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The influence of remittances on macroeconomical figures in Ukraine

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***Abstract* — During last ten years an increase of amount of the remittances, as well as its importance among the sources of foreign capital in the list of developing countries, is mentioned. The share of remittances in GDP of some countries grew so dramatically, that it caused the economical dependence from their labor emigrants. Ukraine is also involved in the international labor force migration processes. Ukraine is in the TOP-10 countries of origin of international labor migrants and in the TOP-10 of countries according to the amount of the received remittances (14,4 billion of U.S. dollars in 2018). From the 2009 the amount of remittances in Ukraine is larger than amount of the foreign direct investment. The interdependence between remittances and main macro economical figures in Ukraine during the period between 1997 and 2018 is analyzed in the paper.**

Keywords— international labor force migration, remittances, economic growth.

I. INTRODUCTION

In the modern world globalization influences most aspects of life. Barriers for free movement of labor force vanish with time making international labor force migration processes more intensive. It leads to the growth of remittances' all over the world. The growth of remittances in nominal values and as a part of GDP causes the scientific interest of many researchers in the world. Such scientists as B. Polat, K. Upadhyaya, P.Orrenius, Z. Iqbal, D. Meyer, A. Barajas, D. Ratha, A. Gaidutskiy, O. Chernyak and Y. Chernyak [1-10] are trying to determine the impact of the remittances on the national and world economy. In most studies countries from Asia, Latin America and the Caribbean, Central Europe and Africa were analyzed, while the impact on Ukrainian economy was not studied in a sufficient way.

II. WORLD MIGRATION TRENDS

In our millennium there is a permanent upward trend of international labor force migration amount (Table 1).

In 2017, 165 million of international labor migrants lived in high-income countries. It is 64% of all the international labor migrants all over the world. Other 36% of them (approximately 92 million of people) lived in middle- or low-income countries. In comparison to 2000, the share of international labor migrants living in high-income countries increased from 58% to 64%, while the share of middle- and low-income countries hosting international labor force fell [11, p.4].

TABLE I. DYNAMICS OF INTERNATIONAL MIGRANTS AMOUNT 2000 – 2017

Year	Number of migrants, millions	Growth rate, %
2000	173	-
2005	191	2.0
2010	220	2.9
2015	248	2.4
2017	258	2.0

[a.] Source: [11, p.4]

Some worldwide trends can be underlined according to the geographical distribution of the international labor migrants. More than 60 per cent of all international labor migrants live in Asia or Europe. In 2017, 79.6 million international migrants were residing in Asia, 77.9 million – in Europe, 57.7 million – in Northern America, 24.7 million – in Africa, 9.5 million – in Latin America and the Caribbean, and 8.4 million – in Oceania [11, p. 5].

The share of international migrants in the world's total population increased modestly, from 2.8% to 3.4%, in the same period. The high-income countries are the destination countries for three-quarters of international migrants. The share of international migrants in these countries increased to 14% from 9.6% [11, p.5].

The largest number of international labor migrants resided in the United States of America: 49.8 million, which is equal to 19.3% of the world's total. Saudi Arabia and Germany hold the second place (12.2 million each). The Russian Federation and the United Kingdom are also in the top five (11.7 million and 8.8 million respectively) [11, p. 6].

India is now the country with the largest number of people living outside the country's borders (16.6 million), followed by Mexico (13.0 million), the Russian Federation (10.6 million), China(10.0 million) and Bangladesh (7.5 million). Ukraine is in the top ten (5.9 million) [11, p.13].

III. REMITTANCE TRENDS

The amount of remittances in 2018 was $689 billion (Table 2). And $529 billion were sent to to low- and middle-income countries. This figure is 9.5% higher than in 2017 ($483 billion, up from the 8.8% rise in 2017). Comparatively to 2017 the total amount of remittances has decreased for 8.85 % ($ 633 billion).

TABLE II. REMITTANCE FLOWS TO LOW- AND MIDDLE-INCOME REGIONS, US$ BILLION

Group of countries	2016	2017	2018e	2019f	2020f
Europe and Central Asia	43	53	59	61	64
Low- and middle-income	444	483	529	550	574
World	589	633	689	714	746

Source: [6, p. 3]
e = estimate, f = forecast.

