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Capital flows impact on labor market: how do FDIs and remittances effect youth employment in Bosnia and Herzegovina?

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ABSTRACT

This paper addresses the impact of Foreign Direct Investments and remittances as capital flows on the employment. The focus of the analysis is how impacts of those two can be measurable and comparable if we have total employment on one side and youth employment on the other side. Sign restricted VAR is used as a framework to see how employment reacts to capital flow shocks. Total and youth employment reacts positively in both cases. Overall importance of remittance as a factor that maintains fragile macroeconomic balance should not be neglected. Similarity of impact on employment in impulse-response framework for remittances and FDIs indicates the similarity of the channels of transmission. This research represents confirmation of doubt that FDIs are not so significant in terms of total technological and human capital spillover in current setting in Bosnia and Herzegovina.

1. Introduction

A double-digit unemployment rate has been a stubborn reality in Bosnia and Herzegovina (B&H), and the aim of reducing it to below 20% is waiting to be achieved. This problem is even worse among youth.

It has been shown in past research that remittances can induce self-employment (Funkhouser, 1992). It is likely that only a small portion of remittances are intended and sufficient for this aim, but if total remittances are almost 11% of GDP, like in the case of B&H, then there is potential for significant impact in that regard. Remittances can be invested (education, real estate, small business) but recent economic research shows that remittances, even when not invested, can have an important multiplier effect (Straubhaar & Vădean, 2006).

Size and stability, makes remittances comparable with foreign direct investments (FDIs) from the macro-economic perspective. Remittances declined only 5.2% between 2008 and 2009 and FDIs in same period dropped down for 39%. But, what

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is even more interesting is the growth rate of remittances. In the decade 1999-2008 remittance average annual growth rate was 12.9%, relatively similar as the 11% FDIs growth rate and significantly more than 5.8% growth rate of official development assistance (Yang, 2011)

On the other side, the preponderance of mainstream literature suggests that economic growth is positively associated with FDI. This positive impact is conditioned with numerous factors and that conditionality is even larger if overall transitional effect on labor market is set in the focus. Some of those factors are: institution's quality, labor productivity, countries' risk factor, distance, the amount of natural resources, monetary propositions, and so on.

It is clear that FDIs impact growth and employment both directly and indirectly. Remittances, on the other hand, will directly increase capital accumulation (Barajas, Cham, Fullenkamp, Gapen, & Montiel, 2009). Indirectly, it could be expected that remittance makes impact through consumption as main channel (Gapen, 2008).

The preponderance of remittances related literature has micro-economic perspective, where motive to remit could be recognized as a key factor for the impact on the employment. Macro-economic perspective is not clear in some cases because the endogoneity of remittances is not identified properly.

There is overall consensus in literature that remittance should be treated as endogenous (Gapen, 2008). By using sign restricted VAR in this research, endogeneity and robustness to data issues should be treated properly.

Two questions are at the centre of the analysis:

1. Is the reaction of total employment to shock from FDIs and remittances in B&H comparable in classical capital flows employment nexus (in its direction of impulse-response relation)?
2. Is there significant reaction of youth employment to shock that comes from FDIs and remittances in B&H?

Final conclusions are conditioned with starting point. If one accepts previous results that FDIs should have positive impact on employment under certain conditions, and that those conditions are fulfilled in the case of B&H, then channels of transmissions for the remittances and FDIs are the same. In that case, FDI's potential to play significant role in "skill upgrading" in B&H is weak.

The rest of this paper is organized as follows. The next section provides a review of relevant literature. Section 3 describes and discusses the data and the theoretical background for the methods used in this analysis. The results of the empirical undertaking are documented in Section 4. Finally, Section 5 offers discussion and conclusions from this research.

2. Literature review

In this research FDIs and remittances are compared as factors that can have impact on employment and output. Previous findings have different perspectives on capital

inflow employment (output) nexus, and in this research the intention is to show that those differences are not so huge if the relations are examined correctly.

2.1. FDI related literature

In this research, remittances and FDIs are set on the same framework, where the later one traditionally have been seen as important factor of employment, and the growth in general. At least one paper suggests that the FDI effect is conditioned by both the size of the domestic market and the competitive climate in relation to local producers (Balasubramanyam, Salisu, & Sapsford, 1999).

De Mello has shown that growth (and employment indirectly) of recipient countries by" technological upgrading and knowledge spillovers" is conditioned on the level of 'complementarity and substitution' between FDI and domestic investments (de Mello, 1999). Poelhekke and van der Ploeg have found the evidence that market potential, which they have proxied by GDP per capita, and human capital do play a significant role in attracting non resource FDIs (2013).

If all of conditions for the overall effectiveness of FDIs would have been applied in its essence on remittances, then the impact of those two capital flows on employment and growth in general, would be comparable.

Some previous results are suggesting that FDI's effect can be negative. Crowding out effect should have its repercussions on employment in the sense that domestic production should fall down. Some authors have addressed that issue in dynamic versus static framework were crowding out in a short term indicates domestic demand effect (Kosova, 2010).

2.2. Remittance related literature

Remittance is often analysed as factor of total and individual welfare in low income countries. Some examples are papers by: Adams and Page (2005), Adenutsi (2010), Onley (2015), Poot and Cochrane (2004), Forbes (2000). Remittance as capital inflow directly affects capital accumulation, and potentially cut costs of capital indirectly. There is the effect through consumption, mainly related with construction and service sectors (Barajas et al., 2009). In the context of this research we can recognize two groups of remittance related literature. One side of literature has micro and second one has macroeconomic perspective.

