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# aim and scope of

ASECU was founded in 1996 as Association of South-Eastern Europe Economic Universities with the general aim of promoting the interests of those economic universities in South-Eastern Europe which are public, recognized or financed by the state of origin.

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## IMPACT OF OPENNESS AND ECONOMIC FREEDOM ON ECONOMIC GROWTH IN THE TRANSITION ECONOMIES OF THE EUROPEAN UNION

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### **Abstract**

The globalization process has accelerated, particularly as of the 1980s, and countries began to remove obstacles on the flows of goods, services and capital. Hence, substantial increases have resulted in both global trade volume and cross-border capital flows. Moreover, countries have improved their institutional and legal infrastructure to achieve sustainable economic growth and attract foreign capital. This study examines the impact of openness and economic freedom on the economic growth of the transition economies in the European Union during the 1996-2012 period, through the use of panel data analysis. We have found there is a long-run relationship among the variables and both economic freedom and trade openness have a positive impact on economic growth, while financial openness has a negative impact on economic growth.

**JEL Classification:** C32, F43, O10, O40

**Key Words:** Openness, Economic Freedom, Economic Growth, Panel Data Analysis

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## 1. Introduction

Countries began to remove constraints on the movement of goods, services and capital with the increasing globalization after the Second World War. Trade and financial liberalization contributed to increasing world trade volume and cross-border capital flows. World trade volume, as a percentage of GDP, increased from 25.62% in 1960 to about 60% in 2013 (World Bank, 2015a). Furthermore, cross-border capital flows increased to about 20% of the world GDP in 2007, but then decreased to 5% of the world GDP in 2012 (James *et al.*, 2014).

Transition economies of the European Union (EU) belatedly integrated into the liberalization process in the world after the collapse of Communism. They implemented transition from centrally planned economies to market economies as of the late 1980s and then joined the EU in the 2000s. During this transition process, the countries liberalized their trade, integrated into global financial markets and improved their quality of institutional infrastructure through structural reforms.

In this regard, new growth theories have emphasized that openness and institutional quality have had a positive impact on economic growth (See McKinnon (1973), Shaw (1973), Bencivenga and Smith (1991), King and Levine (1993), Fedderke (2002), Andersen and Babula (2008), Hye and Lau (2015)). This study investigated the impact of openness and economic freedom on the economic growth in transition economies of the EU. Our empirical findings also verified that increases in the level of both institutional quality and trade openness raised economic growth. However, we found that financial openness had a negative impact on economic growth and we came to the conclusion that this can result from the fact that the financial sector of these countries has not reached the necessary threshold level during their development process.

The rest of the paper is organized as follows: The next section presents an overview of the theoretical and empirical literature on our topic. Section 3 presents data and the econometric methodology; section 4 conducts the empirical analysis and presents major findings. Finally, the study is completed with the Conclusion.

## 2. Literature Review

There has been a wide range of theoretical and empirical studies on the impact of trade openness, financial openness and economic freedom on economic growth in relevant literature. The literature review led us to select the method and variables used in the study. We also found that there have been extensive empirical studies on the topic of this article, but there have been few studies specifically on the transition economies of the EU. Therefore, this study will bridge the gap of current extensive literature by examining the impact of openness and economic freedom on the economic growth in this group of countries. Finally, we are going to use econometric tests, which consider structural breaks contrary to most empirical studies in the litera-

ture, because traditional econometric tests with no structural breaks may yield biased results in cases of structural breaks.

### *2.1. Trade Openness and Economic Growth*

Trade openness is one of the important variables of sustainable economic growth in the globalized world. Endogenous growth theories provide a theoretical basis for the relationship between trade openness and economic growth. In the context of these theories, trade openness possibly has an impact on economic growth via knowledge spillovers, capital accumulation, and factor price equalization (See Romer (1990) and Hye and Lau (2015)).

Extensive empirical studies have been conducted so as to determine the impact of trade openness on economic growth and they have reached mixed findings on the relationship between two variables. Some studies, such as those by Marelli and Signorelli (2011), Sakyi *et al* (2012), Mercan *et al* (2013), Zakaria and Ahmed (2013) and Razmi and Refaei (2013), found that trade openness has a positive impact on economic growth, while some studies, such as those by Menyah *et al* (2014) and Ulasan (2015), have found that trade openness has no significant impact on economic growth. On the other hand, other studies, such as those by Kim (2011) and Hye and Lau (2015), found that the relationship between trade openness and economic growth could be different depending on the level and duration of development.

### *2.2. Financial Openness and Economic Growth*

There are two major theoretical views on the relationship between financial openness and economic growth. One view states that financial openness affects economic growth positively by efficiently allocating resources and providing better access to foreign capital, by improving risk sharing and contributing to the stabilization of the economy and through the development of the financial sector. The other view supports that the benefits of financial openness may not be realized or may be realized in a limited manner and that financial openness makes a national economy more vulnerable to crises (Kim *et al*, 2014).

Empirical studies on the relationship between financial openness and economic growth have also reached mixed findings. Some studies, such as those by Bekaert *et al* (2005), Ranciere *et al*. (2006), Garita (2009), Levchenko *et al*. (2009) and Kim *et al*. (2014), have found that financial openness has had a positive impact on economic growth, while relatively few studies, such as those by Gine and Townsend (2004), Fratzscher and Bussiere (2004), Tswamuno *et al*. (2007), have found that financial openness has had a negative or no significant impact on economic growth. Furthermore, some studies have investigated the causality between financial openness and economic growth. Other studies, such as those by Yapraklı (2007), found that there was unidirectional causality from financial openness to economic growth, while other

studies, such as those by Kar and Pentecos (2000), Bas-Dinar *et al.* (2015), found that there was unidirectional causality from economic growth to financial openness.

### *2.3. Economic Freedom and Economic Growth*

Economic freedom may be accepted as a quality indicator of institutions and a legal structure which countries have. Institutional and legal structure becomes very important both for creating an investment environment and, also, for attracting foreign investment and capital in a globalized world. Discussions on economic freedom go back to Adam Smith, but the concept of economic freedom has different meanings depending on various economic theories and approaches. In this study, we are using the economic freedom index calculated by The Heritage Foundation. This index is based on four pillars, namely, the rule of law (property rights, freedom from corruption), limited government (fiscal freedom, government spending), regulatory efficiency (business freedom, labour freedom, monetary freedom) and open markets (trade freedom, investment freedom, financial freedom) (The Heritage Foundation, 2015).

There have been a large number of empirical studies on the relationship between economic freedom and economic growth, especially in the last two decades. Most of the studies have found that economic freedom has generally had a positive impact on economic growth (See Nelson and Singh (1998), Gwartney *et al* (2004), Yun-Peng and Tuan-Yuen (2009), Paakkonen (2010), Peev and Mueller (2012), Piątek *et al* (2013), Razmi and Refaei (2013) and Akıncı *et al* (2014)).

## **3. Data and Econometric Methodology**

We examined the long run relationship between economic growth, openness and economic freedom in transition economies of the EU during the 1996-2012 period using the Basher and Westerlund (2009) cointegration test.

### *3.1. Data*

In the study we have used the real GDP per capita growth as a proxy for economic growth (dependent variable). We also used the sum of export and import as a percentage of the GDP as a proxy for trade openness and Chinn-Ito index (KAOPEN) as a proxy for financial openness and economic freedom index, as calculated by The Heritage Foundation (2015). The data of economic growth and trade openness were obtained from the World Bank (2015a & 2015b), the data of financial openness from Chinn and Ito (2015) and the data of economic freedom from The Heritage Foundation (2015). Our sample and study period were dictated by data availability. Variables used in the econometric analysis and their symbols are presented in Table 1.

**Table 1.** Variables Used in the Study

Variable	Symbol	Source
Real GDP per capita growth	GROWTH	World Bank (2015b)
Trade openness (export and import of goods and services as a percentage of GDP)	TRAOP	World Bank (2015a)
Financial openness	FINOP	Chinn and Ito (2015)
Economic freedom index	EFR	The Heritage Foundation (2015)

E-views 8.0, WinRATS Pro. 8.0 and Gauss 11.0 software packages were used for analyses in the study.

### 3.2. Econometric Methodology

In this study, we investigated the impact of trade openness, financial openness and economic freedom on economic growth in transition economies of the EU. Firstly we tested cross-sectional dependence with the bias-adjusted LM (Lagrange Multiplier) test of Pesaran *et al* (2008) and conducted the stationarity testing of the series using the PANKPSS (Panel Kwiatkowski, Phillips, Schmidt and Shin) test by Carrion-i-Silvestre *et al* (2005). Then we analyzed long run relationships between variables using the Basher and Westerlund (2009) method and cointegrating coefficients were estimated with the panel Augmented Mean Group (AMG) analysis by Eberhardt and Bond (2009).

#### 3.2.1. Cross-sectional Dependence Test

Cross-sectional dependence of variables is very important for determining further econometric tests used in the study. Therefore, we should test whether there is cross-sectional dependence in the series and the cointegrating equation. When the time dimension of the panel is higher than the cross-section dimension, the Breusch-Pagan (1980) LM test was used. Otherwise, the cross-section dependence (CD) LM test by Pesaran (2004) was used. Later the  $CD LM_{adj}$  test was developed by Pesaran *et al* (2008) through adding variance and mean to test statistics in order to adjust its bias, because the  $CD LM_{adj}$  test yields biased results when the group mean is zero and the individual mean is not zero. The  $CD LM_{adj}$  test statistics developed by Pesaran *et al* (2008) is calculated as follows:

$$CD LM_{adj} = \left( \frac{2}{N(N-1)} \right)^{1/2} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \left[ \hat{\rho}_{ij}^2 \left( \frac{(T-K-1)\hat{\rho}_{ij} - \hat{\mu}_{Tij}}{v_{Tij}} \right) \right] \sim N(0,1) \quad (1)$$

where  $\hat{\mu}_{Tij}$  represents the mean and  $v_{Tij}$  represents the variance in equation 2. The test statistics from equation 2 exhibits an asymptotically standard normal distribution. The null hypothesis of the test is that there is no cross-sectional dependence, while the alternative hypothesis is that there is cross-sectional dependence.

### 3.2.2. PANKPSS Unit Root Test

The PANKPSS unit root test developed by Carrion-i-Silvestre *et al* (2005) considers the cross-sectional dependence and the possible multiple structural breaks in the dataset. The test model is as follows:

$$Y_{it} = \alpha_{it} + \beta_{it} + \varepsilon_{it} \quad i = 1, 2, \dots, N \text{ and } t = 1, 2, \dots, T \quad (2)$$

$$\alpha_{it} = \sum_{k=1}^m (\theta_{ik} K1_{it}) + \sum_{k=1}^m (\gamma_{ik} K2_{it}) + \alpha_{it-1} + u_{it}$$

$$\beta_{it} = \sum_{k=1}^n (\varphi_{ik} K1_{it}) + \sum_{k=1}^n (\delta_{ik} K2_{it}) + \beta_{it-1} + v_{it}$$

where  $K1$  and  $K2$  are dummy variables defined as follows:

$$K1 = \begin{cases} 1 & t = T_B + 1 \\ 0 & \text{other cases} \end{cases} \quad K2 = \begin{cases} 1 & t > T_B + 1 \\ 0 & \text{other cases} \end{cases}$$

where  $T_B$  represents the structural break point in equation 3 and it allows  $m$  structural breaks in the constant term and  $n$  structural breaks in the trend. The PANKPSS unit root test allows a maximum of 5 structural breaks. The null hypothesis of the test is that the series is stationary, while the alternative hypothesis of the test is that the series is not stationary.

### 3.2.3. Basher and Westerlund (2009) Cointegration Test

The Basher and Westerlund (2009) cointegration test considers cross-sectional dependence and multiple structural breaks and allows a maximum of three structural breaks, while testing the long run relationship among the variables. The test statistics of the model developed by Basher and Westerlund (2009) is as follows:

$$Z(M) = \frac{1}{N} \sum_{i=1}^N \sum_{j=1}^{M_i+1} \sum_{t=T_{ij-1}+1}^{T_{ij}} \left( \frac{S_{it}^2}{(T_{ij} - T_{ij-1})^2 \hat{\sigma}_i^2} \right) \tag{3}$$

where  $S_{it} = \sum_{s=T_{ij-1}+1}^t \widehat{W}_{st}$  and  $\widehat{W}_{it}$  is a residual vector obtained from an efficient estimator; for example, fully modified least squares,  $\hat{\sigma}_i^2$  is a variance estimator based on  $\widehat{W}_{it}$ . Test statistics exhibits a standard normal distribution. The null hypothesis of the test is that there is cointegration of variables for all cross-sections, while the alternative hypothesis is that there is no cointegration of variables for some of the cross-sections.

### 3.2.4. Panel Augmented Mean Group (AMG)

The Panel AMG method estimates cointegrating coefficients by considering cross-sectional dependence; it also calculates the average group effect by weighting the overall panel results and individual coefficients. Therefore, it is more reliable than the common correlated effects method developed by Pesaran (2006) for estimating cointegrating coefficients (Eberhardt and Bond, 2009). Therefore, we estimated cointegrating coefficients with the panel AMG developed by Eberhardt and Bond (2009). In this estimation method variables are decomposed in the following manner:

$$y_{it} = \beta'_i x_{it} + u_{it}; \quad u_{it} = u_{it} + \lambda'_t f_t + \varepsilon_{it} \tag{4}$$

$$x_{mit} = \pi_{mi} + \delta'_{mi} g_{mt} + \rho_{1mi} f_{1mt} + \dots + \rho_{nmi} f_{nmt} + v_{mit} \tag{5}$$

$$f_t = \varphi' f_{t-1} + \varepsilon_{it} \text{ and } g_t = \aleph' g_{t-1} + w_t \tag{6}$$

where  $f_t$  represents unobservable common factors, while  $g_t$  represents country specific factors.

## 4. Empirical Analysis

### 4.1. Cross-Sectional Dependence Test

We tested cross-sectional dependence of variables and the cointegrating equation using the *CD LM<sub>adj</sub>* test by Pesaran *et al* (2008) and the results of the test are presented in Table 2. Results showed that the null hypothesis (cross-sectional independence) was rejected, because probability values are lower than 1%. In this case, the remaining countries were affected by a shock in one of the countries in the panel. Therefore, we should select econometric tests taking into consideration cross-sectional dependence.

**Table 2.** Results of Adjusted  $CD LM_{adj}$  Test

Variable	Test Statistics	Probability
GROWTH	6.334	0.000
FINOP	4.268	0.019
TRAOP	3.782	0.004
EFR	5.331	0.000

#### 4.2. PANKPSS Unit Root Test

We used the PANKPSS unit root test to determine the stationarity of the variables in our study. We selected the model which allows for structural breaks in both the constant term and trend, when applying the test. Critical values were obtained by Monte Carlo simulations with 1,000 simulations. Results of the PANKPSS unit root test are presented in Table 3. These results indicate that variables were not stationary at their level, but became stationary after the first differencing. We also present the dates of structural breaks in Table 3 and results showed that the test determined structural breaks successfully, as well. In the dates of structural breaks, the Russian crisis, the global financial crisis and the Eurozone sovereign debt crisis, respectively, emerged in 1998, 2008 and 2009, during our study period.