Remittances are the main source of foreign currency in most low- and middle-income countries excluding China. The official development assistance is three times smaller than the amount of remittances coming to these countries and the size of foreign direct investment in 2018 was equal to it.

In 2018 India, China, Mexico, Philippines and Egypt were the top-receivers of the remittances (Fig.1). The biggest per cent of remittances in GDP was estimated in Tonga, Kyrgyzstan, Tajikistan, Haiti and Nepal (Fig.2).

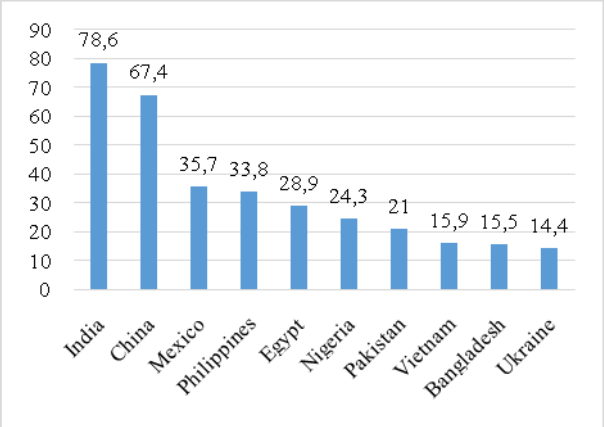

Fig. 1. Top – 10 remittances' receivers countries in 2018 (US$ billions).

Source: [6, p. 2]

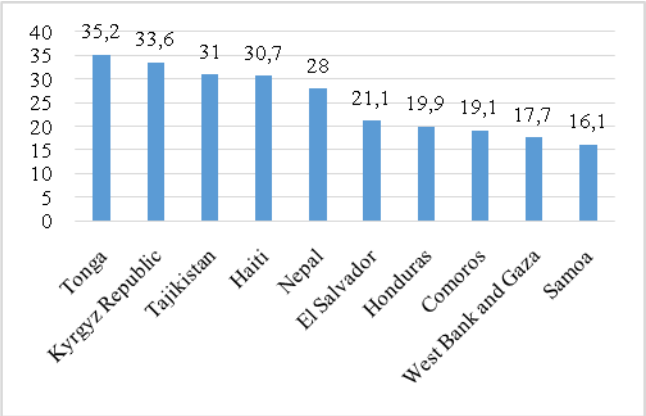

Fig. 2. The biggest remittances' receivers in 2018 (% of remittances in GDP). Source: [6, p. 2]

The increase of the amount of remittances was registered in several regions of the world: in Europe and Central Asia (11.2%), in Eastern Asia and Oceania (6.7%), in South America and Caribbean region (9.5%) and in Middle East and Northern Africa (9.1%). The growth of remittances in 2019 in Eastern Asia (4.2%), Middle East and Northern Africa (2.7%), Europe and Central Asia (3.9%) is forecasted [6, p.3-4].

In the top ten of remittance-receiving countries from Eastern Europe and Central Asia are: Ukraine ($14.4 billion), Russian Federation ($8.6 billion), Poland ($7.4 billion), Romania ($5.2 billion), Serbia ($4.3 billion), Uzbekistan ($3.9 billion), Kyrgyz Republic ($2.7 billion), Bulgaria ($2.4 billion), Tajikistan ($2.3 billion), Bosnia and Herzegovina ($2/2 billion) (Fig.3).

The implementation of the visa-free regime between Ukraine and E.U. countries resulted in the increase of the amount of Ukrainian labor migrants in the European Union and the remittances inflow to the Ukrainian economy. Ukraine received 14.4 billion of U.S. dollars, which is the highest amount of the remittances among the countries of the region. It is a 18.5% growth comparing to 2017. As a result, remittances form 11.38% of Ukrainian GDP. It is the highest rate in the period of Ukrainian independence and it's higher than it was in 2017 (10.81%). It can be compared with the amount of foreign direct investment which can be measured as 2.5% of GDP [12].