2.2.1. Micro-economic approach to remittances

Lucas and Stark (1985), with their conclusion, that main motive to remit is "pure altruism", "pure self-interest" and "tempered altruism or enlightened self-interest", where the pioneers in micro-oriented and general remittances related literature.

Motive to remit has been the subject of many research studies (Adams, 2009; Agarwal & Horowitz, 2002; Adams & Page, 2005). Cox and Stark have made contribution to the literature by showing that demonstration effect that reflects as a motive to remit to the children back home, that are raised by their grandparents, as need to insure remitter's care in old age (Cox & Stark, 1994). Insurance, as a motive to remit,

in times of negative income shocks (Yang & Choi, 2007), could be seen as part of a broader group of exchange motives. In the specific case of B&H, previous results suggest that the main motive to remit in 2007 was exchange, which changed to altruism in 2011 (Oruč & Tabakovič, 2016).

Remittance related literature with micro-economic perspective concludes that direction of the remittance's effect on employment is conditioned by motive to remit. If pure altruism is the motive to remit, than we have a negative effect on employment.

2.2.2. Macro-economic approach to remittances

Other side of literature, where this research could be categorized, has macroeconomic orientation. Rodriguez and Tiongson (2001) and previously Edward Funkhouser (1992), had conclude that remittance reduces employment, with one remark by Funkhouser that remittances slightly increase self-employment.

Recent findings suggests that in macroeconomic perspective remittances should be endogenous (Gapen, 2008). VAR, as method where all variables are treated as simultaneously endogenous, should be a logical option. There are some examples of using VAR, with its extensions to vector error correction model and making some conclusion in Granger causality framework (Wadood & Hossain, 2015). A similar approach is taken by Adenutsi (2011). Such an approach is not feasible in the present research, as it would require a much longer time series than is available. Additionally, some of the typical issues in classical time series framework (non-normal residuals) show up, but Bayesian inference neutralizes this issue.

2.2.3. VAR as answer on the endogeneity and other data issues

Similar methodological disputes have emerged in the FDI part of the literature, which traditionally, has macro-economic perspective. Baltagi et al. do not test for stationarity of FDI and other regressors (Baltagi et al., 2007). If FDIs to specific host countries are heterogeneous, the estimated regression model could be simply wrong. Issue of neglecting the time series properties when FDIs are considered is often and paper by Blonigen et al provides another example in that sense (Blonigen et al., 2007). Additionally, if errors are stationary over time and space than we can count on a cointegrated relationship from which we can deduce the long-run effects in FDI (Poelhekke & van der Ploeg, 2013). The VAR uses cointegration to add robustness in the analysis and all of issues numbered in this paragraph, besides is neutralizes the mentioned issue of endogeneity.

First move to deal with endogeneity would be to use two stage least regression model (2SLS) (Beine, Lodigiani, & Vermeulen, 2011). One of the options is to use a control function approach to endogenous switching regression for panel data (Murtazashvili & Wooldridge, 2016).

In this research the sign restricted VAR offers comparative advantage in dynamical context against 2SLS and there is no adequate panel data for the control function approach to endogenous switching regression. VAR in general brings robustness regarding endogeneity and collinearity in the analysis and it is often used in labour economics. Paper by Canova et al. (2007) is most appropriate example. Fujita has used this approach, where he had restricted the short-term negative relationship

between vacancies and unemployment. This paper goes so far as to state that research to be taken seriously in the field of quantitative macro/labour literature "should consider the models with the endogenous separation decision" (Fujita, 2011).

This research is aiming at issues that are traditionally examined in labour economics literature. Relation between capital flows and employment is used to address deeper structural issues on both sides for the case of B&H.

Finally, the same problem can be seen from slightly different perspective. Concept of this research could be related to the identification of the increase in the demand for the skilled labour relative to unskilled labour. Some papers that address that issue in Hecksher-Ohlin-Stopler-Samuelson model are Said and Elshennawy (2010), Goldberg and Pavcnik (2007), Robinson and Gidling (1999) and Hanson and Harisson (1999).

3. Data and methodology

Methodology can be used for tackling data issues that are immanent for most research that are examining capital inflows in macroeconomic framework. Poelhekke and van der Ploeg showed all issues when FDIs are considered in classical inference framework, even if data are organized in panel (2013). The use of Bayesian style approach makes this analysis robust against typical data issues that usually appear in classical inference framework (Baumeister & Hamilton, 2015). Here is important to stress that model presented here is far away from the model that has solid forecasting performances, because that would mean longer time series.

Macroeconomic datasets provided by Agency of statistic of B&H and Central bank of B&H are data foundations for this research.

3.1. Data

Following data for 2008 until mid-2017 are included in the analysis:

1. index of industrial production (IP) for output (Agency for statistic of B&H),
2. total and youth employment (age 15-24, Agency for statistic of B&H),
3. FDI flows (Central Bank of B&H)
4. remittances (Central Bank of B&H)
5. wages (Central Bank of B&H).

This dataset is described in Table 1. Prices are excluded because VAR is optimal when number of estimated equation is not to large. Also, inflation in B&H is low and has extremely low variability. Wages are included as a possible indicator of labour

Table 1. Dataset before transformation (monetary aggregates are in BAM).