**Table 3.** Results of PANKPSS Unit Root Test

Countries	DGROWTH		DFINOP		DTRAOP		DEFR	
	<i>p-value</i>	<i>S. break</i>	<i>p-value</i>	<i>S. break</i>	<i>p-value</i>	<i>S. break</i>	<i>p-value</i>	<i>S. break</i>
Bulgaria	0.157*	1999 2008	0.132*	1998 2008	0.231*	1999 2009	0.136	1998 2009
Croatia	0.162*	1998 2009	0.238*	1998 2009	0.134*	1999 2009	0.182	1998 2009
Czech Republic	0.216*	1998 2009	0.261*	1999 2009	0.119*	1999 2009	0.109	1999 2009
Estonia	0.194*	2008	0.205*	2009	0.226*	2009	0.231	2008
Hungary	0.289*	2009	0.266*	2008	0.137*	2009	0.226	2008
Latvia	0.215*	2008	0.392*	2009	0.141*	2009	0.248	2009
Lithuania	0.138*	2009	0.246	2008	0.102*	2009	0.159	2009
Romania	0.275*	1997, 1998, 2009	0.207 *	1998 2009	0.173*	1999 2008	0.144	1998 2009
Slovak Republic	0.119*	2009	0.178*	2008 2009	0.168*	2009	0.152	2009
Slovenia	0.185*	2009	0.108	2009	0.217*	2009	0.180	2009
Panel	0.235*		0.268*		0.195*		0.163 *	

\*Stationary at 5% significance level

#### 4.3. Basher and Westerlund (2009) Cointegration Test

We used the Basher and Westerlund (2009) cointegration test for testing long run relationship between variables. We selected the model that allows structural breaks in both the constant term and trend for the cointegration test and results are presented in Table 4. Critical values were obtained by Monte Carlo simulations with 1,000 simulations. Results showed there was a cointegration relationship between variables when structural breaks were taken into consideration.

**Table 4.** Results of Basher and Westerlund (2009) Cointegration Test

	Test Statistics	Probability	Decision
Exclusion of structural breaks in the constant term and trend	3.887	0.021	There is no cointegration
Consideration of structural breaks in the constant term and trend	34.678	0.349	There is cointegration

#### 4.4. Estimation of Cointegrating Coefficients

We applied the panel AMG method for estimating cointegrating coefficients and the results are presented in Table 5. Autocorrelation and heteroscedasticity problems were eliminated using the Newey-West method. Findings demonstrated that trade openness and economic freedom have a positive impact on economic growth at 95%, while financial openness has a negative impact on economic growth at 95%.

**Table 5.** Results of Panel AMG Estimation

Variables	Coefficient	Probability
FINOP	-0.214	0.015*
TRAOP	0.326	0.002*
EFR	0.289	0.017*

\*Statistically significant at 5% level

The positive impact of trade openness and economic freedom on economic growth is supported by endogenous growth theories (See Acemoglu *et al* (2004), Hye and Lau (2015)) and the findings of most empirical studies in the literature. However, the negative impact of financial openness on economic growth is not consistent with the propositions of endogenous growth theories. Kim *et al* (2014) asserted that

the impact of financial openness on economic growth depends on country specific factors, including the level of economic development, macroeconomic development and stability. Consequently, our findings could have arisen due to underdeveloped financial structures and institutional structure as well as the insufficient and unstable economic performance of transition countries.

Short run relationships between variables were estimated by the panel AMG and results are presented in Table 6. We found that the coefficients of error correction terms were negative and statistically significant. This demonstrated that deviations among series in the short run were eliminated and series converged to their long run equilibrium values. This finding also verified that our variables were cointegrated. On the other hand, the small coefficients of error correction terms showed that the equilibrating velocity of variables was low.

**Table 6.** Short Run Analysis

Variables	Coefficient	Prob.	Coefficient of Error Correction Terms
FINOP	-0.193*	0.031	-0.083*
TRAOP	0.294*	0.004	-0.107*
EFR	0.286*	0.007	-0.091*

*\*Statistically significant at 5% level*

## 5. Conclusion

The transition economies of the EU transitioned from centrally planned economies to market economies concurrently with the fall of the Berlin Wall in 1989 and then these countries were integrated into the EU. During this process, these countries liberalized their economies and improved the quality of their institutional infrastructure. This study examined the impact of openness and economic freedom on economic growth in the transition economies of the European Union, including Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia during the 1996-2012 period. Our findings indicate that trade openness and economic freedom had a positive impact on economic growth in the long run, while financial openness had a negative impact on economic growth in the long run. The propositions of endogenous growth theories and empirical studies in the literature support the positive relationship between economic growth, trade openness and economic freedom.

The quality of the institutions has an impact on the arrangement of economic institutions, which, in turn, affects economic growth by channelling the allocation of resources into the economy. So the findings of the study verified that institutional

quality is one of the important components behind economic growth, as proposed by new endogenous growth theories. On the other hand, trade openness may also affect economic growth through various channels, such as technological spillovers and increasing productivity. In this regard, the economic performances of our sample were positively affected by trade openness. Finally, our expectations had been that financial openness would have a positive impact on economic growth, considering the prevailing positive relationship between financial development and economic growth in the extensive theoretical and empirical literature. However, we found that there was a negative relationship between economic growth and financial openness and we concluded that this may have resulted from the fact that the financial sectors of these countries have not sufficiently developed to make a positive contribution to economic growth.

The findings of the study imply that trade openness and economic freedom foster economic growth, while financial openness slows it down. Therefore, it is important for less developed countries that they improve their institutional quality and liberalize their trade gradually. Institutional quality is a prerequisite condition for long run growth, but the impact of trade liberalization on economic growth depends on the ability of countries to adjust and endogenize technological spillovers and to improve their productivity and competitiveness. Finally, countries can benefit from financial openness, if they have adequate financial infrastructure. Therefore, it is possible that economic growth was negatively affected by financial liberalization during its first stages. Further empirical studies can be conducted to determine the channels through which openness affects economic growth; this will be useful for policymakers so as to boost the impact of such factors in regard to economic growth.

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## POLITICAL RISKS OF WESTERN COMPANIES IN A TRANSFORMING COUNTRY EVIDENCE FROM RUSSIA 2014

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### **Abstract**

Foreign companies form an integral part of the economic landscape in their respective host countries. Western enterprises have to face specific risks and obstacles related to the current local democratic and economic development stage and they are confronted with political risks such as corruption, favouritism or legal uncertainty. This paper is based on the evidence collected during a field study conducted between March and September 2014 in Austria and Russia. The author conducted 23 qualitative interviews with Austrian business representatives operating in Russia and Russian experts concerning various aspects of the business environment. The results of this study are intended to be used for the improvement of the understanding of specific business conditions prevailing in Russia. This paper should be considered a valuable foundation for further in-depth research both on political risks and individual factors.

**JEL Classification:** FO 17, FP 48

**Key Words:** Business Environment, Coping Strategies, International Business, Political Risk, Russian Federation.

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## 1. Introduction

After the breakup of the Soviet Union, the Russian Federation, as its main successor, seemed for many scientists to be on a path towards Western-style democracy and free market economy. Two decades of transformation have shown that many informal institutions inherited from the Soviet period are still present in political and economic life. The transformation process, however, has changed their character and scale.

This article discusses the political risks faced by foreign businesses in Russia. My purpose is to demonstrate the impact of informal institutions embedded in the political-institutional framework of a host country on the business development of Western enterprises. The aim is to look for answers to the following research questions: What are the manners in which the Russian business environment can be characterized by neopatrimonial practices and how do Western enterprises react to it? The latter question concerns coping strategies introduced by them in order to adjust to Russian market conditions.

There is a wide range of studies on informal individual factors which characterize a neopatrimonial system, such as patron-client relationship, various forms of corruption or the absence of rule of law. The impact of informal institutions within such a system on international business has not been addressed yet. This article attempts to bridge this gap by offering a comprehensive multidisciplinary approach.

The first section presents a literature review and methodology. The second part consists of a detailed case analysis of the consequences of political risks for Western firms in Russia. The final part outlines the coping strategies adopted by these companies when trying to deal with the business environment they operate in. At the end of this paper, I will try to summarise the most relevant findings.

## 2. Conceptual framework: Political Risks and Neopatrimonialism

So far, no universally accepted definition of political risks in business administration has been established, let alone a list of indicators. Despite the proliferation of definitions and theoretical concepts, however, there is at least a common understanding. Agarwal and Feils (2007) describe political risk as the consequence of possible interference by external agents with business operations. The results of changes are risky only if they have a potentially profound effect on profits or other objectives of a particular enterprise (Robock, 1971: 7).

Political risk is omnipresent; it can occur both in high-industrialised as well as Less Developed Countries (LDCs). The distinction between them lies in the manifestation of risk factors and the level of institutional development. Typically, LDCs have less developed institutional frameworks, and, consequently, various informal institutions substitute formal institutions and impact business activities (Meyer & Peng, 2016: 5-6).

When searching for matching ideas which may be applicable for transition countries, one encounters the concept of neopatrimonialism, which is mainly used in political science. It analyses the coexistence of formal and informal institutions within a political system (Bratton & Van de Walle, 1997). Neopatrimonialism describes a type of system in which the tradition of patron-client networks is inter-related to some kind of rational-legal bureaucratic structure. Formal structures and rules do exist, even if the distinction between the private and public sphere is not always detectable in practice (Erdmann & Engel, 2007: 105). This situation creates uncertainty for stakeholders. Under a neopatrimonial organisation “people have a certain degree of choice as to which logic they want to employ to achieve their goals and to best realise their interests” (Erdmann & Engel, 2007: 105).

Informal institutions are “mainly unwritten, socially shared rules and procedures, which are put into social live, distributed and implemented “outside of officially sanctioned channels” (Helmke & Levitsky, 2004: 725). They might include corruption, personal networks, clientelism and patronalism (Helmke & Levitsky, 2004: 727-729).

Informal institutions exist regardless of properly or improperly functioning formal institutions. If informal institutions coexist with ineffective formal institutions, the former are supposed to substitute or compete with the latter (Helmke & Levitsky, 2004: 729).

Although the concept of neopatrimonialism is still underdeveloped and ill-defined due to lack of coherence, some factors, such as corruption, rent seeking, patron-client relationships and legal uncertainty are widely used to describe this phenomenon. These informal factors are embedded in the political system but, due to the interplay between politics and economics, they mainly tend to influence the latter.

This paper focuses on informal institutions in a neopatrimonial system and their consequent impact on the operational environment of Western companies. Corruption and favouritism based on clientelism and patronage can be regarded as two risk factors in a broader set of political risk factors with direct consequences on companies' performance.

Corruption is an umbrella term which covers various aspects, such as collusion, cronyism and nepotism, fraud, gifts, hospitality, lobbying, abuse of power or office and influence peddling (Shekshnia *et al.*, 2014: 5). This broad understanding can be found in the widely cited definition by Nye. According to this author, corruption is a behaviour that deviates from formal duties or rules of conduct governing the actions of an officeholder, because of their private motives, namely, wealth, power, or status. This pattern can be detected in various forms, i.e. bribery, nepotism and misappropriation. The first practice is always of a monetary nature, the last two may also have a non-monetary character (Nye, 1967: 419).

The definition has a very broad scope in terms of types of corruption and gains. For this paper, I have adopted a narrow understanding, which is limited to the monetary nature of corruption acts. Systemic corruption means that politicians and officials use their authority in order to sustain their private wealth.

Taking into account the importance of non-monetary aspects of relations within informal institutions, the term “systemic favouritism” is to be introduced and consequently applied. Systematic favouritism describes the use of public office to foster the interests of the patron himself and/or his clients, while impeding the interests of actors who are no part of this network.

### 3. Literature review

Economic and financial literature on political risks has been developing since the 1960s. Much of the research work has been dedicated to expounding on concepts and definitions.

A comprehensive model of two dimensions and three factors of political risks has been developed over time. Robock (1971) commences by drawing a distinction between macro and micro political risks. While macro risks are typical for all firms in a host country, micro risks impact only a select group. The micro level is important for analysis due to the fact that what may be a political risk for one company may not be the same for another (Robock, 1971: 8). Haner (1979) added internal and external dimensions to this model (Alon & Martin, 1998: 12). Internal risks are caused by the host country while external ones are generated by the home country, the international environment or the global scene. Simon (1982) combined both approaches and divided the factors into society-related and government-related. Alon (1996) added a third factor: economy-related political risks. Simon (1994) extended the model of internal and external dimensions to include direct and indirect risks. Torre and Neckar developed a model of exposure to political risks based on two dimensions: loss as a result of governmental actions or actions caused by non-governmental actors and loss contingencies or value contingencies. These four types of risk exist at the micro and macro levels.

Jensen (2003 and 2008) has analysed the impact of political regimes on risks for international investors. He (2003) explored the casual link between democratic governance and foreign direct investment (FDI). Results show a positive relationship between democracy and a country’s ability to attract foreign investors. In another article Jensen (2008) focused on the relations between political regimes and political risk and found out that democratic institutions tend to reduce risks for international investors. This happens especially through increasing constraints imposed on executives.

The character of risks has changed over time. Typical risks of the 1960s and the 1970s, such as expropriation of business assets, have vanished or have become a

minor problem for companies and new risks came to the forefront. According to Markwick, corruption belongs to the five important new risks, which have dominated the relevant scene since the 1990s (Markwick, 1998: 45). This was not a newcomer in the business world but there is evidence that the significance of this risk started increasing at that time.

Liuhto (cf. Liuhto 2010) analyses Russian political risks by applying Alan and Martin's macro risk model on Russia. He assesses developments in a firm's environment in the first decade of the 2000s. Liuhto came to the conclusion that the stability of the current political regime, the protracted instability in the Caucasus region, rising nationalism and the deteriorating opinion of the world concerning Russia, as well as the significant increase in unemployment rates in the region are key-determinants, which increase macro risks in Russia.

There are a few relatively recent publications that pay focus on the interrelationship between political and economic spheres in Russia viewed through a neopatrimonial prism (cf. Ledeneva, 2013a; Robinson, 2013). The concept of patrimonial capitalism applied by Robinson can be seen as a variant of Weber's patrimonialism and neo-patrimonialism in the economic sphere (Robinson, 2011: 4). Ledeneva analysed the nature, norms and methods of informal governance under Putin based on this concept (Ledeneva, 2013a: 1136).

If we take a broader look at relevant literature on the interplay between politics and economics in Russia, without direct reference to the neopatrimonial concept, we may observe different lines of research. Scientists elaborating on transition or area studies have noted the existence of a variety of informal practices, including the corruption of the public sector and the informal networks of the ruling elites.

Much has been written about one particular informal institution, namely, corruption. When we look at Russia, this phenomenon is widely discussed as a practice inherent in bureaucracy and the political system (Cheloukhine *at al.*, 2007; Leslie, 2012; Orttung 2006; Rozov, 2013). Leslie claims that: "corruption has been, is and will continue for some time" to be an important problem in Russia. According to Cheloukhine, forms of corruption are "constantly changing and getting more sophisticated" (Cheloukhine *at al.*, 2007: 53). As for the agents involved, Rozov explains that each of the three tiers of the corruption pyramid (i.e., politicians, bureaucrats and citizens/businessmen), has its own informal but relatively stable and highly respected corporate rules (Rozov, 2013: 47). When we look at geographic highlights, the most corrupted locations are Russia's major cities, due to the strong concentration of red tape there (Orttung, 2006: 2).