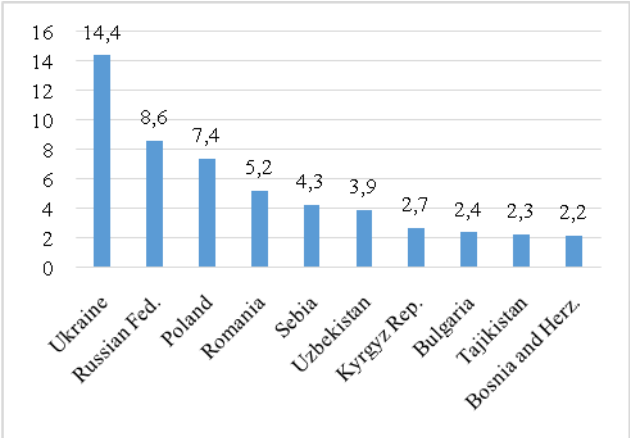

Fig. 3. Top-10 recipients of remittances among Eastern European and Central Asia in 2018 (US$ billions) [6, p.17].

The analyzes of the remittances incoming to Ukraine shows that the most part of them came from Poland (Fig.4). The large parts of the remittances were sent from Russian Federation (8.7%), USA (8%) and Czech Republic (7.8%). Comparing to 2017 the significant growth of remittances from Poland (3.6 billion of U.S. dollars in 2018 comparing to 3.1 billion U.S. dollars in 2017) should be emphasized. The decrease of remittances from Russian Federation (948 million of U.S. dollars and 1292 million U.S. dollars respectively) is also an important trend.

IV. THEORETICAL BACKGROUND

According to the balance of payment methodology, remittances are an income of the household, coming from the other household, located abroad, and is connected with labor force migration [13]. Considering the impact of remittances flows on macroeconomic indicators in recipient countries, we have made an analysis of previous similar researches in other countries. The conclusion is following: remittances flows may lead to a wide range of effects on recipient's

economy. Notably, remittances may influence different indicators in different countries and, in some cases, processes may flow opposite way in different countries. Now we will observe it in detail.

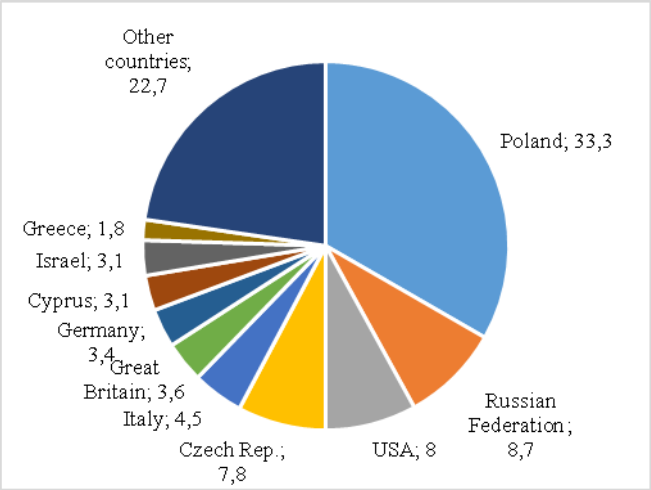

Fig. 4. Geographical structure of remittances to Ukraine in 2018,%. Source: [13].

Remittances form a significant part of GDP in most low- and middle-income countries They reduce poverty, because labor migrants are usually the poorest layers of population and in the end households receive financial help from abroad. The evidence of Mexico confirms this statement. Additionally, in those regions of Mexico where a lot of migrants left the country, an unemployment rate and the part of low paid jobs were reduced [4, p. 17].

Remittances increase disposable income of households and stimulate consumption that leads to multiplicative effects on aggregate demand. Moreover, these flows of capital do not come with an obligation to pay interest or any liabilities. Private remittances are sent directly to final users and do not suffer from wasting by government [7, p.498].

Macroeconomic stability increase is another way remittances influence recipient country's economy. Remittances are anticyclical variable. Constant flows of capital reduce volatility and decrease risks of profitability for companies. Remittances soften the consequences of crises and fluctuations. Workers' remittances are considered as a stable source of foreign capital because they are sent not only by new immigrants but also by all migrants simultaneously. Notably, the more diversified are the sources of remittances by regions, the more stable flow comes to the recipient country [14, p. 2].