Variable	FDI mill.(Q)	Remittance mill.(M)	Wages (M)	IP (M)	Employment (M)	Youth Employment (Y)
Mean	398	63.6	813.8	103.3	704437	55700
Median	364.2	62.73	823.5	102.76	699618.69	52000
St. Dev.	263.2	13.75	29.4	5.54	22034.32	11063.9
Min	41.7	35.16	677	93.38	650507.62	43000
Max	1337.5	121.78	860	116.25	775378.91	78000

productivity reaction on one standard deviation shock that comes from FDIs or remittances. In addition B&H has orthodox currency board and controlling exchange rates would not bring any additional information to the model and VAR is optimal for small scale models, as mentioned.

There is a potential issue of stationarity for the FDIs and remittances time series. Because FDIs are defined as flows, logarithmic transformation solves the problem. On the other side remittances are defined as stocks. In that case by differencing data time series become stationary.

Using GDP data for output proxy would mean one additional frequency transformation and IP is sufficiently solid indicator in this context. Additionally, methodology for GDP has been changed and when new methodology was introduced, there was no parallel implementation of old one. Additional, backasting procedure would mean unnecessary transformation of data.

Denton-Cholette frequency adjustment method is applied (for quarterly data to monthly data and yearly to monthly). Total number of missing point in transformed dataset was less than 5%, therefore random forest NA imputation approach is adequate.

3.2. Sign restricted VAR methodology

VARs has been implemented as an answer on need for less structured equation systems for forecasting. Conditionally, there is a possible generalisation that it is a "simplification" of general equilibrium group of models (Elliott, Granger, & Timmermann, 2006).

Simple bivariate VAR can be written as

$$\begin{aligned} y_t &= a_{10} + a_{11} y_{t-1} + a_{12} z_{t-1} + e_{yt} \\ z_t &= a_{20} + a_{21} y_{t-1} + a_{22} z_{t-1} + e_{zt} \end{aligned} \tag{1}$$

where two shocks produce error term $\begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix} = \begin{bmatrix} 1 & b_{12} \\ b_{21} & 1 \end{bmatrix}^{-1} \begin{bmatrix} \varepsilon_{yt} \\ \varepsilon_{zt} \end{bmatrix}.$

In relation (1) there is only one lag. From here it is simple to go to the multivariate case. System gets larger, by adding additional variables and lags. There are 4 systems of equations with 3 lags where variables are given in following ordering:

$$1 \begin{cases} \text{log of FDI} \\ \text{wages} \\ \text{IP} \\ \text{total employment} \end{cases} \qquad 2 \begin{cases} \text{log of FDI} \\ \text{wages} \\ \text{IP} \\ \text{youth employment} \end{cases}$$

$$3 \begin{cases} \text{differences of remittances} \\ \text{wages} \\ \text{IP} \\ \text{total employment} \end{cases} \qquad 4 \begin{cases} \text{differences of remittances} \\ \text{wages} \\ \text{IP} \\ \text{youth employment} \end{cases} \tag{2}$$

The first system observes logarithmic values of FDIs as shock and it is presented as relation (3). This relation represents system of equations where controlled variables

are logarithm of FDIs, total employment, wages and IP. For the youth employment case the variable *EMPL* is changed with one that represents employed aged 15-24 and the rest is the same.

For the remittance analysis instead of *log_FDI* the variable that is representing differences of remittances is plugged in.

Each of 4 systems of equations has 16 coefficients. Those coefficients should be estimated by using certain restrictions. Cholesky decomposition is the simplest way to impose restrictions, but it is often hard to find justification for this approach in practice.

In this research sign restrictions results with assumption that some of those coefficients in mentioned systems of equations are positive or to be specific in the FDI case $a_{18}, ..., a_{111} > 0$. For the remittance case, only two coefficients are assumed to be positive. Sign restrictions can be set in classical, point identified manner, but more elegant way is to use Bayesian framework by use some set of priors to identify structural shocks.

$$\log {}_F DI_t = a_{10} + a_{11}\log {}_F DI_{t-1} + a_{12}\log {}_F DI_{t-2} + a_{13}\log {}_F DI_{t-3} + e_{FDIt}$$
$$+ a_{14} WAGES + a_{15} WAGES_{t-1} + a_{16} WAGES_{t-2} + a_{17} WAGES_{t-3} + e_{WAGESt}$$
$$+ a_{18} IP + a_{19} IP_{t-1} + a_{110} IP_{t-2} + a_{111} IP_{t-3} + e_{IPt}$$
$$+ a_{112} EMPL + a_{113} EMPL_{t-1} + a_{114} EMPL_{t-2} + a_{115} EMPL_{t-3} + e_{EMPLt}$$

$$WAGES = a_{20} + a_{21} WAGES_{t-1} + a_{22} WAGES_{t-2} + a_{23} WAGES_{t-3} + e_{WAGESt}$$
$$+ a_{24}\log {}_{FDI} + a_{25}\log {}_F DI_{t-1} + a_{26}\log {}_F DI_{t-2} + a_{27}\log {}_F DI_{t-3} + e_{FDIt}$$
$$+ a_{28} IP + a_{29} IP_{t-1} + a_{210} IP_{t-2} + a_{111} IP_{t-3} + e_{IPt}$$
$$+ a_{212} EMPL + a_{213} EMPL_{t-1} + a_{214} EMPL_{t-2} + a_{215} EMPL_{t-3} + e_{EMPLt}$$