Corruption networks within political and economic elites have been another popular topic for research on informality and informal institutions (Hanson, 2013; Ledeneva, 2013). One of the pioneers in this area is Ledeneva. She describes how bribes are shared within power networks (Ledeneva, 2013). Her perspective is

based on in-depth interviews with insiders and enhanced by evidence of workings brought to light in court cases. According to her, there are four key types of networks, namely, the inner circle, useful friends, core contacts and more diffuse connections, functioning under Vladimir Putin's system of governance – referred to as *sistema*. Collection and redistribution of bribes is a key factor of this system (Ledeneva, 2013: 106). Hanson writes about increasing involvement of politicians in Russian business and points a finger to the extractive industry and high-tech sectors as core areas of close cooperation between senior officials and businesspeople (Hanson, 2011: 119).

There are also a few quantitative studies on informal practices related to corruption in domestic and foreign business in Russia (c.f. Fey & Shekshnia, 2011, Ledeneva & Shekshnia 2011). Ledeneva and Shekshnia (2011) asked 33 representatives of domestic and foreign companies to describe the extent to which their businesses were confronted with informal practices at the regional level. Based on the results, the authors categorised informal practices into five groups: 1. “Dinosaur” practices, i.e. ever or rarely used practices, which include extorting favours from job candidates or briberies to officials. 2. The most commonly used practices are tagged as “predator” practices, which describe, for instance, informal money flows between state and business and include voluntary or constrained payments related to fire inspections, customs tax or financial engagement in regional projects and programmes. 3. “Black cash” practices, which are in decline and include payments for a court decision, to a prosecutor or the police. 4. The term “rat” practice describes internal informal corporate practices. It means, *inter alia*, the use of the company's resources for personal gain. These take the form of kickbacks or the selection of services based on informal relationship. 5. There are also practices tagged as “Penguin” practices still applied. This term describes, for instance, practices based on life-long informal ties and networks used by companies to ensure state contracts or conflict of interest in the form of cronyism/nepotism. 6. Another potentially useful instrument may be “hook” practices, i.e. the use of a *kompromat* or other informal materials to exert pressure on competitors or officials. (Ledeneva & Shekshnia, 2011: 14-17).

There are also a few qualitative studies showing empirical evidence of private businesses coping with corruption. Kouznetsov and Dass have conducted a field research study of areas of corruption among Russian distributors of foreign goods (Kouznetsov & Dass, 2010). Their findings reveal that smaller distributors are more affected by corruption demands than large firms (Kouznetsov & Dass, 2010: 24). Another aspect was the focus of Karhunen and Kosonen. They looked at how a company rooted in a low-corruption home country can adopt domestic compliance standards in a corrupted host country. The authors found out that large companies can avoid corruption acts due to their financial and relational resources. SMEs, however, have to adapt to the corrupt environment (Karhunen & Kosonen, 2013: 88) and have also designed strategic responses to corruption as idealists, selective and

ceremonial conformists or pragmatists (Karhunen & Kosonen, 2013: 99). Having conducted a study of 36 foreign companies in Russia, Fey and Shekshnia (2011) worked out 8 recommendations for doing business in Russia. A piece of their advice focuses on corruption. The authors define some forms of bribes, such as contribution to a special project, bribes to judiciary and regulatory bodies, extortion from power ministries, or commissions to high state officials. Companies designed four strategies for dealing with corruption acts: outsourcing, pre-emption, abstention from corruption and postponement of entering a corrupt market.

### **3. Methodology**

This paper presents the findings of a field study conducted by the author between March and September 2015 in Russia and Austria. The selection of a qualitative approach was made because of the sensitive character of the research problem. This method helped me to better investigate the “how” questions of my project.

Based on an extensive literature review I designed a questionnaire and, consequently, a classification system. The interviews were semi-structured and conducted on the basis of guidelines. The questionnaire provided me with valuable support for keeping to the structure. Expert interviews were selected as the data collection method. One to one interviews conducted in a confidential manner provided access to information that would not otherwise have been accessible.

The author contacted about 200 Austrian companies registered in Moscow and 10 scientists, journalists and NGO activists. Interview partners were chosen by targeted selection applying the position technique, while scientific respondents by applying the reputation technique. The selection criteria for both groups were their expertise and their position. All academic experts are renowned researchers; all but one business partner were of the executive level. This implies deep knowledge of and experience in all aspects of business operations in the host country. My aim was to get a broad field of expertise of various types of enterprises so as to be able to compare my findings with those of local experts from the academia.

The geographical focus on Moscow was dictated by the fact that the country strategies of foreign enterprises focus mostly on a few regions or regional centres. They settle their subsidiaries particularly in better developed regions of Russia, such as Moscow or Saint Petersburg. A rate of 40-50 % of FDIs is concentrated in these locations (Deuber, 2014: 13).

Representatives of Austrian businesses were invited to contribute to a project on the political-institutional framework for business activities. Russian scientists, journalists and representatives of NGOs were directly asked to share their relevant knowledge in their field of expertise. Both groups were approached with an offer of guaranteed strict confidentiality and were asked the same categories of questionnaire questions. Interviews were conducted orally and due to the confidentiality

promised I have codified the names of the firms involved. Business interview partners represented a wide range of sectors and companies from SMEs to large enterprises. Eventually, I was granted access to enterprises active in high-tech, winter sports equipment, consulting, construction, mining, logistics, beverages, office equipment, agriculture and pharmaceuticals. This broad range enabled me to get a clearer picture of practical problems.

The response of Russian scientists, journalists and representatives of NGOs was high. The possible causes of the low rate of responses among Austrian companies may be explained by two factors: inopportune timing and thematic connotations. The project was launched at the time of the onset of the EU sanctions against Russia following the Crimea annexation. This may have increased the sensitivity perceived on possible answers to the research topic. Some companies may have interpreted the broadly formulated topic in the context of political corruption and were not willing to share their experiences in the light of official commitment to compliance standards. Another factor may have been the unclear political developments in regard to the sanctions eventually imposed by the EU and the Russian government's reactions.

The interviews were mostly conducted in person allowing for a broader conversation on topics of interest and helped the author gain deeper insights into the structure and workings of informal institutions in Russia. The language used was the choice of the interviewee from English, German or Russian. The 20 face-to-face interviews were supplemented by 3 telephone and Skype interviews. Each of them lasted one hour on average. Of the interviews 19 are recorded, while 4 respondents preferred not to be recorded; however, I obtained permission to take extensive notes.

After data collection, the interviews were transcribed in full in the respective original language. The classification system guided me through the analysis of the interview material. In this respect, I followed Mayring (2015). Furthermore, I summarised qualitative content analysis while applying the deductive approach. The reason to opt for this procedure was the plethora of literature already existing providing a wide range of variables and concepts which could be used as points of departure.

#### **4. Political Risk and its Consequences for Western Business**

##### *4.1 Political corruption*

Corruption exists in many forms and it is committed at various levels in Russia. Due to the hidden nature of such transactions, it is very difficult to identify the structure and the final beneficiary of this practice. According to some Russian interviewees, the phenomenon is centrally conducted and the strings lie in the hands of President Putin (Interview 4, Interview 17). There is no consensus among them as to whether corruption has a pyramid form or as to the corruption money collected at each tier of the pyramid.

Some companies observe that since 2011-2012 the fight against corruption has made progress in Moscow, at least at the level of middle-sized companies (Interview 13, Interview 15, Interview 21). As a representative of a Winter Sports Supplier noted, "it is still a longer process, but the protests at Bolotnaya Square have contributed to it and the state is reading the signals".

Western firms encounter corruption mostly in state administration, where public officials demand things they should not (Interview 2, Interview 5, Interview 19, Interview 30). According to a Russian researcher, corruption structures operate in all state institutions (Interview 9). Each body has a certain sphere of specialisation. A representative of a Business Association stated that corruption is visible in some state regulatory bodies (at the senior official level) such as the finance police, the tax inspectorate, the customs service, the fire department, the labour inspectorate or the sanitary inspectorate (Interview 21).

As for the scale, the number of corruption transactions may be dropping but the range of the money trail grows, stated Russian researchers and the representative of an Austrian business (Interview 8, Interview 16, Interview 17). Corruption money also constitutes a kind of compensation: As salaries in public administration are quite high, it is a higher risk for an official to become involved in corrupt practices, explained the Russian interview partner. Companies are using this practice mainly for accelerating or delaying decisions or processes (Interview 2, Interview 5, Interview 21).

Official combat against corruption makes basic bribery more difficult. The old practice of an envelope containing money is not possible any more. This was noted by both Russian experts and representatives of Austrian businesses (Interview 9, Interview 13, Interview 15, Interview 17). The rate of corruption payments depends on the size of the contract and the type of service. The average rate of kickback is estimated at 30-40 percent of a transaction, confirmed a Russian researcher and an investigative journalist (Interview 9, Interview 11).

The incidence of such acts depends on the size of the project and the line of business. Bribing or kickbacks are still present in infrastructure projects, especially in state ordered projects (Interview 15). It is also used in branches which work with projects in general. Each one needs a permit from the state or from a licensed company (Interview 19).

A foreign company may encounter such a demand when it is awarded a state contract or a contract with companies close to the government. The chance of solicitation of bribes is bigger, when the company involved is a large one and when applying for a federal state project (Interview 6, Interview 15). Companies experienced corruption practices when interested in state procurement (Interview 4, Interview 9) and when dealing with public tenders (Interview 15, Interview 19, Interview 21, Interview 23, Interview 24). Corruption schemes are also applied in the areas of certification and licensing (Interview 5, Interview 13, Interview 19, Interview 21).

The situation with public tenders has improved in Russia within the last ten years but winning at public tender remains quite a difficult task for a Western entrepreneur (Interview 21). The prevailing opinion is that compliance standards cannot be met at state tenders (Interview 21, Interview 13, Interview 22, Interview 23): there is no entry barrier, but a foreign company stands a much better chance when it is aware of the informal rules at play (Interview 19).

The situation has also improved in critical sectors like customs (Interview 21). There are still situations where customs services are delayed unnecessarily in order for the situation to be resolved by informal means (Interview 11, Interview 19). Operating companies have learnt how to obtain the willingness of Russian officials. The most frequently chosen practice is outsourcing this service to a broker who has the right contacts and knows the rules (Interview 2, Interview 5, Interview 13, Interview 19, Interview 20).

One of the informal practices is a bonus for the person who has mediated in the business deal (Interview 11, Interview 15). If a company wants to get a contract, it has to deliver a certain percentage for mediation services. However, this practice seems to be applied less and less (Interview 15).

#### *4.2 Political favouritism*

The general view among Russian experts was that there is a close linkage between political and business elites in the Russian model of economic development (Interview 4). As a result, one cannot always distinguish between the role of a politician or official and the role of a businessman. Informal patronage groups in Russia are dynamically developing and their composition changes over time (Interview 4, Interview 17). The core structure remains unchanged and entails politicians, representatives of big businesses (oligarchs), officials of law enforcement agencies (*siloviki*) and, sometimes, criminals (Interview 4). The underlying foundations of patronage relations are trust and loyalty (Interview 4). The binding element remains the President who plays the arbiter between various groups of interest (Interview 4, Interview 11).

Informal networks seem to be a minor problem for business activities of Western companies. There are a few companies that conduct projects with state companies, firms with government links or partners who are politically well-connected (Interview 10, Interview 18, Interview 19, Interview 20, Interview 23). Experience seems to suggest that one needs such networks to make business run more smoothly (Interview 19). Large companies need additionally political protection (Interview 4, Interview 17). As Russian researchers reported, if a domestic or foreign company wants to be competitive in its sector, it needs to be protected by political connections. The company pays a certain percentage for political protection, but has a guarantee that its work will not be disturbed (Interview 17). It is important to have connections in the right informal circle. A wrong decision will have negative consequences

on one's business (Interview 4). According to an experienced entrepreneur, political contacts start at the United Russia party (Interview 13).

The Russian economy is based on a small number of large companies in which the state holds majority stakes. In big state projects, a foreign enterprise will be able to win such a project only with a strong Russian partner with political clout. This means that one needs to be in partnership with a key player (Interview 10, Interview 18). When a foreign investor wants to cooperate with companies close to the state, it is important to know a business partner who is well connected with the federal state apparatus (Interview 20).

There are very few cases, when an Austrian or German company has been threatened with an unfriendly takeover labelled as a raider attack (Interview 15, Interview 21). A representative of a business Association explained a Russian modus operandi: if a confronted company ignores a raider threat, the other party has so far refrained from further action. An attempt may happen in a sector where Russian oligarchs are operating (Interview 23). Enterprises offering good standards in production or trade belong to the high risk group (Interview 21). If an enterprise reaches a certain level of turnover or sales, it can also become the target of a raider attack (Interview 17, Interview 21).

Various options are applied, explained a Russian and an Austrian expert. A company may receive an offer to sell shares to a local, politically well-connected businessperson. In some instances, a Russian businessman becomes dissatisfied with a new Western competitor and falsifies the ownership documents of the foreign rival's company. Then an inspector may be sent, who starts to collect some informal information about the company of interest from insiders (Interview 4). Alternatively, a Western businessman may be forced to sign a document passing ownership over to the raider (Interview 15). Sometimes the raider does not stop short of using law enforcement agencies to fulfil his demands. The third option is to provide some criminal claim to the court. The judge is bribed to issue an illegal sentence which makes the foreign company pay a certain fine. This money is used to pay the law enforcement agencies to take the company over by physical force or use some sort of goods raiders (Interview 4).

## **5. Coping Strategies of Western businesses**

Western companies have developed some strategic options which help them minimise potential losses due to the institutional environment. The companies try to adapt to the local customs perceived in order to be successful.

Foreign businesspeople understand that running a business could be risky in Russia, but potentially brings large profits. Companies reduce some risks by seeking contacts with informal networks. A company can establish a rapport with high-ranking government representatives or look for support through business partners with

political clout. It helps to outsource the corruption problem and obtain contracts. A company can also cooperate with a local consulting company, which has regular connections with the regional authorities and knows their demands and requirements.

Another strategic option in order to minimise the risk of raider attacks is to keep local exposure at a low level. This can be achieved through various measures. Instead of establishing a fully operating local subsidiary, the parent company only sets up a local representative branch which then outsources its activities to local firms or leaves core processes with the parent company in the home country. Another approach in this strategy would refer to property. In order to prevent exposure to expropriation, one has to avoid acquiring any property within the country. Instead, the firm rents its entire business infrastructure, from the building to the telephone line.

The second complex covers corruption. A first strategy is to avoid bribery completely. Some firms have given up doing business with public authorities and try to cooperate with independent “private” partners. They decided not to take part in public tenders or state procurement. Another option is to find a niche where foreign products are sought-after and local competition is low or to offer a high-tech product which cannot be provided by domestic companies or which is dependent on know-how.

Another kind of corruption avoidance is strict maintenance of control over the sensitive areas of the company itself, like finances or accounting, by outsourcing them to external specialised companies. These companies report directly to their headquarters in Europe and thus give overall control to their regional manager.

Corruption, however, can also be outsourced. They can also shift responsibility for some business operations, such as sales and distribution, to the Russian partner or cooperate with independent local companies in these areas. In sectors where state permits, licenses or certificates are obligatory, a company can use a mediator to solve the problem.

## **6. Conclusions**

Research on the effects of corruption and political favouritism in transition countries in the field of political science or of the emerging economies in business studies is still limited. Available data on corruption mostly concern quantitative information. The impact of informal networks on business is poorly analysed. This paper addressed a previously limited area of research in international business: how informal institutions embedded in the political system exercise their impact on the business activities of Western enterprises.