The impact of remittances also depends on the qualification of migrants. If they are low qualified, the recipient country will lose less than from high qualified labor source emigration. Low qualified workers may learn new skills abroad and after coming back, they may implement them at home. The migration of qualified workers is known as 'brain drain'. It is harmful to the economy for two reasons. The first is that the qualified people are a deficit resource in developing countries. Their losses reduce productivity and economic growth. The second is that, in most cases, the state has previously invested time, effort and money in their education. When these workers leave to work in foreign countries, previous investments get lost and government should spend additionally to train replacement for them [7, p. 498]. Remittances increase final consumption expenditure, but the impact on savings is unclear. Some experts say it is positive [3, p. 154], others claim that remittances are mostly spent to consumption instead of savings. In low-income countries, it leads to the output decrease, because final consumption goods are predominantly imported, while national capital investment is not supported by remittances [15, p. 145].

The theory of the remittances impact on real GDP growth via exchange rate change is not clear. On the one hand, the absence of constant remittances may lead to great pressures on exchange rate, monetary and fiscal policies [2, p. 16].On the other hand, large capital inflows like workers' remittances may cause real exchange rate appreciation that will undermine long-term economic growth, particularly for developing countries, in that in those countries tradable goods production suffers disproportionately from weak institutions and market failures [16, p. 404].

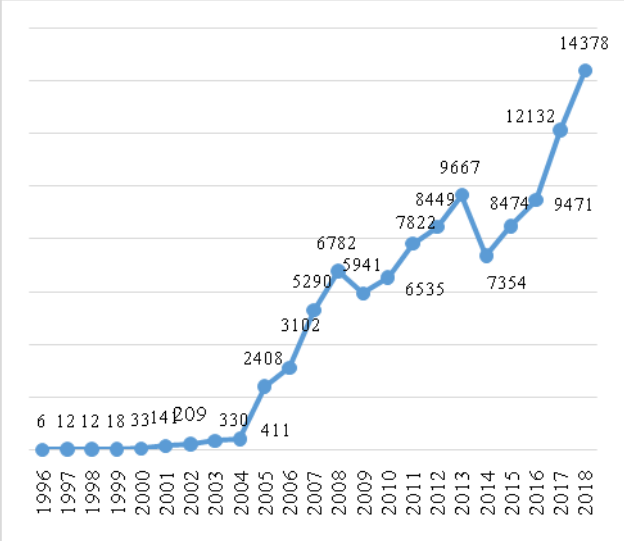

Fig. 5. Remittances Flows to Ukraine (US $ million). Source: [6; 17]

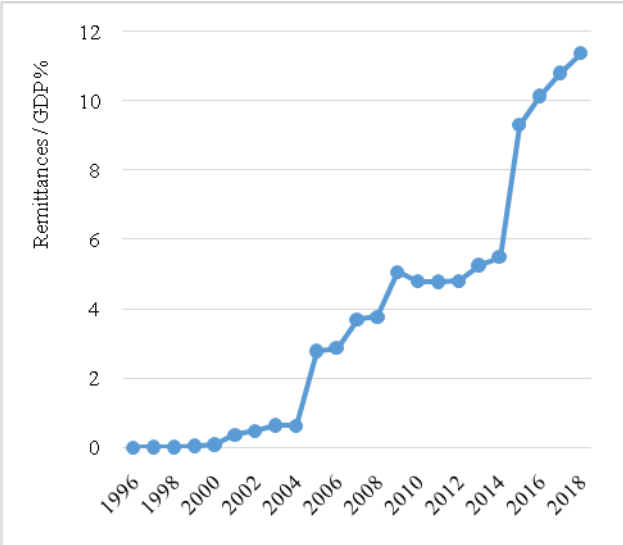

Fig. 6. Remittances Flows to Ukraine (% of GDP)

There are some other effects of labor migration and remittances dependence. For example, people who stayed and get financial help from abroad are less willing to work [4, p. 17]. As a result, we could say that researchers have different opinions on the impact of remittances on the recipient economies.

V. Impact of Remittances on Ukraine Economy

In 2018, remittances flows to Ukraine were estimated as $14.4 billion (equals to 11.4% of GDP).