$$IP = a_{30} + a_{31} IP_{t-1} + a_{32} IP_{t-2} + a_{33} IP_{t-3} + e_{IPt}$$
$$+ a_{34}\log {}_{FDI} + a_{35}\log {}_F DI_{t-1} + a_{36}\log {}_F DI_{t-2} + a_{37}\log {}_F DI_{t-3} + e_{FDIt}$$
$$+ a_{38} WAGES + a_{39} WAGES_{t-1} + a_{310} WAGES_{t-2} + a_{311} WAGES_{t-3} + e_{WAGESt}$$
$$+ a_{312} EMPL + a_{313} EMPL_{t-1} + a_{314} EMPL_{t-2} + a_{315} EMPL_{t-3} + e_{EMPLt}$$

$$EMPL = a_{40} + a_{41} EMPL_{t-1} + a_{42} EMPL_{t-2} + a_{43} EMPL_{t-3} + e_{EMPLt}$$
$$+ a_{44}\log {}_{FDI} + a_{45}\log {}_F DI_{t-1} + a_{46}\log {}_F DI_{t-2} + a_{47}\log {}_F DI_{t-3} + e_{FDIt}$$
$$+ a_{48} WAGES + a_{49} WAGES_{t-1} + a_{410} WAGES_{t-2} + a_{411} WAGES_{t-3} + e_{WAGESt}$$
$$+ a_{412} IP + a_{413} IP_{t-1} + a_{414} IP_{t-2} + a_{415} IP_{t-3} + e_{IPt}$$

$$(3)$$

Every system has 4 shocks that produce error term, from which it is possible to get a variance covariance matrix. In this research structural shocks are identified using Uhlig's (2005) penalty function method. The size of the shock is one standard deviation. This is a partial identification method and stands for compromise between Uhlig's (2005) Rejection Method and Rubio-Ramírez et al. (2010) Rejection Method.

Baumeister and Hamilton have showed that traditional sign-identified VARS basically function as if there are the prior distributions (Baumeister & Hamilton, 2015). In that approach, the priors distributions that are implicit in the traditionally sign-restricted VARs developed by Rubio-Ramírez, Waggoner, and Zha are characterized (2010).

Attention is to narrow down the set of admissible models to a singleton and utilize additional identifying information. The relation between frequentist confidence intervals and Bayesian credible sets for partially identified parameters is beyond the scope of this paper, but the paper by Moon and Schorfheide (2012) provides a good discussion of that topic.

The penalty function is adjusted for the scale of the variables and the sign of the restriction because all failures across the impulse response are symmetrical. To treat the signs equally, let $l_j = -1$ if the sign of the restriction is positive and $l_j = 1$ if the restriction is negative. Scaling the variables is done by taking the standard error of the first differences σ_j of the variables. If $r_{j,\alpha}(k)$ is response of j at step k to the impulse vector α, then the minimization problem can be written as (Danne, 2015)

$$\min_{\alpha} \Psi(\alpha) = \sum_{j \in J} \sum_{k \in K} b \times f\left(l_j \frac{r_{j,\alpha}(k)}{\sigma_j}\right) \tag{4}$$

where b is a penalty depending on $f(\cdot)$ such that

$$b = \begin{cases} 1 \text{ if} & f\left(l_j \dfrac{r_{j,\alpha}(k)}{\sigma_j} \leq 0\right) \\ penalty \text{ if } f\left(l_j \dfrac{r_{j,\alpha}(k)}{\sigma_j} > 0\right) \end{cases} \tag{5}$$

where penalty is a nonnegative scalar. After this, it is crucial to define an impulse vector that minimizes the total penalty for the variables that are restricted at all-time horizons that are also restricted.

This analysis could be set in Heckscher-Ohlin (HO) framework. Basu and Bang (2015) provide several insights in that manner, with specific focus on migration and remittances, or FDI labour nexus. Patron has showed that trade has effect on human capital in HO framework There is possibility to make parallel with capital flows in similar context (Patron, 2012). There is a doubt that comparative static approach in HO framework would be robust solution for extrapolation of the dynamic long-term effects of capital flows on employment.

4. Results

In this section the reaction of total employment and youth employment on one standard deviation shock that comes from FDIs in B&H on one side, and from remittances on the other side, are compared.

Initial step in sign restricted VAR is to define restrictions and that is based on theoretical background. Previous research has shown the overall effect of FDIs on output should be positive, especially if short term reaction is considered. The reaction of output on remittance shock should be similar, though postponed compared to FDI's shock seems likely due to the fact that remittances make impact through capital

Table 2. Sign restrictions - sign of output's reaction and time for which restriction is applied.

Variable	Sign of the reaction	K (months for which restriction is applied)
Differences of FDI	+	min = 1, max = 3
Differences of remittances	+	min = 2, max = 3

accumulation and consumption, where the latter is primarily channeled through the service and construction sectors.

Initial VAR identification is simple and it is given in order as presented in relation (2). In addition there are also a sign restrictions as presented in Table 2.

By imposing restrictions presented in Table 2, FDIs are in the first place in terms of its directness and a positive impulse on output for the three months is assumed. Remittance may need additional time to make some impact (Gapen, 2008). In this analysis it is assumed that after one month, remittance will have positive impact on output for two months.

In technical sense, lag selection procedure was conducted according to feature of specific model approach, although different information criteria's were considered in simple Cholesky VAR setting (AIC, BIC, HQC). One quarter is sufficiently large dynamic window on one side and on the other side the model will not be too large. Therefore, it is reasonable to take 3 lags.