This article is intended to contribute to the development of knowledge concerning political risk in Russia. Empirical findings show the methods and schemes of corruption in a wide range of sectors and in companies of various sizes. The article also provides some insight into methods of operations related to the existence of political favourit-

ism in Moscow. Ledeneva and Shekshnia conducted a quantitative study on a similar topic, but treated Russia in general. They found out that the old practices of “black cash”, such as cash bribes or defalcation, have decreased and have been replaced by more subtle practices, such as supporting pet regional projects or selling companies’ assets under their real value to the selected companies. My research confirmed that nowadays bribery is more sophisticated and that supporting “important” regional projects or selling companies’ shares under their real value to state officials seems to play no role for Western companies in Moscow. Additionally, it shows that corruption acts are not always committed in person, as there are specialised intermediaries.

As the authors mentioned above gained rather generalized results, the intent of this research project was to generate more concrete findings focused on one specific region. The results could serve as a starting point for further research. It would be particularly interesting to explore differences in exposure to political risk in particular sectors or for companies of various sizes. Several issues may emerge from these findings and, consequently, require additional work. Further exploration could provide important insights into the accessibility of local networks to Western businesses, corruption schemes in particular sectors or depending on a company’s size or the use of legal intermediaries for problem solving purposes.

Empirical data were collected in a selected location in Russia (Moscow), which can justifiably be described as a large metropolis with a high concentration of foreign investors. This business environment encountered by foreign companies cannot be generalised for the whole country. Political risks in other regions would certainly make an interesting contribution. Furthermore, practitioners interested in entering the Russian market could also benefit from these findings. They could be warned of the role of informal institutions and develop coping strategies more easily or refrain from entering the market.

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## Interviews

- Interview 1 (25.03.2014) with an executive of a large-sized engineering company (3 years of working record in Russia), established in 1904 in Russia
- Interview 2 (25.03.2014) with an executive of a small-sized company from the transportation sector, established in 2005 in Russia
- Interview 3 (25.03.2014) with an executive of medium-sized company supplier of pharmaceutical raw materials, established in 1992 in Russia
- Interview 4 (26.03.2014) with a senior researcher, Economic University
- Interview 5 (26.03.2014) with an executive of large-sized company for beverage products (4 years of working record in Russia), established in 2007 in Russia
- Interview 6 (27.03.2014) with an executive of a large-sized winter sport supplier (5 years of working record in Russia), established in 2009 in Russia
- Interview 7 (27.03.2014) with an executive a large-sized technology supplier in automotive industry (7 years of working record in Russia), established in 2007 in Russia
- Interview 8 (28.03.2014) with a senior researcher, Economic University
- Interview 9 (28.03.2014) with a senior researcher, local Research Institute
- Interview 10 (31.03.2014) with an executive of a large-sized company for steel products (1 year of working record in Russia), established in 1982 in Russia
- Interview 11 (01.04.2016) with an investigative journalist
- Interview 12 (01.04.2014) with an executive of a large-sized enterprise supplier of refractory products (4 years of working record in Russia), established in 2006 in Russia
- Interview 13 (01.04.2016) with an executive of a small-sized winter sports supplier (26 years of working record in Russia), established in 2012 in Russia
- Interview 14 (02.04.2016) with an executive of a large-sized technology supplier for agriculture (2 years of working record in Russia), established in 2002 in Russia
- Interview 15 (02.04.2014) with an executive of a medium-sized consulting company (11 years of working record in Russia), established in 2003 in Russia
- Interview 16 (02.04.2014) with an executive of a company for office equipment (25 years of working record in Russia), established in 1991 in Russia
- Interview 17 (03.04.2014) with a senior researcher, Economic University
- Interview 18 (03.04.2014) with an executive of large-sized technology supplier for automotive industry (2 years of working record in Russia), established in 2009 in Russia
- Interview 19 (10.04.2014) with an executive of medium-sized a company suppling technology to the biotechnological and pharmaceutical industry (3 years of working record in Russia), established in 1993 in Russia
- Interview 20 (22.04.2014) with an executive of a large-sized company supplier for the cement and minerals industries (4 years of working record in Russia), established in 2001 in Russia
- Interview 21 (14.05.2014) with the head of an economic association (6 years of working record in Russia)
- Interview 22 (03.07.2014) with an executive of a large-sized construction company supplier of steel (7 years of working record in Russia), established in 1993 in Russia
- Interview 23 (24.09.2014) with an representative of a large-sized construction company (2 years of working record in Russia), established in 1991 in Russia



## THE DYNAMICS OF CHINA'S EXPORT GROWTH: AN INTERTEMPORAL ANALYSIS<sup>1</sup>

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### Abstract

China experienced dramatic growth throughout its entire economy during the 1978 to 2008 period. This significant economic expansion may be attributed to China's open policy after its 1978 overall economic reform. Our inter-temporal analysis of China's export growth between 1978 and 2008, based on the statistical stochastic decomposition approach, indicates that, in the first ten years after China's trade openness, most of its export growth occurred in the extensive margin of trade, but later most of China's export growth appeared in existing varieties or the intensive margin of trade. We find that the distribution of the extensive margin is more dispersed than of the intensive margin, as we use the country-product approach. After applying formal tests, the results show that the intensive margin plays a significant role in the growth of China's exports.

**JEL Classification:** F10, F14, F43, C5, C6, O40

**Keywords:** China, trade, intertemporal analysis, intensive margin, extensive margin.

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1. The views expressed herein are those of the authors and not necessarily those of the U.S. Department of Agriculture or the Economic Research Service.

## Introduction

China has now emerged as one of the world's largest trading nations for both agricultural and non-agricultural commodities. Moreover, China's trade is unique in many respects. The country is noted for its outstanding activities in the "processing trade" sector that involves importing inputs, which are then assembled into final products in China, and then re-exported (Naughton 1997). These activities play an important role in China's changing trade composition and patterns. China is one of the world's largest importers of raw materials and intermediate inputs. The country's exceptional processing trade ability impacts its trading partners, whether exporting or importing countries (Naughton 2004). China has been perceived as a competing threat by other labour-abundant developing countries that trade with developed countries. In recent years, however, the country's direct trade with developing countries, such as India, and countries in Southeast Asia and Africa has intensified dramatically (Batra 2007; Somwaru *et al.* 2007). In just 5 years, China's exports to India increased from \$2 billion to over \$50.49 billion in 2011 (WDI, 2013).

China competes world-wide not only on the basis of lower labour costs and abundance of natural resources, but also in terms of location that takes advantage of China's proximity to capital-rich East Asian economies and rapidly growing, developing markets in the Asia-Pacific region. In theory, geographic proximity often explains why neighbouring countries trade disproportionately, as Krugman (1991) suggests, in that neighbourhood trade is so strong as to create natural trading blocs. However, such explanations provide little insight into the roots of the rapid growth of China's exports.

Much of the recent theory assumes that developing countries imitate the production of goods invented in developed countries, *ceteris paribus* (Grossman and Helpman 1989; Hausmanne *et al.* 2005; Rodrik 2006). However, the speed at which countries can transform their productive structure and upgrade their exports depends on the basis of the knowledge of products and manufacturing technologies that has been acquired. China has entered a growth phase in its industrial development for producing and exporting a variety of goods. Many papers highlight a strong positive correlation between the number of export varieties a country produces and its living standard. For example, Hummels and Klenow (2005) find that larger and richer countries export more varieties of new goods or what they call the extensive margin of trade. Schott (2008) and Rodrik (2006) argue that China's exports are in high-quality sectors, which is similar to what happens in highly-developed countries. Amiti and Freund (2010), however, find that, despite the dramatic shift in China's exports to the United States over the 1992-2005 period, China's manufacturing exports remained unchanged after accounting for the processing trade. They find that China's export growth trade occurs in existing varieties or what they call the intensive margin of trade. Amiti and Freund find that the intensive margin of trade plays an important

role in China's exports. Our intertemporal analysis of China's export growth for the period 1978 to 2008 indicates that, in the first ten years after China's trade openness, most of its export growth occurred in the extensive margin of trade. Later, most of China's export growth has been in existing varieties (intensive margin trade). Our test results confirm that the intensive margin is a crucial factor in the growth of China's exports for the period 1978 to 2008.

The rest of the paper is organized as follows. Section 2 presents a snap-shot of China's economy and trade from an aggregate perspective. Section 3 discusses the methodology used to develop export growth and to decompose export flow patterns. Section 4 then follows and lays out all data employed in this study. Section 5 presents the empirical analysis, starting with the dynamics of export product differentiation, and continuing with the results of decomposing China's exports. We use bootstrapping to obtain the distributional stochastic characteristics of the trade margins and their variability over the study period. Section 6 empirically captures China's export growth and presents formal tests to identify the intertemporal relationship between China's export growth and extensive/intensive margin of trade following the country's significant economic expansion after its 1978 overall economic reforms. Finally, Section 7 concludes the study.

## **2. Structural shifts in China's economy and trade - an overview from an aggregate perspective**

China has achieved the most persistent economic growth among developing countries. The annual growth rate in the country's real gross domestic product (GDP) averaged about 10 percent per annum from 1978 to 2011 (WDI, 2013). The country's GDP *per capita* or its purchasing power parity adjusted in constant 2005 U.S. dollars was \$523.95 in 1980 and \$7,417.89 in 2011. The importance of the agricultural sector's value added output, with respect to the entire economy, continued to decrease over the past decades, while the importance of the service sector increased and the manufacturing sector's shares remained largely the same (WDI, 2013). The agricultural share of the GDP decreased from 28.2% in 1978 to 10.0% in 2011, while the share of the service sector increased from 23.9% in 1978 to 43.4% in 2011 (WDI, 2013).

As expected, the share of China's workforce employed in agriculture decreased, while employment share in services increased over the period examined. Many economists maintain the hypothesis that a fundamental feature of growth and development is the decline in the proportion of the workforce employed in agriculture. China has been experiencing a similar trend since the 1980s.

In terms of the broader economy, China's agricultural exports have been playing a smaller role in the country's total exports. Since the middle 1980s, the share of agriculture in total merchandise exports gradually declined, from 5.71% in 1984 to 0.54% in 2011 (WDI, 2013). Manufacturing exports continued to grow and accounted

for 47.65% of total merchandise exports in 1984, a share that rose to an astonishing 93.30% in 2011. Exports of total merchandise to high income countries reached 88.25% in 1991 and then declined to 72.20% in 2011 (WDI, 2013). These high income countries include the United States, Canada, 18 European Member States (Austria, Belgium, Denmark, France, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Sweden, Switzerland, the United Kingdom, and Germany), Japan, Australia, and New Zealand. During the same period exports to developing countries increased from 7.55% to 20.02%. Among developing economies, the East Asia and Pacific regions accounted for most of China’s merchandise exports, followed by Latin American and Caribbean countries. Manufacturing accounted for the largest and fastest growing share of total imports, while agriculture’s share declined to about 4.65% in 2011 (WDI, 2013). From 1984 to 2011, imports of ores and metals along with fuel import shares into China dramatically increased by 10 and 16 percentage points, respectively (WDI, 2013).

### 3. Methodology for decomposing export growth

An examination of the time path of trade flows for any economy swiftly reveals that trade of both exports and imports tend to fluctuate along a long-term growth path. For this reason, to obtain the long-term growth of China’s exports and to identify deviations from the growth path, we use the technique known as the Hodrick-Prescott (HP) (1997) method or Trend and Cycle Decomposition (TCD). We applied the HP/TCD method and derived the growth rates of China’s exports (Diao *et al.* 2001; Somwaru *et al.* 2007).

The HP method, developed by Hodrick and Prescott (1997), removes a smooth trend,  $g_t$  component, from observed given data  $y_t$  by solving the following expression:

$$\min_{(g_t)_{t=1}^T} \left\{ \sum_{t=1}^T (y_t - g_t)^2 + \lambda \sum_{t=1}^T [(g_t - g_{t-1}) - (g_{t-1} - g_{t-2})]^2 \right\} \tag{1}$$

The residual  $c_t = y_t - g_t$  (the deviation from the trend) is commonly referred to as the business cycle component and it is the deviation from  $g_t$ , for  $t=1, \dots, T$ . The measure of the smoothness of the  $\{ g_t \}$  path is the sum of the squares of its second difference. The notion is that, over a long time period, the cycles,  $c_t$ , where  $c_t = y_t - g_t$ , average near zero.

The  $\lambda$  parameter is a positive number that penalizes variability in the growth component of the series. The larger the value of  $\lambda$ , the ‘smoother’ the underlying growth trend  $g_t$  is. For a sufficiently large  $\lambda$ , at the optimum, all  $g_{t+1} - g_t$  must be arbitrarily near some constant  $\beta_t$  and, thus, the  $g_t$  approaches  $g_0 + \beta_t$ . This implies that at the limit, as  $\lambda$  approaches infinity, the solution is the least squares fit of a linear time trend mode, and for  $\lambda = 0$ , smoothed data are exactly the same as sample data.

The selection of *the smoothing parameter*  $\lambda$  is based on a probability model. If the cyclical components and the second differences of the growth components are identically and independently distributed normal variables with mean zero and variances  $\sigma_1^2$  and  $\sigma_2^2$  (which they are not), then the conditional expectation of the  $g_t$ , given the observations, would be the solution of the above equation when  $\sqrt{\lambda} = \frac{\sigma_1}{\sigma_2}$ .

Different values of  $\lambda$  provide different information, e.g., a large  $\lambda$  value approximates the annual average rate of growth given by an ordinary least squares fit to the log of the data. In other words, the  $\lambda$  parameter should be adjusted according to the fourth power of a change in the frequency of observations (King and Rebelo 2000; Baxter and King 1999; and Diao *et al.* 2001). In this paper, for the purpose of our annual data series, we adopt the procedure for the smoothing parameter given in Ravn and Uhlig (2002).

There is a wealth of studies in the literature on the importance of export growth and intensive and extensive margins. For example, Evenett and Venables (2002), and Hummels and Klenow (2005) find that the extensive margin played a significant role for growth in exports. When examining cross-country differences, Hummels and Klenow, using 1995 data, find that the extensive margin accounts for 60 percent of the greater exports of larger economies. On the other hand, Felbermayr and Kohler (2006) find that the intensive margin was a more important factor for trade growth between 1970 and the mid-1990s. Helpman *et al.* (2008), Eaton *et al.* (2008), and Amiti and Freund (2010), among others, find that the intensive margin of trade is more important for export growth.

Evenett and Venables (2002) define the extensive/intensive margin at the *country-product* level, while Amiti and Freund (2010) at the *product* level and, in particular, concerning exporting industries. However, Helpman *et al.* (2008) and Felbermayr and Kohler (2006) define the extensive/intensive margin at the *country* level. Unlike other studies in this paper, we adopt a *country-product* approach definition of the extensive/intensive margin. In other words, we account for all products that China exports to each of its trade partners during the period under study. Moreover, we do not compare the export growth in an initial year with the export growth in some year ahead (the so-called comparative approach), but we apply a dynamic approach in which export growth is attained for each year of the period under study (Besedes and Prusa 2011).

