addition, a t-test with a two-sided p-value of less than 5% showed the significance of this correlation coefficient in all three years. The conclusion of this paper on the relationship between GDP and well-being ultimately leans more towards the views of authors such as Stevenson and Wolfers (2008), Degutis et al. (2010) and Di Tella et al. (2003), whose research has shown this relationship to be significant and consider it important. This would confirm the theory that growth affects overall life satisfaction, which according to Degutis et al. (2010) leads to positive views on democracy, governmental economies, and market economies.

In the case of the regression analysis in this study, the non-significance of GDP may have been due to the presence of other variables in the analysis which, by their greater significance, pushed it out of the model. When testing the logarithm of GDP per capita as the only variable, the variable is significant and explains 65.6% of the variability of the well-being data. Stevenson and Wolfers (2008) found that economic development increases individual income unequally. Therefore, their analysis considers the relationship between well-being and the logarithm of GDP per capita, instead of a linear form. The same approach is followed in this study. In some cases, the lack of evidence of a clear linear relationship between GDP and well-being has led to theories of a “saturation point” beyond which an increase in income no longer increases happiness, and to subsequent conclusions about the unproven relationship between GDP and well-being in developed countries. Degutis et al. (2010) add that the observed relationship is not related to a country’s well-being, as implied by the research of Easterlin (1974) or Kenny (2005).

According to Nikolova and Graham (2014) and Knabe and Rätzel (2010), there is a negative relationship between unemployment and well-being. However, the correlation and regression analyses carried out reached a different conclusion. The correlation matrix did not show any relationship between the two variables. In constructing the optimal models using the OLS method, the unemployment rate indicator as an explanatory variable was eliminated due to its insignificance. The resulting insignificance is consistent with the results of Knabe et al. (2010) and Dolan et al. (2017). Knabe et al. (2010) reported that employed people are more satisfied with their life, but on the other hand, there is a certain offsetting effect of the unemployed with respect to leisure time. Dolan et al. (2017) add that although well-being is related to unemployment, the relationship is considerably weak.

The regression analysis for the variable number of tertiary graduates also led to the null hypothesis of its insignificance not being rejected. This conclusion contradicts most studies that found either a positive relationship between education and well-being (Blanchflower and Oswald, 2004; Powdthavee et al., 2015) or a negative one (Dockery, 2010). However, the result is consistent with Kristoffersen’s (2018) judgment of a neutral effect of education. It should be noted, however, that the different studies worked with models with different treatments of education, which, among other effects, may have prompted the heterogeneity of the obtained results. According to Kristoffersen (2018), the education effect operates indirectly, through an

individual's expectations. Powdthavee et al. (2015) presented evidence that the effect of education on well-being is indirect and occurs through mediating variables such as economic circumstances and health. Kristoffersen (2018) argues the neutral effect of education by reasoning that with perfect predictability and no asymmetric information, education is not expected to have any effect on well-being. One person may pursue an education because they aspire to a higher standard of living and creates higher expectations. Another person may not pursue an education and thus has lower expectations. If both achieve what they expect, they will, ceteris paribus, be equally satisfied.

Based on the regression analysis, the number of immigrants also has no impact on the well-being of residents in the countries. A significant relationship between the two variables was also not revealed by the correlation analysis, so it is pointless to consider the direction of the relationship, as is concluded by Polgreen and Simpson (2011). There is very little research in this area and, moreover, analysing it is quite challenging and limited by, for example, the lack of available data.

According to Hoang and Knabe (2021), the differences in the different research already lie in the very concept of well-being. The authors use data from questionnaire surveys, and most of the time well-being is analyzed in the form of Cantril's ladder, which is also applied by GWP. On the other hand, as already mentioned, some authors used data from other well-being indicators in their studies, or they established their own scales, such as Dolan et al. (2017), who analyzed the 6 key steps to well-being along with well-being using Cantril's ladder. Furthermore, Kelley and Evans (2017) analyzed the mean of a 10-scale satisfaction question and a 4-scale happiness question from the WVS-EVS as the explanatory variable, and alternatively, satisfaction separately as the explanatory variable. The substantive conclusions of this research are the same in both cases. The study shows a correlation between happiness and satisfaction. Also, the study by Di Tella et al. (2003) agrees with the aforementioned correlation, from which Degutis et al. (2010) concludes that whichever indicator representing well-being is used, the long-term trend remains similar, so that ultimately does not matter so much which indicator is used, which contradicts the view of Hoang and Knabe (2021). Nevertheless, there are many limitations in using the well-being indicator. For example, research has revealed that most people's well-being tends to fluctuate around a certain point, and there are also difficulties in determining cause and effect. Therefore, caution is needed when drawing firm conclusions and this should be considered (Thomas and Evans, 2010).