The number of Markov Chain Monte Carlo (MCMC) sampling replications for both shocks is 2000 and it is the same as the number of iterations of the penalty function minimisation routine. Also, the number of desired MCMC draws that meet the imposed sign restrictions is 200. As it can be seen on all the figures, the horizon of the impulse response calculations is 20 months.

In both cases the penalty applied to the responses that do not satisfy the imposed sign restrictions is 100 and the critical difference between two penalty function minimisation runs for which a draw gets rejected is 0.004.

Figure 1 shows that. FDIs boost up output; wages go up as well as employment. Almost identical situation is when one standard deviation shock from remittances is analysed (Figure 2).

Total employment seems to have a positive reaction on these specific capital inflows. The relation is sharply positive, and seems relatively stable on the long run, reaction of total employment is clear. Wages also have a positive reaction although the magnitude is not as sharp as is the case with the employment. There is a possibility to interpret this weak reaction of wages as a non-intensive impact of FDIs (and remittances) on labour productivity. Further elaboration in this direction is possible in HO framework.

Compared to FDIs remittances seems to have solid employment boost-up potential. It is obvious that remittances and FDIs in this framework can be comparable in the case of B&H.

Remittances make a positive impact on both total and youth employment because model catches the positive effect of remittances on self-employment as suggested by Funkhouser. Also, in B&H we are dealing mostly with resources FDIs and those one have less spillover effects, especially when labour and human capital are considered.
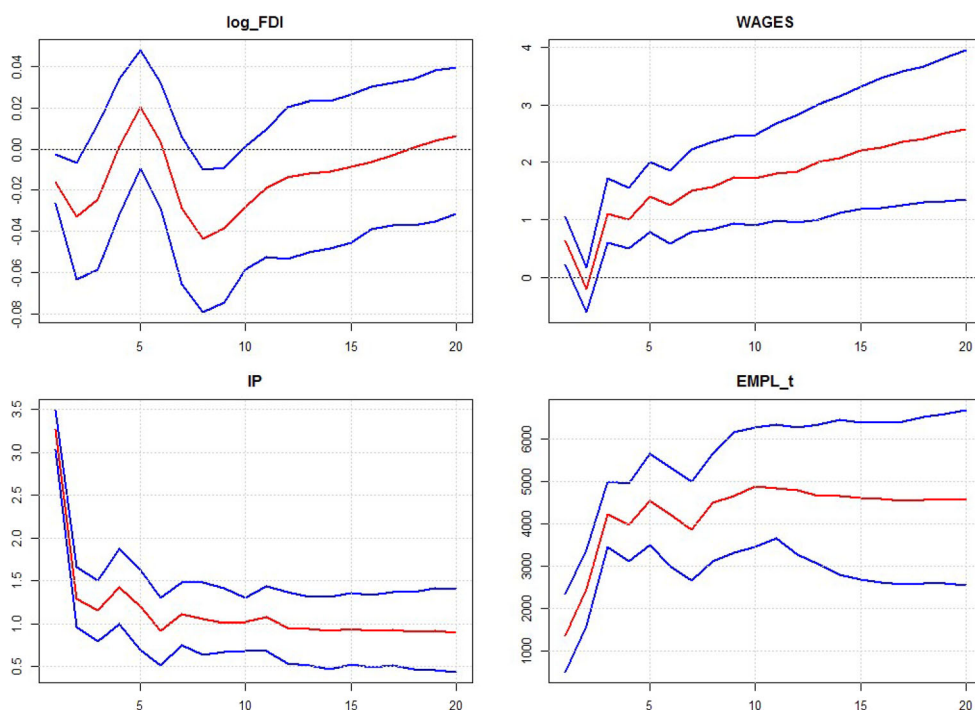
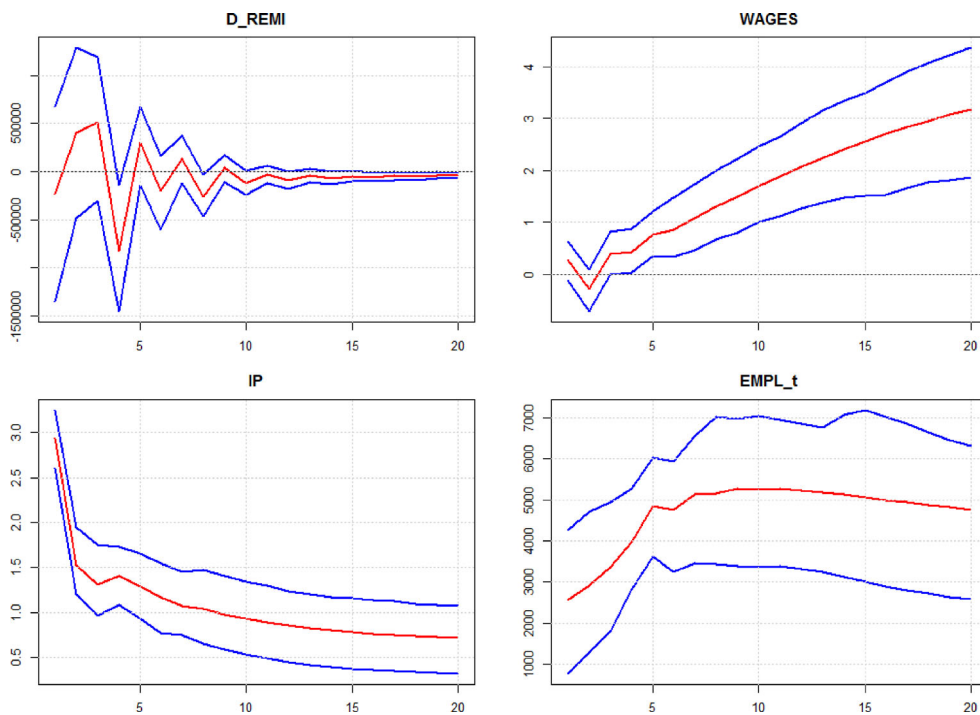**Figure 1.** FDI as shock – total employment (68% band that is approximately one standard deviation).