Below we provide a quick overview of the method adopted for obtaining the margins of trade. We employ the method originated by Feenstra (1994) and adopted by Amiti and Freund (2010) to distinguish between the intensive and extensive margins of China's exports. Unlike Amiti and Freund (2010), we define the extensive and intensive margin at the country-product level and not just at the product level. We employ an intertemporal method to decompose export growth flows into the intensive and extensive margins of trade for China for each product and country. The original

idea of Feenstra’s work is to include new product varieties into an index. Denoting  $I$  as the set of varieties available in both periods,  $I \subseteq (I_t \cap I_{t-1})$ , the net variety growth index is defined as the fraction of expenditure in period  $t-1$  on the goods  $i \in I$  relative to the entire set  $i \in I_{t-1}$  as a ratio of the fraction of expenditure in period  $t$  on the goods  $i \in I$  relative to the entire set  $i \in I_t$ , minus one. Let  $V_{it}$  be the value of trade at time  $t$  in product  $i$  ( $V_{it} = p_t q_i$ ), then the Feenstra index of *net variety growth* (Amiti and Freund 2010) is defined as follows:

$$\frac{\sum_{i \in I} V_{t-i} / \sum_{i \in I_{t-1}} V_{t-i}}{\sum_{i \in I} V_{ti} / \sum_{i \in I_t} V_{ti}} - 1 \tag{2}$$

Feenstra’s (1994) seminal work on measuring export prices incorporating new goods leads to a natural index of variety growth (equation 2) that has been widely used in relevant literature. The index will be equal to zero if there is no growth in varieties relative to the base period and positive if the number of varieties has grown. If export growth classifications are split (or reclassified) then new classifications are merged and the index will tend to overstate the extensive margin.

Our analysis focuses on whether the growth in China’s product exports to its partners falls into existing or new varieties. Using this decomposition concept, the value of trade,  $V_{it}$ , for the  $i^{th}$  product at time  $t$ , can be decomposed into the value of existing varieties  $V_{it} \cdot D^e$  disappearing varieties  $V_{it} \cdot D^d$  and new varieties,  $V_{it} \cdot D^n$  where  $D^e$ ,  $D^d$ , and  $D^n$  are dummy variables indicating whether the product exists in both period  $t$  and  $\theta$ , only in period  $\theta$ , or only in period  $t$ , respectively. Thus,  $D^e = 1$  indicates an existing variety,  $D^d = 1$  a disappearing variety, and  $D^n = 1$  a new variety. The following decomposition equation is then used to identify the presence of new or existing varieties:

$$\frac{\sum_{i=1}^I V_{it} - \sum_{i=1}^I V_{it-1}}{\sum_{i=1}^I V_{it-1}} = \frac{(\sum_{i=1}^I V_{it} D^e - \sum_{i=1}^I V_{it-1} D^e) - \sum_{i=1}^I V_{it-1} D^d + \sum_{i=1}^I V_{it} D^n}{\sum_{i=1}^I V_{it-1}} \tag{3}$$

In the equation above, total growth in trade relative to the base period is decomposed into three parts: (i) the growth in products that were exported in both periods, the *intensive margin*; (ii) the reduction in export growth due to products no longer exported, disappearing goods; and (iii) the increase in export growth due to the export of new products. The share of export growth due to the *extensive margin* is defined as the new-goods share less the disappearing-goods. In other words, equation (3) separates export growth in trade into growth in existing varieties or the intensive margin, disappearing goods and growth in new varieties or the extensive margin. Note that, by construction, the intensive and extensive margins of exports sum up to one. There is a direct relationship between the Feenstra index of net variety growth

and the decomposition index in equation (3). Feenstra’s net variety growth index combines new exports and disappearing exports into one. In this respect, the net index is more robust than the decomposition index because the decomposition index attributes reclassified varieties to the extensive margin.

We apply an intertemporal approach as we develop a series of measures of extensive, intensive and export growth measures, as follows:

$$Int_t = \frac{(\sum_{i=1}^I V_{it} D^e - \sum_{i=1}^I V_{it-1} D^e)}{\sum_{i=1}^I V_{it-1}}, \text{ for } t=1979-78, 1980-79, 1981-80, \dots, 2008-07 \quad (4)$$

$$Ext_t = \frac{\sum_{i=1}^I V_{it} D^n}{\sum_{i=1}^I V_{it-1}}, \text{ for } t=1979-78, 1980-79, 1981-80, \dots, 2008-07 \quad (5)$$

$$Net_t = \frac{\sum_{i \in I} V_{t-li} / \sum_{i \in I_{t-1}} V_{t-li}}{\sum_{i \in I} V_{ti} / \sum_{i \in I_t} V_{ti}} - 1, \text{ for } t=1979-78, 1980-79, 1981-80, \dots, 2008-07 \quad (6)$$

Where, *Int* denotes intensive margin, *Ext* denotes extensive margin and *Net* denotes the Feenstra index for the *i<sup>th</sup>* product for each one of China’s country partners. The share of export growth attributed to each margin is calculated using equation 3. Note that variety growth is 1/Feenstra index. This measure has the nice feature that if classifications are simply split, and their share of total trade remains unchanged, the index remains unchanged. However, if classifications tend to be split into their share of total trade changes, then the index is more likely to overstate the extensive margin.

Unlike other studies, we consider China’s exports to all its trade partners. Thus, our analysis of trade growth is based on *country-product* relationships. We account for all exporting products that had never previously been sold abroad, as well as for all products already exported to a new destination country, as they can both change China’s extensive margin.

Besedes and Prusa (2011) argue that, while a firm may have a clear idea of its home market conditions, it may not know the level of demand abroad or have all information about ongoing costs associated with exporting. Their empirical approach is motivated by an extension to the Melitz (2003) model to account for information uncertainties associated with foreign markets. In our paper we employ *bootstrapping* to quantify uncertainties associated with market risks. The bootstrap is a computing intensive statistical resampling technique. Its advantage is that it is less restricted by parametric assumptions than more traditional approaches to market uncertainties. We employ the “bootstrap” technique (Efron and Tibshirani 1994; Varian 1996) for assessing the variability associated with market risks and provide confidence intervals for the exporting margin of trade and export growth.

Let  $\theta = \left[ \frac{\sum_{i=1}^I V_{it} D^e - \sum_{i=1}^I V_{it-1} D^e}{\sum_{i=1}^I V_{it-1}} \right]$  represent the intensive margin. Drawing 1,000 boot-

strap samplings of existing varieties, then we can obtain the *expected value* denoted as  $E(\hat{\theta})$  of the estimator ( $\hat{\theta}$ ) of the intensive margin along with the variance, denoted as  $\text{var}(\hat{\theta}) = E[(\hat{\theta} - E(\hat{\theta}))^2]$ . Similarly, we draw an additional three 1,000-bootstrap samplings for the extensive, net trade margin, and the export growth of all China's merchandise to obtain estimates of their mean, variability, and confidence intervals.

#### 4. Data

China's trade data used in this study are at the 4-digit Standardized International Trade Classification (SITC) level, Revision 4 (United Nations 2006 and UNCTAD/WTO 2010). The data source is the Commodity Trade Statistics Database (UNCOMTRADE) maintained by the Statistic Division of the United Nations (UN) (United Nations 2010). China started to share public trade statistics with international organisations in 1984. However, the validity of some trade flows reported remains questionable (Gehlhar 1996). Thus, we draw upon data reported by China's *trade partners* and compiled by the UN, starting from 1978 (Gehlhar 1996). The SITC 4-digit data of China's bilateral trade flows (United Nations 2006) for each year of the period under study were processed using the Statistical Analysis System (SAS). We adopted the same approach for processing bilateral data as in Gehlhar (Gehlhar 1996 and [https://www.gtap.agecon.purdue.edu/databases/trade\\_data.asp](https://www.gtap.agecon.purdue.edu/databases/trade_data.asp), 2012; Somwaru *et al.* 2008).

In each one of the study years we processed the bilateral trade for each country/partner of China (United Nations 2010, Country Classification). By maintaining the country-product association, we were able to obtain the extensive and intensive margins at the country level for each product. It should be acknowledged that defining the extensive margin at the product level might artificially impose an upper bound on the extensive margin, as there might be no additions on the extensive margin. For this reason, we defined the margins at the country-product level. This allows the extensive margin to have the largest possible role.

Moreover, we developed aggregate country groups and these were used to develop growth margins to understand the impact of country aggregation. Such groups include: the EU-25, the High Income country group, the Developing country group, the Oceania country group, the High Income South East Asia, the South and South East Asia, the Central and South America, the High Income Oil Exporting group, the Africa country group, and the Transitional Economies country group (see Appendix, Table 1 for country list in country groups; the Africa country group includes all China's African trade partner countries). Some country groups, such as the African country group or the Transitional Economies, are subsets of larger groups.

A primary drawback encountered when using the Harmonized System (HS) trade flow classification is that there have been major reclassifications of trade data in 1996

and 2002 at the HS 6-digit level; thus, a product might be classified as a new variety simply because there has been a new product code or because previous codes were split (United Nations 2010, Economic and Social Classifications, and UNCTAD/WTO 2010). Amiti and Freund (2008, 2010), using China's exports to the world from 1997 to 2005 in HS 8-digit categories, show that the extensive margin accounted for only 26 percent of the total export growth. They find that reclassifications push the extensive margin up. They state that existing product codes are not likely to be a random sample since entirely new products will, by definition, require a new code; therefore, this can be treated as a lower bound of the extensive margin.

Besedes and Prusa (2011) use the 10-digit data of the Harmonized System (HS) to verify whether results of measuring the margins of trade are specific to the 1972–1988 period or extend to the 1989–2001 period, as well. They conclude that when measuring growth in the extensive margin, it is more insightful to consider changes over a *longer-run horizon*, since the value of exports in new product codes is generally small when they are first introduced. Furthermore, Besedes and Prusa (2011), using 4-digit *long horizon* trade data (SITC), argue that their choice arises from concerns about quality and inconsistency due to reclassification of product codes in consequent years. Following Besedes and Prusa (2011), this study uses relationships defined at the 4-digit SITC level.

Our extended data work is aimed at better understanding changes and trends in China's export growth over time across products and countries. For this reason, we draw data from all China's bilateral trade partners/countries in the datasets. Our analysis focuses on the growth rates of exports, including both agricultural and non-agricultural products, over the study period. For each year of the study we account for all *cross sectional* data of exports from China to its trade partners.

## 5. Empirical analysis

### 5.1 *The dynamics of export product differentiation*

Our technique for analysing China's export growth pattern is based on the Trend and Cycles Decomposition (TCD) approach. This approach, by capturing the dynamics of growth in trade and trade policy regimes, allows us to obtain factually based evidence of China's annual trade growth. We find that one of the distinguishing features of China's trade growth is the persistent diversification of partners over time. Table 1 captures China's export growth pattern using trade data at 4-digit SITC (Somwaru *et al.* 2007).

To capture the dynamic features of China's exports, we use its annualized growth rates. The resulting series of growth rates indicate relatively large annual variability due to a range of reasons. Many of the causes for these fluctuations in year to year data are not essential for capturing a "true" trajectory in China's trade growth. Instead, these deviations tend to obscure the underlying longer-term trend in export

growth rates. The longer-term trends in China's export growth would better reveal China's prevailing export patterns. Thus, by employing the TCD methodology, we were able to remove or 'filter' these fluctuations from the primary data (Diao *et al.* 2001, Somwaru *et al.* 2007).

**Table 1.** China's estimates of total merchandise trade annual growth\* by trading partners

Item	1980s	1990s	2000s
Total imports	17.36	13.39	22.40
Total exports	16.67	16.75	20.25
Imports from Developed countries	14.57	13.56	17.39
Exports to Developed countries	14.30	19.73	21.87
Imports from Developing countries	20.27	13.31	25.96
Exports to Developing countries	18.05	15.03	18.97
Imports from India	11.34	33.61	38.12
Exports to India	47.23	23.88	36.96
Imports from South America	7.86	13.44	33.42
Exports to South America	7.87	28.16	29.21
Imports from Southeast Asia	5.76	24.42	28.72
Exports to Southeast Asia	14.31	18.94	23.06
Imports from Africa	3.03	25.67	37.68
Exports to Africa	0.94	20.07	26.45

\* *Note:* Growth rates estimated using Trend and Cycle Decomposition method annualized by time period.

*Source:* Authors' calculations.

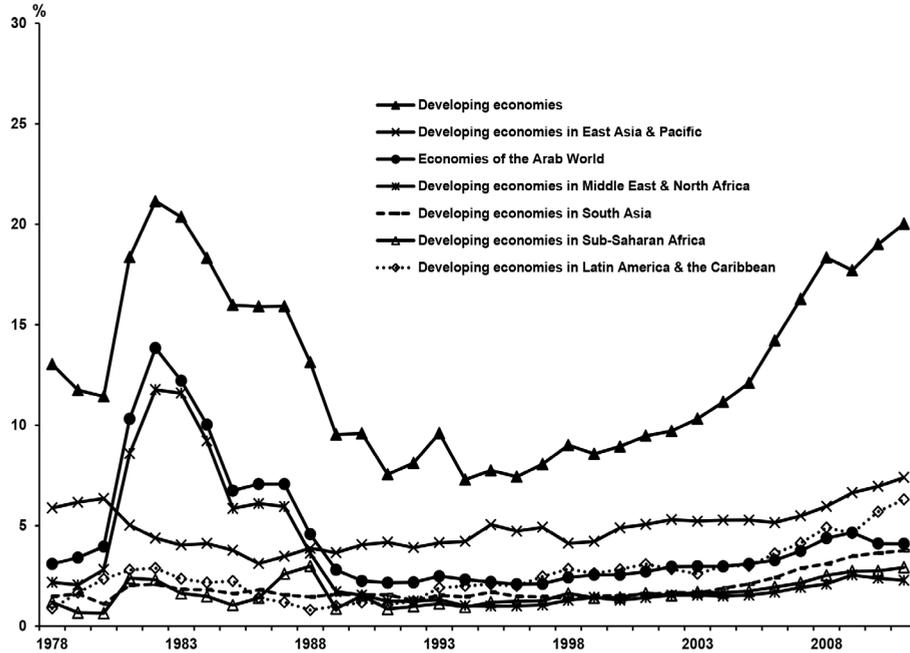
In the 1980s, China's average annual trade growth rates with the developing country group outpaced the average annual trade growth rates with the developed country group. It was in the 2000s that China's average annual growth import rates from the developing country group were almost the same as its average annual growth rates of exports to developed countries. The ongoing global relocation of labour-intensive manufacturing has accommodated China's export growth, while the transition to a more market-based economy has helped diversify China's product mix. This, however, did not necessarily mean that China's trade growth has limited developing country export opportunities from direct competition in the case of similar products. In fact, the growth of China's imports from developing countries generally out-

paced import growth from developed countries (Table 1). In the most recent decade, China's import growth has been greater than its export growth, an acceleration of China's trade with developing countries that has often been overlooked.

To clearly capture the dynamic features of China's trade and competitiveness, we calculated the annual growth rate of China's detailed trade. Unlike other studies that concentrated on China's trade with the United States (Hammer 2006, Naughton 2004), we include all of China's major high-income trade partners (see Appendix Table 1 for the list of all countries and country groups). While we process China's bilateral trade with all of its trade partners, we only report the growth rates with selective countries/country groups due to space limitations.

Although the growth rates of total exports with India were unstable in the early 1980s, during the last 15 years, China's trade growth with India has steadily increased (Table 1). This growth coincides with India's liberalising industrial sectors and India's higher sustained growth rates in income and consumer purchasing power.