CONCLUSIONS

This article focuses on the issue of well-being of the population in selected European countries. On the basis of several studies, seven factors were suggested, which were expected to have a certain impact on the variable to

be explained, i.e. the level of well-being of the population. The analysis was carried out for the years 2016–2018. Using the cluster analysis, five natural homogeneous clusters were obtained in each of the three years, analyzed based on the indicators of well-being, net income and the risk of poverty rate. The multiple regression analysis examining the functional relationship between the selected relevant indicators as explanatory variables, and well-being as an explanatory variable, yielded an optimal model for each of the years studied.

The regression analysis led to the finding that the factors that affect well-being include net income with a linear partial functional form and the risk of poverty rate with a lin-log functional form. In the resulting model, only explanatory variables related to an individual's income and its magnitude remained. This supported the assumption of the importance of absolute income size on an individual's subjective assessment of life satisfaction.

The given issue is undeniably a complicated and extensive topic; therefore, the results of this paper may be enriched with additional findings in the future. More detailed research could focus on developed and less developed countries separately. Alternatively, the results of the empirical analysis could be extended to other indicators, such as indicators of population structure or economic freedom of the population.

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REFERENCES

Adamec, V., Střelec, L. (2012). A study of potential output and output gap in the Czech Republic. Acta univ. agric. et silvic. Mendel. Brun., 60(2), 9–16.

Blanchflower, D. G., Oswald, A. J. (2004). Well-being over time in Britain and the USA. Journal of Public Economics. Journal of Public Economics, 88(7–8), 1359–1386.

Blanchflower, D. G., Oswald, A. J. (2005). Happiness and the Human Deve-lopment Index: The Paradox of Australia. The Australian Economic Review, 38(3), 307–318.

Bencsik, P., Chuluun, T. (2021). Comparative well-being of the self-employed and paid employees in the USA. Small business economics, 56(1), 355–384.

Blašková, V., Bohušová, H. (2013). Využití shlukové analýzy a metody hlavních komponent při identifikaci faktorů ovlivňující přijetí IFRS pro SME. Trendy ekonomiky a managementu, 7(13), 9–21.

Cantril, H. (1965). The pattern of human concerns. New Brunswick, NJ: Rutgers University Press.

Caporale, G. M., Georgellis, Y., Tsitsianis, N., Yin, Y. P. (2009). Income and happiness across Europe: Do reference values matter? Journal of Economic Psychology, 30(1), 42–51.

Dalziel, P., Saunders C., Saunders, J. (2018). From Economic Growth to Wellbeing Economics. Wellbeing Economics. Cham: Springer International Publishing.

Degutis, M., Urbonavičius, S., Gaižutis, A. (2010). Relation between life satisfaction and GDP in the European Union. Ekonomika, 89(1), 9–21.

Di Tella, R., Macculloch, R. J., Oswald, A. J. (2003). The Macroeconomics of Happiness. Review of Economics and Statistics, 85(4), 809–827.