Figure 2. Remittances as shock - total employment (68% band that is approximately one standard deviation).

5. Discussion

Identification is simple and assumes controlling output, wages, employment and one of two mentioned capital flows in separate exercises. Conclusions about labour productivity stays out of the scope of this analysis, where HO framework would probably have more success by setting B&H versus EU with only 2 factors in the focus.

Claiming of positive effect of remittance on employment on long-run is confirmed. This is on the line with previous results that have found the evidences of incline in self-employment (Funkhouser, 1992) and directly and indirectly through capital accumulation and consumption (Gapen, 2008). Also, positive impact could be manifested by transition of some part of labour force from black labour market to regular economy conditions. Regular employment could also increase due to output growth. This would mean that remittances affect capital accumulation in the case of B&H and that there is significant overall impact on consumption, initially through construction and service sector (Gapen, 2008), and that this effect is stronger than "social welfare" effect.

It is important to stress out the fact that remittances and FDIs have similar effect on employment indicates that the channels through those effects are realized are similar. If so, then main channel for FDIs is consumption, probably construction and service sectors. Those kind of FDIs are not related with significant technological and knowledge spillover.

If there is a similarity in transmission between FDIs and remittances, than there is a confirmation of doubt that main effect of FDIs is not feasible for radical confrontation with youth unemployment (Figures 3 and 4). If younger populations enters at
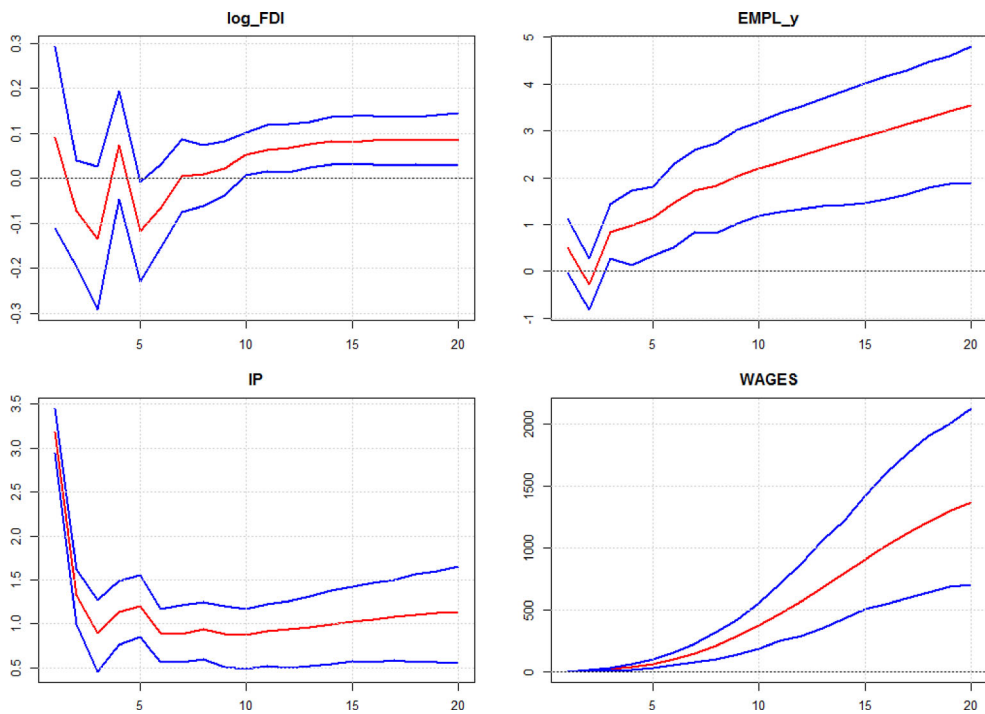

Figure 3. FDI as shock - youth employment (68% band that is approximately one standard deviation).
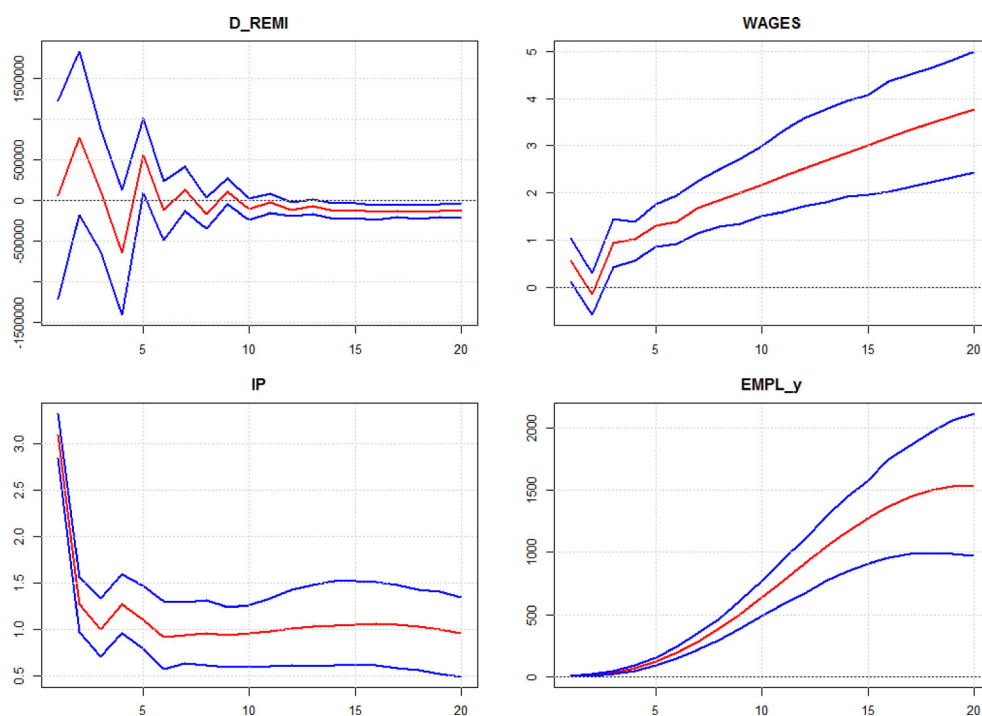
Figure 4. Remittances as shock - youth employment (68% band that is approximately one standard deviation).