Numerous studies have analysed the importance of trade in intermediate goods and the influence of geographic proximity on production for countries sharing borders (Naughton 1997, Gupta 1997, Ng and Yeats 1999). China's trade performance indicates that geographic proximity is a factor enhancing the value-added processing chain observed in the country (Figure 1). In the 1980s trade with the economies of the Arab world and Middle East and North Africa countries dominated China's trade flows. In the 1990s and 2000s trade with neighbouring East Asia and Pacific countries dominated China's trade (Figure 1). China's rise in international processing activities reflects the strategies of Asian firms to relocate their industries to China so as to take advantage of China's comparative advantage in production processing that arises primarily from competitively lower labour costs. China's trade policy has favoured assembly and processing operations through tariff exemption on intermediate goods, and set off the expansion of China's trade in intermediate goods in foreign-invested enterprises (FIEs) and economic and technological development zones (ETDZs) (Berger and Martin 2013, Tan and Khor 2006; Somwaru *et al.* 2007). These selective trade policies have accelerated China's international processing activities and became the engine for rapid diversification of its manufacturing exports, well beyond geographic proximity regions (Berger and Martin 2013). Indeed, the most noticeable annual growth of China's total merchandise exports and imports are with African countries in the 1990s and 2000s (Table 1 and Figure 1). Intermediate products, while amounting to almost two-thirds of China's total imports, display China's comparative advantage in production "by stage." These findings tend to weaken the Krugman-Bhagwati (Krugman 1991, Bhagwati 1992) debate on whether neighbourhood determines the direction of trade or geographic proximity is more irrelevant, a fact also supported by the annual growth rates of trade between China and its neighbouring South and Southeast Asian countries (Table 1).

**Figure 1.** China's total merchandise export shares by country group, 1978-2011

Source: Authors' calculations.

### 5.2 Intensive versus Extensive Margin of Trade

By applying equations (4), (5) and (6), we obtain the intensive and extensive margins of trade of China's total merchandise along with net variety growth for each year of the period under study. The decomposing measures confirm that China's exports grow primarily along the intensive margin trade. Based on China's export data from 1978 to 2008, we find that only 32.1 percent in the period from 1978 to 1989 are existing product varieties (Table 2) while in the 2000 to 2008 period, exports in existing product varieties account for 87.3 percent (Table 2). For the entire period (1978-2008), China's exports in the intensive margin trade account for 79.8 percent of total exports and present the largest variability (measured by the standard deviation). The 90-percent confidence interval of the mean measured by the lower (66.5) and upper bounds (99.3) indicates the probability that the confidence interval contains the true population mean at 90 percent confidence level (Table 2).

Results show that there was a significant reorientation of China's export growth during the period under study. In this sense, in the first ten years after China's trade openness, most of its export growth occurred in the extensive margin, at 67.9 percent

versus 32.1 percent for the intensive margin. After 1989, the pattern switches with the intensive margin accounting for 74.5 percent of export growth, and the extensive margin for 25.5 percent. Between 1978 and 1989 China started exporting many products. The growth in the number of products peaks during that period. Afterwards, much of the export growth occurred in the intensive margin. In sum, during the period under study we observed reallocation/reorientation of export growth.

**Table 2.** Variety growth in China's exports, 1978-2008

All type of merchandise Partner-World	Mean %	Standard deviation	Confidence interval of the mean *	
			Lower bound	Upper bound
<b>Intensive</b>				
1978-1989	32.14	2.62	28.91	36.21
1990-1999	74.51	4.34	70.89	82.57
2000-2008	87.29	8.13	76.18	97.18
1978-2008	79.83	12.32	66.46	99.03
<b>Extensive</b>				
1978-1989	67.86	9.75	55.54	78.91
1990-1999	25.49	5.36	19.65	32.57
2000-2008	12.71	8.35	4.18	28.18
1978-2008	20.17	11.01	8.03	31.97
<b>Net variety growth (Feenstra index)</b>				
1978-1989	17.67	7.56	6.21	28.91
1990-1999	14.25	4.43	8.57	20.69
2000-2008	25.74	7.56	14.18	36.18
1978-2008	22.06	12.25	8.03	41.97
<b>Total export growth</b>				
1978-1989	224.01	32.01	174.41	259.54
1990-1999	320.01	45.58	262.69	387.65
2000-2008	337.45	32.56	296.18	384.18
1978-2008	8230.47	315.96	7735.97	8631.46

\* 90% Confidence level.

Source: Authors' calculations.

Besedes and Prusa (2011), argue that they use a 4-digit level trade dataset (SITC) "due to concerns about quality and consistency of more disaggregated data as well as for earlier years' data". Our analysis, using 4-digit level data, is in agreement with Amiti and Freud (2010) in that export growth to the U.S. from China took place along its intensive margin from 1997 onwards. They demonstrate this by using a Törnqvist chain-weighted price index to measure the term-of-trade effect, namely, that this growth in the intensive margin supports the traditional theory of welfare gains for importing countries through lower import prices. In this sense, as China increases

its supply of existing varieties in world markets, this is likely to exert downward pressure on world prices of these goods.

The export growth from 1978 to 2008 for the extensive margin amounts to 20.17 percent (mean), with variability being almost the same as that of the intensive margin (11.01, see Table 2). The 90-percent confidence interval of the mean measured by the lower (8.03) and upper bounds (31.97) indicates the probability that the confidence interval contains the true population mean.

It should be noted that by employing the bootstrapping technique we are able to assess the *variability*, and derive estimates of the intensive and extensive margins, the export growth of China's total merchandise statistics, such as mean, standard deviation, and confidence intervals. Otherwise, the intensive and extensive margins derived and the intertemporal export growth estimates would completely lack statistical properties or measures of uncertainty. Since the bootstrapping procedure is distribution-independent, it provides an indirect method of assessing the stochastic properties underlying the intensive and extensive trade margins and export growth. Furthermore, the 90-percent confidence interval of the mean measured by the lower and upper bounds indicates the probability that the confidence interval contains the true population mean.

The variability (measured by the standard deviation) of the extensive margin for the entire study period is almost the same as that of the intensive margin, while the mean and median of extensive and intensive margin distributions are different. This implies that their distributions are not limited by the number of product codes (4-digit) or by how the data of each distribution are spread apart. It should be noted that the distribution of the extensive margin is more dispersed than the intensive margin in our analysis because we use the country-product approach.

## 6. Export-variety growth

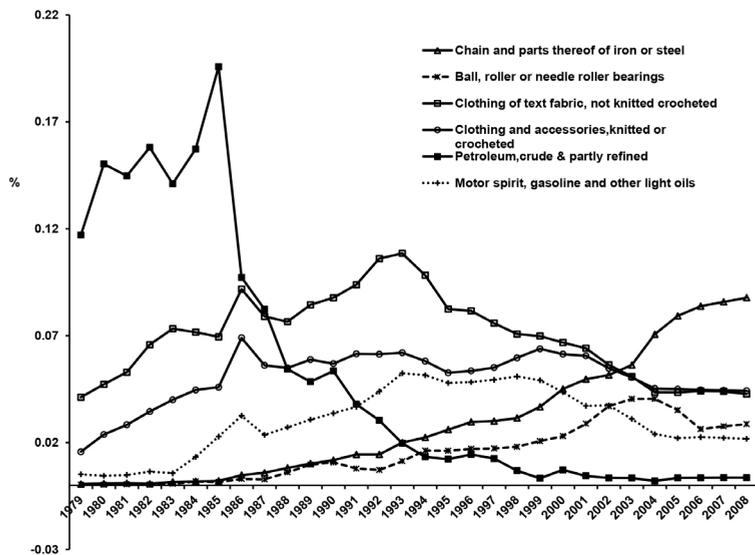
In the late 1970s and 1980s, China's export growth surged from its base that largely consisted of consumer goods. Thereafter, during the 1990s, China's export growth of capital goods took the lead. This indicates that China's trade growth was broad-based and not fuelled by a few products (see Somwaru *et al.* 2007). Figure 2, depicting the export shares of selected commodities, clearly show that China has entered a growth phase in its industrial development for producing broad-based exporting goods. China's exports of apparel, textiles, and footwear have heavily shifted towards chain and parts thereof of iron or steel.

China's adoption of open foreign direct investment (FDI) strategies might have attracted multinational enterprises, which are more likely to have expanded their trade flows to an extensive margin growth pattern through growth in the number of trade varieties in the late 1970s. China's spur of export growth in more recent years, however, lies in value added goods along the intensive margin (Amiti and Freund 2010). China's rise in international processing activities reflects the strategies of Asian firms

for relocating their industries to China so as to exploit China’s comparative advantage. Moreover, China’s trade policy has favoured assembly and processing operations through tariff exemptions (Somwaru *et al.* 2007). This selective trade policy might have accelerated China’s international processing activities with China’s high export growth on existing products. China’s trade growth with developing countries has taken the lead as the country gains in intensive margin goods of trade. The increased supply of existing varieties of China’s exports in recent years is the engine for its trade with emerging and developing countries.

Following Kreuger (1999), we perform formal statistical tests in an attempt to gain insight into the correlation of export growth and the intensive and extensive margins of trade in an *ex-post* mode. The advantage of nonparametric methods over econometric methods is that nonparametric methods do not require any specification of a functional form. In addition, nonparametric methods account for more complicated non-linear relationships between different policies and export growth. Moreover, nonparametric methods accommodate non-linear relationships between different policies and export growth or intensive and extensive margins of trade. Two non-parametric tests - the Kruskal-Wallis and the Van der Waerden Scores (Normal) test - are performed to investigate the effects of China’s policies. The Kruskal-Wallis test statistic is given by:

**Figure 2.** China’s export shares of selected merchandise, 1978-2008



Source: Authors’ calculations.

$$H = \frac{12}{N(N+1)} \sum_{i=1}^k \frac{T_i^2}{n_i} - 3(N+1) \tag{7}$$

Where,  $N$  is the sample size,  $T_i$  is the sum of ranks for the  $i^{th}$  group, and  $n_i$  is the number of observations in the  $i^{th}$  group. Test statistic  $H$  approximately follows a chi-squared distribution with  $k-1$  degrees of freedom, where  $k$  is the number of groups or populations. The Van der Waerden (Normal) Scores are the quantiles of a standard normal distribution and are computed as follows:

$$a(R_j) = \Phi^{-1}\left(\frac{R_j}{n+1}\right) \tag{8}$$

Where,  $\Phi$  is the cumulative distribution function of a standard normal distribution. Our aim is to test China’s independence of export growth and the margin of trade. The Kruskal-Wallis statistic for the intensive margin and export growth is 4.67 and 2.33, respectively, for the extensive margin 8.00, while for the critical value 6.49. The Kruskal-Wallis  $X^2$  statistic rejects the null hypothesis at 0.05% significance level for the intensive margin and export growth, but fails to reject it for the extensive margin. This implies that the first moments of the distribution (mean and variance) of export growth and the intensive margin are the same, but the null hypothesis is rejected for the extensive margin (Table 3). In other words, the intensive margin plays a significant role for the growth of China’s exports. The Van der Waerden  $X^2$  statistic also rejects the null at the 0.05% significance level for the intensive margin (-0.09) and exports (-0.79) but not for the extensive margin (6.88), since the value of the asymptotic statistic is 6.31 (Table 3).

In sum, China experienced dramatic growth throughout its entire economy during the 1978-2008 period. Export growth along the intensive trade margin seems to have benefited from this great economic expansion.

**Table 3.** Results of the paired - t test on export growth and trade margins

Item	Kruskal-Wallis statistic (Wilcoxon mean score)	Van der Waerden statistic (mean score)
Extensive	8.00	0.88
Intensive	4.67	-0.09
Exports (growth)	2.33	-0.79
Asymptotic statistics ( $X^2$ )	6.49	6.31
Critical value @ 0.05 significance	0.039	0.043

Source: Authors’ calculations.

## 7. Conclusions

Despite extensive discussions about China's benefiting from embracing globalization, better understanding of the dynamics of China's trade patterns requires a comprehensive profile of China's trade growth using bilateral time-series data. Our methods allowed us to perform such an analysis and results indicate that China's rapid export growth is largely driven by expanding trade in existing goods, or the intensive margin of trade, especially in more recent years. We find that other developing countries are not only playing a complementary role in China's trade growth through trading with China, but have also enabled China's export growth to acquire a faster pace. China's trade growth patterns with major high income countries clearly indicate that the partners' adjacency or neighbourhood hypothesis alone is unlikely to explain the country's unprecedented export growth.

China's outstanding performance in export growth can be traced back to the late 1970s and early 1980s with changes in its policies and increasing involvement in the international segmentation of production processes through FIEs and ETDZs. China's great flexibility via FDI and 'joint ventures' spurred by accumulated assets might have provided the foundation for China to redeploy its capabilities from sector to sector and, consequently, to its export growth expansion. This study finds that there was significant reorientation of China's export growth during the 1978-2008 period. Our intertemporal analysis of China's export growth for the period 1978 to 2008, based on the statistical stochastic decomposition approach, indicates that in the first ten years after China's trade openness, most of its export growth occurred in the extensive margin of trade. However, after 1989, the pattern switched with the intensive margin accounting for 74.5 percent of the growth of exports, and the extensive margin for 25.5 percent. Export growth in the 1990s and 2000s is mainly accounted for by high export growth of existing products (the intensive margin) rather than by new varieties (the extensive margin). One caveat is that the extensive margin might be facing with an upper bound given the definite number of exporting 'codes.' In this study, we define each observation at the country-product level so that we have better estimates of the extensive and intensive margins. Additionally, this study can be treated as the starting point of further research into identifying China's trade growth and patterns.

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**Appendix Table 1**

<b>South and South East Asian Country Group</b>	<b>Central &amp; South America Country Group</b>	<b>High-Income Asian Country Group</b>
Bangladesh	Argentina	Japan
Burundi	Barbados	South Korea
Cambodia	Bermuda	Taiwan
Sri Lanka	Bolivia	Singapore
Indonesia	Brazil	Malaysia
Nepal	Costa Rica	
Philippines	Cuba	<b>Ocean Country Group</b>
India	Dominica	Australia
Viet Nam	Dominican Republic	New Zealand
Thailand	Ecuador	
Laos	El Salvador	<b>Oil-Exporting Country Group</b>
Pakistan	Guatemala	
	Guyana	Bahrain
	Haiti	Canada
	Honduras	Iran
	Jamaica	Iraq
	Mexico	Kuwait
	Nicaragua	Oman
	Panama	Nigeria
	Paraguay	Qatar
	Peru	Saudi Arabia
	Antigua and Barbuda	Venezuela
	Bahamas	Yemen
	Belize	
	Chile	
	Colombia	
	Suriname	
	Grenada	
	Uruguay	

**Transition Economies  
Country Group**

CEE Albania  
Bulgaria  
Croatia  
Czech Republic  
FYR Macedonia  
Hungary  
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**EU25**  
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Estonia  
Hungary  
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Lithuania  
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Slovenia



## A REVIEW OF ONLINE CROWDSOURCING PLATFORMS

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### **Abstract**

Over the years a great number of different websites have emerged that offer crowdsourcing services, which aim at taking advantage of the vast number of anonymous workers globally available to complete tasks. In this paper we review and analyze existing websites providing crowdsourcing services in an attempt to establish a framework that will allow systematic discussion, comparison and assessment of existing crowdsourcing platforms.

**JEL Classification:** A19, C14, J49, L15

**Keywords:** Online Labour, Websites, Crowdsourcing, Review, Evaluation Criteria.

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## 1. Introduction

The volume of knowledge sharing online via the World Wide Web (WWW) is exponentially increasing. In today's WWW environment, users exchange knowledge and opinions by using discussion fora, social networks, as well as a variety of collaboration support systems. The ubiquity of such WWW and users' large-scale interaction make it possible to characterise these environments as exhibiting "collective intelligence" (*Malone, 2009*), defined as "a universally distributed intelligence, constantly enhanced, coordinated in real time, and resulting in the effective mobilization of skills" (*Levy, 1997*).