Considering the influence of remittances on recipient economies worldwide, we have made assumptions about similar impact in Ukraine either. We analyzed their impact on real GDP growth, inflation rate and final consumption expenditure. Data were used from World Bank, National Bank of Ukraine and State Statistic Service of Ukraine.

The impact on inflation rate was determined by following model CPI.

$$CPI_t = \beta_0 + \beta_1 \cdot EXCH_t + \beta_2 \cdot RATE_t + \beta_3 \cdot REMIT_t + \varepsilon_t,$$

where *CPI* – consumer price index;
EXCH – nominal exchange rate;
RATE – weighted key interest rate of previous year;
REMIT – remittances to GDP ratio.

Data were used from 2000 to 2018. Initial time series were transformed to stationary by differencing (for *CPI* and remittances) and differencing of logarithms (for exchange rate and interest rate).

TABLE III. Results of model CPI

Parameter	Value
Const	-8.130
EXCH	32.241
RATE	-6.511
REMIT	7.020
R-squared	0.499
Adjusted R-squared	0.383
F-statistics	4.312
p-value	0.026

We could make a conclusion about a positive relationship between remittances and *CPI*. Positive sign of the *REMIT* coefficient indicates growing remittances (as a part of GDP) leads to a *CPI* growth. All another coefficients also have a predictable sign. The impact on final consumption expenditure was determined by following model CONS.

$$COST_t = \beta_0 + \beta_1 \cdot REMIT_t + \varepsilon_t,$$

where *CONS* – final consumption expenditure (% of GDP);
REMIT – remittances to GDP ratio.

Data were used from 1997 to 2014. Initial time series were transformed to stationary by differencing for both consumption expenditure and remittances.

TABLE IV. Results of model CONS

Parameter	Value
Const	-0.3841
REMIT	2.7396
R-squared	0.3672
Adjusted R-squared	0.3251
F-statistics	8.7060
p-value	0.0099

Before 2015, as expected, there were a positive relationship between growth the share of remittances in GDP and the share of final consumption expenditure in GDP. In 2015 and later, opposite trend occurs.

The impact on real GDP growth was determined by following model EC_GROWTH.

$$EC\_GROWTH_t = \beta_0 + \beta_1 \cdot UNEMP_t + \beta_2 \cdot REMIT_{t-1} + \varepsilon_t,$$

where EC_GROWTH_t – real GDP growth;
$UNEMP_t$ – unemployment rate;
$REMIT_{t-1}$ – remittances to GDP ratio in a previous year.

Data were used from 1997 to 2018. Initial time series were transformed to stationary by differencing for every component.

TABLE V. Results of model EC_GROWTH

Const	-2,340
$UNEMP_t$	-3,701
$REMIT_{t-1}$	4,153
R-squared	0,4597
Adjusted R-squared	0,3962
F-statistics	8,7060
p-value	0,0053

We received a positive relationship between remittances and real GDP growth: increasing of the share of remittances in GDP in a previous period leads to a real GDP growth rate in a current period. Our conclusions are normal for short-term period while in long-term period opposite process is possible, as we mentioned before.

VI. Conclusions

In this paper we analyzed previous researches about workers' remittances impact on economic activity in developing countries. In particular we paid attention to the influence on GDP growth, inflation rate, poverty rate, consumption expenditures, exchange rate, and unemployment rate. Most part of studies confirm positive relationship between remittances and consumption, and negative relationship between remittances and unemployment rate and poverty rate. However, the impact on economic growth is unclear, especially in a long-term period. The results of researchers differ among the regions and in some cases contradict each other.

Our research was dedicated to the impact of remittances on macroeconomics indicators in Ukraine. Three econometric model were used. The first one explored the impact on inflation rate with nominal exchange rate, key interest rate and the share of remittances in GDP as independent variables between 2000 and 2018. We have found a positive relationship between remittances growth and inflation rate growth. The second model explored the impact of remittances on final consumption expenditure between 1997 and 2014. Results signify a positive relationship during this period, but start with 2015 this relation stops. The third model was built to find an influence of remittances on economic growth in short-term period. Data were used between 1997 and 2018. We have found a positive relationship between these parameters.

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