the labor market with only option to get a low skilled and low paid job, the decision to migrate is easy.

FDI are considered as the most important capital flow for emerging economy and in B&H this aggregate is not on the regional level. In addition, B&H is the regional leader in youth unemployment and remittances.

Results presented in this research are showing poor performance of FDIs in increasing employment, especially in creating high-paid jobs in B&H. Reasons for this could be elaborated:

1. Market potential is not sufficient for significant human capital and technological spillover effect of nonresource FDIs.
2. Resource FDIs are not mainly related with globally known MNC.
3. Human capital downturn in last two decades.

The first point could be expected. The top three investors are neighbouring countries. From the perspective of global investment position, B&H is probably still considered a less attractive part of larger integrated region. Poor shape of human capital stock is expected if main export sectors are shoe and clothes industries, mining and wood processing. To stress this once again, human capital has reverse causality relationship with FDIs.

5.1. Conclusion

FDIs and remittances could have deep structural employment repercussions if current situation and context of policy framework changes. Lack of systematic policy approach toward remittances has been recognized earlier and now that is confirmed in the context of youth employment.

Investments that provide chance for youth to play proactive role in labour market, that pushes education sector in direction of making productive younger population, are the factors of B&H sustainable future, and FDIs have failed on those tasks in the past.

One standard deviation shock of FDIs and remittances have comparable impact on total employment on one side, and on youth employment on the other side. It seems that remittance should gain additionally attention by policymakers in this context. This is important capital flow for total and youth employment in B&H and should be seen more from the side of exchange motive than pure altruism

To conclude, state where there is "no country for young man" has no future. Otherwise, human outflow will be main barrier for capital inflow and growth in general.

Funding

References

Adams, R. H. (2009). The determinants of international remittances in developing countries. *World Development*, 37(1), 93–103. https://doi.org/10.1016/j.worlddev.2007.11.007

Adams, R. H., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? *World Development*, 33(10), 1645–1669. https://doi.org/10.1016/j.worlddev.2005.05.004

Adenutsi, D. E. (2010). Do international remittances promote human development in poor countries? Empirical evidence from Sub-Saharan Africa. *The International Journal of Applied Economics and Finance*, 4, 31–45.

Adenutsi, D. E. (2011). Financial development, international migrant remittances, and endogenous growth in Ghana. *Studies in Economics and Finance*, 28(1), 68–89. https://doi.org/10.1108/10867371111110561

Agarwal, R., & Horowitz, A. W. (2002). Are international remittances altruism or insurance: Evidence from Guyana using multiple-migrant houses. *World Development*, 30(11), 2033–2044. https://doi.org/10.1016/S0305-750X(02)00118-3

Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1999). Foreign direct investment as an engine of growth. *The Journal of International Trade & Economic Development*, 8(1), 27–40. Retrieved from http://dx.doi.org/10.1080/09638199900000003 https://doi.org/10.1080/09638199900000003

Baltagi, B. H., Egger, P., & Pfaffermayr, M. (2007). Estimating the model of complex FDI: Are there third-country effects? *Journal of Econometrics*, 140(1), 260–281. https://doi.org/10.1016/j.jeconom.2006.09.009

Barajas, A., Cham, R., Fullenkamp, C., Gapen, M., Montiel, P. (2009, July). Do workers' remittances promote economic growth? *IMF Working Paper*. IMF.

Basu, B., & Bang, J. T. (2015). *International remittance payments and the global economy*. Routledge.

Baumeister, C., & Hamilton, J. D. (2015). Sign restriction structural vector autoregressions, and useful prior information. *Econometrica*, *83*(5), 1963–1999. https://doi.org/10.3982/ECTA12356

Beine, M., Lodigiani, E., & Vermeulen, R. (2011). *Remittances and financial openness*. De Nederlandsche Bank NV.

Blonigen, B. A., Davies, R. B., Waddell, G. R., & Naughton, H. T. (2007). FDI in space: Spatial autoregressive relationship in foreign direct investment. *European Economic Review*, *51*(5), 1303–1325. https://doi.org/10.1016/j.euroecorev.2006.08.006

Canova, F., Lopez-Salido, D., Michelacci, C. (2007). *Shcumpeterian technology shocks. Economics Working Papers 1012*. Department of Economics and Business, Universitat Pompeu Fabra.