Dockery, A. M. (2010). Education and happiness in the school-to-work transition. The National Centre for Vocational Education Research (NCVER). Adelaid: NCVER.
Dolan, P., Kudrna, L., Stone, A. (2017). The Measure Matters: An Investigation of Evaluative and Experience-Based Measures of Wellbeing in Time Use Data. Social Indicators Research, 134(1), 57–73.
Easterlin, R. (1974). Does economic growth improve the human lot? In P. A. David and M. W. Reder (Eds.), Nations and households in economic growth: Essays in honour of Moses Abramovitz. New York: Academic.
Festinger, L. (1954). A Theory of Social Comparison Processes. Human Relations, 7(2): 117–140.
Hajdu, T., Hajdu, G. (2014). Reduction of Income Inequality and Subjective Well-Being in Europe. Economics E-Journal, 8, 1–29.
Haushofer, J., Fehr, E. (2014). On the psychology of poverty. Science, 344(6186), 862–867.
Hirschman, A. O., Rothschild, M. (1973). The Changing Tolerance for Income Inequality in the Course of Economic Development. The Quarterly Journal of Economics, 87(4), 544–566.
Hoang, T. A. N., Knabe, A. (2021). Replication: Emotional Well-Being and Unemployment – Evidence from the American Time-Use Survey. Journal of Economic Psychology, 83, 102–363.
Hovi, M., Laamanen, J.P. (2021). Income, aspirations and subjective well-being: International evidence. Journal of economic behavior & organization, 185, 287–302.
Kabát, L., Hampel, D., Issever Grochová, L, Janová, J., Střelec, L. (2014). Alternative Approaches for Assessing the European Countries Economic and Social Results. Procedia Economics and Finance, 12, 273–282.
Kelley, J., Evans, M. D. R. (2017). Societal Inequality and individual subjective well-being: Results from 68 societies and over 200,000 individuals, 1981–2008. Social Science Research, 62, 1–23.
Kenny, Ch. (1999). Does Growth Cause Happiness, or Does Happiness Cause Growth? Kyklos, 52(1), 3–25.
Kenny, Ch. (2005). Does Development Make You Happy? Subjective Wellbeing And Economic Growth In Developing Countries. Social Indicators Research, 73(2), 199–219.
Knabe, A., Rätzel, S. (2010). Better an insecure job than no job at all? Unemployment, job insecurity and subjective. Wellbeing. Economics Bulletin, 30(3), 2486–2494.
Knabe, A., Rätzel S., Schöb, R., Weimann, J. (2010). Dissatisfied with Life but Having a Good Day: Time-use and Well-being of the Unemployed. The Economic Journal, 120(547), 867–889.
Kristoffersen, I. (2018). Great expectations: Education and subjective wellbeing. Journal of Economic Psychology, 66, 64–78.
Lovo, S. (2014). Potential migration and subjective well-being in Europe. IZA Journal of Migration, 3(1), 24.
Molotsky, A., Handa, S. (2020). The Psychology of Poverty: Evidence from the Field. Journal of African Economies, 30(3), 207–224.
Nikolova, M., Graham, C. (2014). Employment, late-life work, retirement, and well-being in Europe and the United States. IZA Journal of European Labor Studies, 3(1), 5.
Polgreen, L. A., Simpson, N. B. (2011). Happiness and International Migration. Journal of Happiness Studies, 12(5), 819–840.
Powdthavee, N., Lekfuangfu, W. N., Wooden, M. (2015). What's the good of education on our overall quality of life? A simultaneous equation model of education and life satisfaction for Australia. Journal of Behavioral and Experimental Economics, 54, 10–21.
Staňková, M., Hampel, D. (2017). Identification of bankruptcy factors for engineering companies in the EU. In Mathematical Methods in Economics 2017: Conference Proceedings. Hradec Králové: Univerzita Hradec Králové, 714–719.
Stevenson, B., Wolfers, J. (2008). Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox. Brookings Papers on Economic Activity, 2008(1), 1–87.
Stiglitz, J. E., Sen, A, Fitoussi, J. P. (2009). Report by the Commission on the Measurement of Economic Performance and Social Progress. Commission on the Measurement of Economic Performance and Social Progress, Paris.

Stiglitz, J. E., Sen, A., Fitoussi, J. P. (2010). Mismeasuring Our Lives: Why GDP Doesn't Add Up. The New Press.

Stutzer, A. (2004). The role of income aspirations in individual happiness. Journal of Economic Behavior and Organization, 54(1): 89–109.

Svetek, M., Drnovsek, M. (2021). Exploring the effects of types of early-stage Entrepreneurinal activity on subjective well-being. Journal of happiness studies (in print)

Thomas, J., Evans, J. (2010). There's more to life than GDP but how can we measure it? Economic Labour Market Review, 4(9), 29–36.

Zagórski, K. (1994). Hope factor, inequality, and legitimacy of systemic transformations. Communist and Post-Communist Studies, 27(4), 357–376.

Zámková, M., Blašková, V. (2013). Identification of factors affecting birth rate in Czech Republic. In SIMOS, T E. 11th International Conference of Numerical Analysis and Applied Mathematics 2013: ICNAAM 2013, AIP Conference Proceedings. Melville, New York: American Institute of Physics, 1871–1874.