While in the abovementioned environments collective intelligence emerges rather implicitly, there are attempts to explicitly harness and exploit such collective intelligence in today's WWW settings. One such example is websites supporting "crowdsourcing", which rely on the motto "Everyone Knows Something" (*Adamic et al. 2008*). Crowdsourcing is the practice of obtaining services, ideas or content needed and solutions to problems in general by soliciting contributions from a large group of people, and, in particular, from an online community, rather than from traditional employees or suppliers (*Zhao, Zhu 2012*). This process is often used to subdivide tedious work or to fund-raise start-up companies and charities, and may also occur offline. Crowdsourcing combines the efforts of numerous self-defined volunteers or part-time workers, where each contributor of their own initiative adds a small portion to the greater result. Practically, during crowdsourcing, a user (called the "requester") requests an amount of work – which can be associated with some form of payment – from an open, undisclosed set of contributors (called "workers"). Workers can browse through existing tasks and complete them for a monetary payment set by the requester who can ask that workers fulfil certain qualifications before engaging in the task at hand. They may also set up a test in order to verify workers' qualifications. Requesters can also accept or reject the 'product' sent by a worker, which reflects on the worker's reputation. Crowdsourcing has proven to be well-suited for accomplishing certain kinds of tasks. (*Mason & Duncan 2009*)

Over the years a great number of different websites have emerged (e.g. Amazon Mechanical Turk, Crowdfunder, Microworkers) that offer crowdsourcing services which focus on specific tasks, which range from general purpose simple chores to research and development assignments. As the number of crowdsourcing websites is today rapidly increasing, research efforts concentrate on examining and analysing this new way of providing labour, while, at the same time, addressing problems that may arise. No attempt has been made so far to group and classify existing crowdsourcing websites in order to discuss and reflect on them in a systematic manner (*Howe 2008*). The overall purpose of our research, recently conducted at the Department of Economics of the University of Patras, is to investigate various economic aspects of this new form of work currently becoming all the more important. As a first step, our

aim is to review and analyse existing websites providing crowdsourcing services in an attempt to establish a framework that will allow systematic discussion, comparison and assessment of existing crowdsourcing platforms. The framework also aims at helping potential requesters in their efforts to choose a suitable platform. Our approach reviews a number of popular crowdsourcing websites and assesses them, drawing qualitative conclusions concerning their aims and purposes. Our approach focuses, in particular, on the scope, the services provided and the quality assurance techniques of existing websites offering crowdsourcing services. When using these results, we aim to outline a framework to serve as a first footing in facilitating discussion on the provision of this new kind of labour (*Bradham 2009*).

## **2. Motivation and Related Work**

In recent years crowdsourcing has attracted the interest of researchers from various fields, who aspire to survey, analyze, comprehend or, even, improve this new form of labour. Research has focused on how platforms offering crowdsourcing services recruit and retain users as workers to enhance their smooth operation (*Doan et al. 2011*). Other research investigates models of workers supplying labour to paid crowdsourcing projects in an attempt to estimate worker's reservation wage (*Horton et al. 2010*). Discussions also revolve around workers' incentives when they participate in crowdsourcing platforms (*Kaufmann & Schulze 2011*), as well as around the relationship workers have with their own performance (*Winter & Duncan 2009*). Moreover, many surveys have been conducted to investigate the demographics of both requesters and workers who interact in the context of crowdsourcing (*Ipeirotis 2010*). The methodology employed by the research reported above includes conducting experiments and surveys by using the services of crowdsourcing platforms such as Amazon Mechanical Turk and Clickworkers (*Paolacci et al. 2010*).

While existing research focuses mainly on examining issues related to workers and requesters, the websites offering crowdsourcing services and their impact on all participants have not received due attention. Mapping services provided and the ways of WWW crowdsourcing may prove beneficial in establishing a framework for systematic discussion, comparison and assessment of such methods. Moreover, it may also facilitate interpreting some of the results reported in relevant literature.

## **3. Methodology**

We selected a number of popular websites offering crowdsourcing services for review. In selecting these websites, we were guided by the following criteria:

- a) Language: All crowdsourcing websites reviewed had to present their services in English. This facilitated the work of assessing services provided and comprehending their use.

- b) Presentation of services provided: Websites had to provide the information required in order to facilitate their review.
- c) Information needed for completing the review had to be offered. Many websites do not disclose all information required and such websites were excluded from our analysis.

Based on the criteria above, 98 websites were selected for analysis. Top websites were selected based on their Alexa ratings on 15/01/2014 (*Alexa, 2014*). The full list of websites reviewed is presented in the Appendix.

### 3.1 Website criteria

The websites selected were assessed against a number of criteria, which aim to capture various aspects of the services offered. These criteria cover technical as well as operational features of the websites reviewed. Below we present the criteria in greater detail:

- i. *Type of service provided.* Services provided by websites were grouped into the following ten categories (*Shenk, Guittard 2011*)
  - a. Microworks/Simple tasks, which are considered the smallest unit of work in a virtual assembly line, e.g. categorisation, tagging, Web research, transcription, etc.
  - b. Crowdfunding, which is the collection of finance from backers (the crowd) to fund an initiative (project). Crowdfunding has its origins in the concept of crowdsourcing, which is the broader concept of an individual reaching a goal by receiving and leveraging small contributions from many parties. Crowdfunding is the application of this concept to collect funds through small contributions by many parties in order to finance a particular project or venture.
  - c. Mobile crowdsourcing services, which are applications for mobile phones based on the “crowd”.
  - d. Content Generation services, in which content is generated by the crowd. This method is becoming increasingly popular because it offers an alternative to content creation and content curation.
  - e. Data Entry services, which are projects using many different *modi operandi*, e.g. Excel, Word, electronic data processing, typing, coding and clerical assignments.
  - f. High knowledge intensity services, which are specialised services in particular fields, e.g. health, law, insurance, consultancies, data management, market research and cloud applications.
  - g. Program developing services, which focus on having software implemented by the crowd.
  - h. Web and graphic design services, which use the crowd contribution in the creation of artistic projects.

- i. Translation services, which aim at translating content from a source language into a target language.
  - j. Product reviews and testing, in which such tasks are conducted by the crowd
- ii. *Open Call*. This reflects whether the task a requester submits solicits contribution from anyone. (*Brabham 2008*)
  - iii. *Quality & Reliability*. This variable is used to report which techniques the website employs to ensure the quality of results provided by workers. It also includes the techniques the platform provides in order to ensure workers' reliability. (*Wang et al. 2013*)
  - iv. *Provision of APIs (Application Programming Interfaces)*. This investigates whether the platform provides an API or not. In general, APIs allow services provided through the website to be integrated in third-party applications and facilitate interaction with the website to programs rather than only humans. (*Linares-Vásquez et al. 2014*)
  - v. *Country*. Indicates the country of origin the platform is operating in. (*Ross et al. 2010*)
  - vi. *Monetary reward*. Indicates whether the website allows monetary rewards for tasks completed by workers. (*Acar & Ende 2011*)
  - vii. *Free Trial*. Indicates whether the platform provides a demo use of its services or not. (*Chiou et al. 2010*)
  - viii. *Online help*. This variable examines the means a crowdsourcing platform offers in order to help users (both requesters and workers) better understand how the platform works and to engage new users. (*Zhou et al. 2009*)
  - ix. *Case studies*. This variable helps examine whether the platform reports success stories as a proof of the usefulness and trustworthiness of its services. (*Thies et al. 2011*)
  - x. *Job Openings*. This variable examines whether the website is currently offering job openings or not. (*Taylor 2015*)
  - xi. *Social Sites*. This variable reflects the social network profile each platform uses as a tool of marketing. (*Thackeray et al. 2008*)
  - xii. *Task visibility*. This variable indicates whether it is possible for visitors/guests to the platform to see all tasks offered by requestors or not. (*Eickhoff & Vries 2013*)

#### 4. Results

We have reviewed and analysed the 98 crowdsourcing platforms selected on the basis of the factors outlined in the previous section. Each website was visited and both worker and requestor accounts were opened in order to assess the necessary variables. Furthermore, relevant information was also gathered from the presentation of services provided on the websites and from relevant literature research.

We reviewed each of the 98 crowdsourcing platforms selected and have derived some descriptive statistics in order to get an initial high-level view of the current state of the provision of such services. In the next section, we present some findings of this analysis related to the following aspects:

- Distribution of crowdsourcing services in a range of countries
- Distribution of services provided by platforms reviewed
- Quality assurance and reliability techniques currently deployed by crowdsourcing platforms.

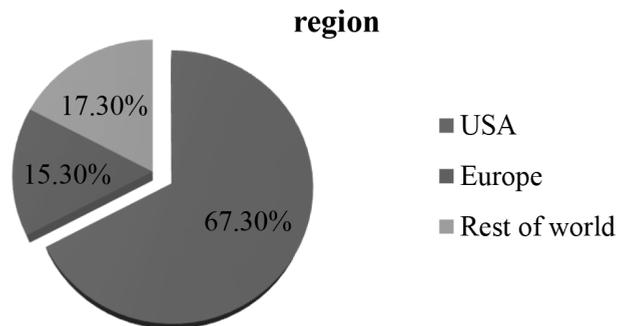
#### 4.1 Country

Table 1 and Figure 1 show the percentage of websites reviewed operating in different geographic regions and specific countries.

**Table 1.** Percentage of websites reviewed that operate in each country

		Frequency	Percentage
Valid	USA	66	67.3
	Germany	6	6.1
	England	5	5.1
	Canada	2	2.0
	India	1	1.0
	Switzerland	4	4.1
	Australia	2	2.0
	Hong Kong	2	2.0
	Other	10	10.2
	TOTAL	98	100.0

**Figure 1.** Percentage of websites reviewed in each region



The majority of platforms (6.3%) currently operate in the USA, while the number of websites operating in Europe is lagging behind (15%). Most European sites in operation are located in Germany (6.1%).

#### 4.2 Services provided

This sub-chapter presents the kind of services provided by the websites reviewed (Yang *et al.* 2008). Table 2 summarises findings, showing the percentage of websites for each service category. Below is a simple frequency table indicating how services are distributed depending on the number of platforms providing them.

**Table 2.** Percentage of each kind of services provided by websites reviewed

	Services Provided									
	mwk	crf	mcw	cntg	dte	hts	pdvp	dsns	trs	rtp
Frequency	27	31	4	11	15	16	9	14	5	10
Percentage (%)	27.6	31.6	4.1	11.2	15.3	16.3	9.2	14.3	5.1	10.2

*Note:* (mwk=microworks/simple tasks, crf=crowdfunding, mcw=mobile crowdsourcing, cntg=content generation, dte=data entry, hts=high knowledge intensity, pdvp=program developing, dsns= web and graphic design, trs=translation, rtp=product review and testing).

Most top crowdsourcing websites (31.6%) focus on providing crowdfunding services while only a small percentage offers mobile crowdsourcing services (4.1%).

Examining the type of services provided by websites in relation to their geographic location reveals some interesting results. Table 3 presents this information.

**Table 3.** Percentage of each kind of services provided in each region

	Percent Table (%)									
	mwk	crf	mcw	cntg	dte	hts	pdvp	dsns	trs	rtp
USA	30.3	28.8	4.5	12.1	18.2	18.2	7.6	12.1	4.5	12.1
Europe	26.7	26.7	6.7	20	13.3	26.7	0	6.7	6.7	13.3
Rest of the world	17.6	47.1	0	0	5.9	0	23.5	29.4	5.9	0

*Note:* (mwk=microworks/simple tasks, crf=crowdfunding, mcw=mobile crowdsourcing, cntg=content generation, dte=data entry, hts=high knowledge intensity, pdvp=program developing, dsns= web and graphic design, trs=translation, rtp=product review and testing).

The results in Table 3 indicate that different regions focus on different services. While in the USA and Europe the prevailing service is supporting microwork (USA 30.3% and Europe 26.7%) followed by crowdfunding services (USA 28.8% and Europe 26.7%), the Rest of the world websites appear to focus their attention on supporting

crowdfunding (47.1%) followed by web & graphic design (29.4%) services. Furthermore, some services are supported only by websites operating in certain geographic areas, as is the case with content generation services (cntg). Content generation services are provided only by sites operating in the USA (12.1%) and Europe (20%), while websites in the rest of the world do not seem to support such activities at all.

In general, crowdsourcing websites do not focus on providing exclusively only one kind of service. Many platforms provide more than one service (30.61% of the total number of platforms reviewed).

#### 4.3 Quality and Reliability

A critical factor of any crowdsourcing platform is the mechanisms in place for ensuring the quality of work provided by workers, particularly when they are operating in an open participation model. We surveyed the sites selected with respect to the mechanisms they implement to ensure the quality of work undertaken.

To this end we enumerated and categorised all existing quality assurance mechanisms, as presented in the table below (Table 4).

**Table 4.** Categorisation of all existing quality assurance mechanisms

qr1	Not providing any information with respect to quality assurance
qr2	Support for reviews and ratings of jobs carried out by workers
qr3	Workers' Profiles indicating their skills and ratings
qr4	Skill tests and/or practice tests for workers so that the most suitable worker for a task may be selected
qr5	Mechanisms to detect spamming and plagiarism

We assessed each website selected against these five categories. Surveys showed that half of the platforms examined (49 platforms) do not provide any mechanism to assess the quality of workers' jobs. Moreover, when some form of quality assurance is provided, only 4.1% of websites reviewed offer more than one quality and reliability mechanism in order to assess the quality of a worker's results on a task.

**Table 5.** Percentage of all existing quality assurance mechanisms

	Quality & Reliability				
	qr1	qr2	qr3	qr4	qr5
Frequency	49	20	16	9	17
Percentage (%)	50	20.4	16.3	9.2	17.3

In addition, we also examined the provision of quality assurance mechanisms across geographic regions. While websites operating in the USA offer all five categories of quality control mechanisms, they seem to favour spam and plagiarism detection techniques (Table 6, qr5), as opposed to European websites, which favour workers' profiles. Furthermore, some quality assurance mechanisms can be found only in specific geographic areas, such as Skill tests (qr4), which seem to be popular in the USA and Europe, but do not appear in crowdsourcing platforms operating in other areas.

**Table 6.** Percentage of all existing quality assurance mechanisms for each region

Percentage Table (%)				
	qr2	qr3	qr4	qr5
USA	37.1	25.7	20	40
Europe	37.5	62.5	25	25
Rest of the world	66.7	33.3	0	16.7

Finally, we examined the provision of quality assurance mechanisms with respect to the services provided by the websites selected. These results are presented in Table 7 and indicate that platforms providing “program development” (pdvp) or “web & graphic design” (dsns) services prefer quality assurance mechanisms in the form of reviews and ratings of the job done (71.4% and 71.4%, respectively). Furthermore, some quality assurance mechanisms are not used in certain service categories. For example, platforms that support “program development” or “web & graphic design” services do not offer Skill tests to assess workers, while platforms that provide translation services do not provide review and rating mechanisms to assess the work of workers.

**Table 7.** Percentage of all existing quality assurance mechanisms with respect to kind of services

Percentage Table (%)										
	mwk	crf	mcw	cntg	dte	hts	pdvp	dsns	trs	rtp
qr2	42.1	16.7	50	55.6	50	33.3	71.4	71.4	0	33.3
qr3	26.3	33.3	25	22.2	25	66.7	14.3	42.9	33.3	16.7
qr4	31.6	0	50	33.3	41.7	11.1	0	0	33.3	33.3
qr5	47.4	50	50	55.6	58.3	0	28.6	14.3	33.3	50

#### 4.4 Associations of services provided

The review of existing crowdsourcing websites reveals that more than 30% of sites surveyed offer more than one type of service. When investigating how services provided are associated in the context of platforms, the patterns of co-appearances in the set of types of services supported can provide useful insights into how platforms specialise their activities and gain further understanding to support categorisation efforts.