Cox, D., & Stark, O. (1994). *Intergenerational* transfers and the demonstration *effect*. Boston College Working Papers in Economics, 329.

Danne, C. (2015, December 19). *VARsignR: Estimating VARs using sign restrictions in R*. Retrieved May 10, 2018, from https://mpra.ub.uni-muenchen.de/68429/

de Mello, L. R. Jr. (1999). Foreign direct investment-led growth: evidence from time series and panel data. *Oxford Economic Papers*, *51*(1), 133–151. https://doi.org/10.1093/oep/51.1.133

Elliott, G., Granger, C. W., & Timmermann, A. (2006). *Handbook of economic forecasting series*. University of California, Elsevier B. V.

Forbes, K. (2000). A reassessment of the relationship between inequality and growth. *American Economic Review*, *90*(4), 869–887. https://doi.org/10.1257/aer.90.4.869

Fujita, S. (2011). Dynamics of worker flows and vacancies: evidence from the sign restriction approach. *Journal of Applied Econometrics*, *26*(1), 89–121. https://doi.org/10.1002/jae.1111

Funkhouser, E. (1992). Migration from Nicaragua: Some recent evidence. *World Development*, *20*(8), 1209–1218. https://doi.org/10.1016/0305-750X(92)90011-J

Gapen, M. T. (2008). *Macroeconomic consequences of remittances*. International Monetary Fund.

Goldberg, P. K., & Pavcnik, N. (2007). Distributional effects of globalization in developing countries. *Journal of Economic Literature*, *45*(1), 39–82. https://doi.org/10.1257/jel39

Hanson, G. H., & Harrison, A. (1999). Trade, technology and wage inequality. *Industrial and Labor Relations Review*, *52*(2), 271–288. https://doi.org/10.2307/25166

Kosova, R. (2010). Do foreign firms crowd out domestic firms? Evidence from the Chezh Republic. *Review of Economics and Statistics*, *92*(4), 861–881.

Lucas, R. E., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of Political Economy*, *93*(5), 901–918. Retrieved 14 February 2018, from http://www.jstor.org/stable/1833062 https://doi.org/10.1086/261341

Moon, R. H., & Schorfheide, F. (2012). Bayesian and frequentist inference in partially identified models. *Econometrica*, *80*(2), 755–782.

Murtazashvili, I., & Wooldridge, J. M. (2016). A control function approach to estimating switching regression models with endogenous explanatory variables and endogenous switching. *Journal of Econometrics*, *190*(2), 252–266. https://doi.org/10.1016/j.jeconom.2015.06.014

Onley, W. (2015). Remittances and the wages impact of immigration. *The Journal of Human Resources*, *50*(3), 1–41.

Oruč, N., & Tabakovič, A. (2016). Motives for remittances change during the financial crisis in Bosnia and Herzegovina. *Südosteuropa*, *64*(1), 27–47. 10.1515/soeu-2016-0003. https://doi.org/10.1515/soeu-2016-0003

Patron, R. (2012). Trade liberalisation in Heckcher-Ohlin model: Does public skill formation change the conventional result? *Indian Economic Review*, 1–13.

Poelhekke, S., & van der Ploeg, F. (2013). Do natural resources attract nonrecourse FDI? *Review* of Economics and Statistics, *95*(3), 1047–1065. https://doi.org/10.1162/REST_a_00292

Poot, J., Cochrane, B. (2004). Measuring the economic impact of immigration: A scoping paper. *Immigration Research Programme*. Population Studies Centre, University of Waikato.

Robinson, D., & Gidling, H. (1999). Trade liberalization and relative wages of more skilled workers in Costa Rica. *Review of Development Economics*, *3*(2), 140–154.

Rodriguez, E. R., & Tiongson, E. R. (2001). Temporary migration overseas and household labor supply: Evidence from urban Philippines. *International Migration Review*, *35*(3), 709–725. https://doi.org/10.1111/j.1747-7379.2001.tb00037.x

Rubio-Ramírez, J. F., Waggoner, D. F., & Zha, T. A. O. (2010). Structural vector autoregressions: Theory of identification and algorithms for inference. *Review of Economic Studies*, *77*(2), 665–696. https://doi.org/10.1111/j.1467-937X.2009.00578.x

Said, M., Elshennawy, A. (2010). The impact of trade liberalization on manufacturing employment and wages in Egypt 1990–2007. *International Research Journal of Finance and Economics*, *2010*(46), 251–286.

Straubhaar, T., Vădean, F. P. (2006). *International Migrant Remittances and their Role in Development*. Hamburg: Hamburg Institute of International Economics (HWWA). Retrieved from https://www.oecd.org/els/mig/38840502.pdf

Uhlig, H. (2005). What are the effects of monetary policy on output? Results from an agnostic identification procedure. *Journal of Monetary Economics*, *52*(2), 381–419. https://doi.org/10.1016/j.jmoneco.2004.05.007

Wadood, S. N., & Hossain, A. (2015). Impact of overseas remittances on economic growth: Evidence from Bangladesh. MPRA Paper 81657, University Library of Munich, Germany .

Yang, D. (2011). Migrant remittances. *Journal* of Economic Perspectives, *25*(3), 129–151. https://doi.org/10.1257/jep.25.3.129

Yang, D., & Choi, H. (2007). Are remittances insurance? Evidence from rainfall shocks in the Philippines. *The World Bank Economic Review*, *21*(2), 219–248. https://doi.org/10.1093/wber/lhm003