To this end, we analysed the dataset collected using the Apriori algorithm. The Apriori algorithm (*Agrawal & Srikant, 1994*) is a well-known and widely used data mining algorithm for discovering association rules in large datasets. Association rules are implications of the form  $X \rightarrow Y$  where  $X$  (called the antecedent) and  $Y$  (called the consequent) are disjoint sets of attributes indicating that whenever a set of attributes  $X$  are present in an observation, then the same observation is highly likely to will also contain  $Y$ . An association rule does not imply causality; it simply indicates a highly probable co-occurrence of attribute  $X$  and  $Y$  sets. Strong rules are based on two metrics, namely the support and the confidence of a rule. Support of the rule  $X \rightarrow Y$  is defined as the percentage of observations that contain the attribute set  $X \cup Y$ , i.e. both attribute sets, while the confidence of a rule is defined as the percentage of observations containing the attribute set in the set of observations containing  $X$  and can be perceived as the conditional probability  $P(Y|X)$ . Desirable thresholds for support and confidence are entered as an input to the Apriori algorithm. Furthermore, among strong association rules, the lift (or interest) of a rule (*Brin et al, 1997*) is a metric to assess a rule's interestingness i.e. how interesting a rule is; this is calculated as the ratio of the rule's confidence to the expected confidence, considering the antecedent and the consequent of the rule independent. The lift of a rule indicates how many times more likely it is that the attributes in the rule would occur together than these attributes occurring separately in the dataset or together at random. A lift value greater than 1.0 implies that the relationship between the antecedent and the consequent in the rule is more significant than would be expected if the two attribute sets were independent. In general, the larger the lift ratio, the more significant the association of the two attribute sets. The Apriori algorithm was applied to websites surveyed examining only variables capturing the type of service provided. The algorithm was executed with a support value of 0.2 (support=0.2) and a confidence of 1. Table 8 shows the association rules discovered that meet the support and confidence threshold with a lift greater than 1, after redundant rules had been pruned.

**Table 8.** Strong and interesting association rules mined from the websites surveyed. Support, confidence and lift for each rule are presented

No	Association rule	Support	Confidence	Lift
1	{mwk=Yes} => {crf=No}	0.27	1	1.46
2	{crf=Yes} => {mwk=No}	0.31	1	1.38
3	{crf=Yes} => {cntg=No}	0.31	1	1.12
4	{mwk=Yes} => {pdvp=No}	0.27	1	1.10
5	{mwk=Yes} => {hts=No}	0.27	1	1.19
6	{crf=Yes} => {hts=No}	0.31	1	1.19
7	{mwk=Yes} => {dsns=No}	0.27	1	1.16
8	{mwk=Yes} => {trs=No}	0.27	1	1.05
9	{crf=Yes} => {trs=No}	0.31	1	1.05
10	{crf=Yes} => {rtp=No}	0.31	1	1.11
11	{crf=Yes} => {dte=No}	0.31	1	1.18
12	{crf=Yes} => {mcw=No}	0.31	1	1.04
13	{mwk=Yes,cntg=No} => {mcw=No}	0.23	1	1.04
14	{mwk=No,cntg=No,pdvp=No} => {dte=No}	0.57	1	1.18
15	{mwk=No,mcw=No,cntg=No,hts=No,pdvp=No,dsns=No,trs=No,rtp=No} => {crf=Yes}	0.25	1	3.16
16	{crf=No,mcw=No,cntg=No,hts=No,pdvp=No,dsns=No,trs=No,rtp=No} => {mwk=Yes}	0.21	1	3.62

The association rules discovered indicate that, for example, websites that support Microwork ({mwk=yes}) with high probability do not support crowdfunding ({crf=No}) (rule 1). A general pattern that emerges from the association rules in Table 8 is that websites that support microwork and crowdfunding are strongly associated (high lift ratio) with not supporting any other type of service (rules 15 and 16). This indicates that platforms supporting microwork and crowdfunding are highly specialised and focus their efforts only on such activities. Hence, such platforms form a distinct class that differs considerably in focus and range from services provided on other sites.

#### 4.5 Issues Encountered

Some important information of crowdsourcing platforms reviewed online was not readily available, which impacted the extent of this research.

In particular, existing crowdsourcing platforms did not provide quantitative data related to, for example, the total number of workers registered, the average number and volume of tasks completed per worker per day, the completion rate of tasks, etc. In order to gain insights into such aspects, a survey was conducted in the form of a questionnaire, which was sent to all websites reviewed. The questionnaire asked providers to answer questions related to various aspects of their website, such as their workforce, tasks completed and revenue earned. Fewer than 10% of websites surveyed responded to this request and completed the questionnaire. This made it impossible to include such data in the review.

## 5. Conclusions and Future Work

It is certain that the power of the crowd will drive the future of businesses, because paid crowd work offers remarkable opportunities for improving productivity (*Vukovic 2009*). Moreover, with such labour force arrangements, the global economy can complete complex tasks on demand and at a large scale with no geographic boundaries (*Schneider 2012*).

Research in this field is currently undertaken so as to investigate, understand and facilitate this new form of supplying and demanding labour. In this context, we have presented an initial attempt to review contemporary crowdsourcing websites considering how they offer their services. We reviewed 98 top websites, as ranked by Alexa, which offer crowdsourcing services and have presented descriptive statistics related to their country of operation, the kind of services provided and the mechanisms used to ensure the quality of work performed.

Review results indicate that the majority of websites are located in the US, while Europe and the rest of the world are lagging behind. Most websites provide microwork and crowdfunding services, while other kinds of services are rather under-represented. Moreover, sites offering without supporting any other type of service. Finally, while only half of the sites surveyed offer some form of quality control of work undertaken, only a very small number offers two or more such mechanisms.

The survey presented here is a first attempt at laying down a framework for discussing and analysing the kind of services that are becoming increasingly widespread. Future work includes laying down a conceptual framework for systematic evaluation and assessment of such service providers, as well as for designing some form of taxonomy of such kinds of services. Furthermore, we will also examine issues related to workers' incentives/motivation and issues related to quality control and efficiency (*Kittur et al. 2013*). To this end, we are currently conducting experiments in various environments (controlled laboratory settings, as well as social networking sites, such as Facebook) in order to correlate workers' incentives/motivation and quality of work (*Wang et al. 2011*).

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## Appendix

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## TURKISH NON-CORE BANK LIABILITIES

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### Abstract

Developed countries implemented a loose economic policy after the global crisis, which encouraged huge capital inflows into the emerging markets. After the global crisis, the Turkish banking system took advantage of such foreign capital inflows and experienced significant credit growth. This paper focuses on non-core liabilities, which are the sources of the credit growth in the Turkish banking system. It seems that the Turkish banking system has depended more on non-core liabilities since the beginning of 2011. Most of the non-core liabilities of the Turkish banking system are largely foreign exchange denominated and the average term structure of foreign exchange liabilities is relatively medium-term. Foreign exchange non-core liabilities of the Turkish banking system have been more sensitive to international liquidity shocks. Non-core liability growth and its medium-term foreign exchange structure are a warning signal for the Turkish banking system.

**JEL Classification:** E51, G21, G32

**Keywords:** Balance Sheet, Banks, Core Liabilities, Non-Core Liabilities, Turkey

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## Introduction

Turkey is one of the important emerging countries and a candidate country for the European Union. Turkey has a young population compared to European Union countries, which is a great advantage, but it also has very serious structural economic problems. One of those is that Turkey's growth is dependent on international capital inflows (Başçı *et al.* 2013; Karaçimen, 2014; Orhangazi, 2014; Akyüz, 2015; Kara, 2015; Özgür and Orhangazi, 2015) due to the inadequate domestic savings level. For instance, the saving rate in Turkey in 2013 was 13 percent, which is the lowest rate not only in the Turkish economic history but also among all emerging countries in 2013. The International Monetary Fund (IMF, 2014a) indicated that the average saving rate of emerging countries was 33 percent of their GDP, a ratio is almost three times higher than that of Turkey. Turkey experienced an unprecedented flow of foreign resources during/after the global crisis. These inflows create a vicious cycle (more foreign resource, more credit, more consumption and fewer national saving) in the economic structure resulting in volatility in the country's growth path (Süslü and Balmumcu, 2015). The gap between credits and deposits (Credits > Deposits) has been increasing in the Turkish banking system and this credit expansion arises from the growth of the banks' non-core liabilities. Turkey's credit growth coincides with changes in the composition of Turkish banking liabilities (from core to non-core liabilities). It is noted that foreign exchange (FX) liabilities are key components of the non-core liabilities of the Turkish banking system. There is significant increase in the foreign exchange short position of Turkish banks' balance sheets. All of these situations are connected to each other and have caused a dangerous vicious cycle in the Turkish banking system. Fluctuations in the economic policy of developed countries or national/international liquidity shocks may cause capital outflows and decrease the borrowing capacity of the Turkish banking system. Consequently, sudden capital outflows are a major risk for the financial stability of Turkey. The IMF Staff Report (IMF, 2014b) indicated that capital outflows remain the main risk in the Turkish economy. Banks are vital in maintaining the financial stability in Turkey because the financial system is based on banking activities and intermediation services.

This paper aims at indicating the change of the Turkish banks' balance sheets during/after the global crisis, the shift of Turkish banks' liabilities in favour of non-core liabilities and the term structure and composition of non-core liabilities. This paper intends to expose that the composition and term structure of non-core liabilities pose a threat to the Turkish banking system.

This paper is organised as follows: The literature of non-core liabilities is presented in the first section. The liabilities of the Turkish banking system are examined in the second section. Turkish non-core liabilities are evaluated in the third section. The final section presents the results.

## 1. Literature

In economic literature, dealing with the financial cycle and financial vulnerability issues is generally focused on banking asset sheets. Credit figures, the growth of credit, the credit-to-asset ratio and the growth of the credit-to-asset ratio in the banking system have played a very important role in the financial cycle and the financial vulnerability analysis. This traditional perspective is reflected in banking regulations, which are related to preventing financial vulnerability. This focus has been given a specific form with requirements on the minimum capital for banks as a proportion of the risk-weighted assets of the bank (Hahm *et al.*, 2012a). Excessive increase in the level of credit variables (credit figures, the growth of credit, the credit-to-asset ratio and the growth of the credit-to-asset ratio) has been perceived as an indicator of the financial cycle from this traditional perspective. Shin and Shin (2010) have indicated that this traditional perspective is not enough for understanding the financial cycle and preventing financial vulnerability. Hahm *et al.* (2012b) have concluded that non-core liabilities may be usefully monitored as a complementary measure to the credit-to-GDP ratio. The global crisis revealed risks to the financial stability arising from the banks' reliance on certain types of non-core funding (IMF, 2013). Many researchers indicate that non-core funding is a major reason for banks' vulnerability (Demirgüç-Kunt and Huizinga, 2010; Huang and Ratnovski, 2010; Goldsmith-Pinkham and Yorulmazer, 2010; Bologna, 2011; Chen *et al.*, 2012; Hamn *et al.*, 2012a; Vazquez and Federico, 2012; Errico *et al.*, 2014). Funding structures matter for financial stability because a healthy funding structure lowers the probability of a bank falling into distress (IMF, 2013).

Banking regulations should also focus on the bank liabilities' composition in addition to the bank assets' composition. This idea has been accepted after the global crisis. Generally speaking, the liability side of banks' balance sheets was analysed with regard to the term structure (short or long term) of liabilities. The new idea focuses on the core and non-core structure of bank liabilities. Recent literature suggests that the size, source, and composition of non-core liabilities provide useful insights into a financial system's health and the potential for spill-overs to the real economy (Chen *et al.*, 2012 and Harutyunyan *et al.*, 2015). Shin and Shin (2010) firstly argue that liabilities due to an ultimate domestic creditor (mainly households) are classified as core liabilities and liabilities due to an intermediary and a foreign creditor are classified as non-core liabilities. This distinction is based on actual claim-holders and it is usually very difficult to classify liabilities in this respect. Shin and Shin (2010) secondly refer the other distinction based on financial instruments (deposits, securities other than shares, loans, government loans, call loans, call money, financial derivatives, and other foreign debts). Finally, authors classify bank liabilities through their harmonisation (by instruments and by claimholders).

**Table 1.** Definition of Core and Non-Core Liabilities

	<b>Core Liability</b>	<b>Intermediate</b>	<b>Non-Core Liability</b>
Highly Liquid	Demand Deposits (Households)	Demand Deposits (Non-financial Corporate)	Repos Call Loans Short Term Foreign Exchange Bank Debt
Intermediate	Time Deposits (Households)	Time Deposits (Non-financial Corporate)	Time Deposits (Banks & Securities Firms)
Illiquid	Trust Accounts   Covered Bonds (Households)	Trust Accounts (Non-financial Corporate)	Long Term Bank Debt Securities (Banks & Securities Firms) Mortgage Securities

Source: Shin and Shin (2010).

Shin and Shin (2010) and Kim *et al.* (2013) have defined non-core liabilities as the sum of (i) bank FX liabilities, (ii) bank debt securities, (iii) promissory notes, (iv) repos, and (v) certificates of deposit (Table 1). Hamn *et al.* (2012a) have adopted two new alternative measures for non-core liabilities. One of them includes banks' liability to the foreign sector and banks' liability to the non-banking financial sector. Other includes banks' liability to the foreign sector and the difference between M3 and M2. Hamann *et al.* (2014) have defined another two alternative non-core liabilities, which are very similar to the aforementioned definitions. One of them includes repos, bonds, foreign exchange debt, other debt and CDT<sup>1</sup>. Another definition excludes the liability position in derivatives. Harutyunyan *et al.* (2015) have defined core liabilities as bank deposits from non-financial corporations and households, while non-core liabilities as all remaining funding sources<sup>2</sup>.

Hahm *et al.* (2012b) have found that non-core liabilities are a powerful predictive indicator of financial crises and Hahm *et al.* (2012a) have clarified the relationship between credit booms and changes in the composition of bank liabilities. The 2007-2009 global banking crises showed that banks depended disproportionately on short term non-core funding (Gasperini and Rixtel, 2013). Hamann *et al.* (2014) have

1. CDT is payable to the credit of the Central Government and CDTs owned by large investors are classified under non-core liabilities.

2. Harutyunyan *et al.* (2015) have used non-core liabilities of banks as well as of non-bank financial institutions.

indicated that there is an interesting connection between bank credit/asset growth, composition of bank liabilities and bank leverage in Colombia. Harutyunyan *et al.* (2015) have calculated core and non-core liabilities for 26 countries from 2002 to 2013. Harutyunyan *et al.* (2015) have indicated that both the growth rate of the non-core liabilities of Turkey and the standard deviation of annual growth rates of the non-core liabilities of Turkey are more than those of others countries in this period.<sup>3</sup> In spite of the significance of non-core liabilities in Turkey, there are relatively few studies on non-core liabilities. Köksal and Binici (2012) have indicated that non-core liabilities are important drivers of leverage in the Turkish banking system. Kılınç *et al.* (2013) have revealed a robust relationship between credits and non-core liabilities in Turkey. Özen *et al.* (2013) have showed that the accumulation of foreign exchange denominated non-core liabilities could potentially amplify the severity of external financial stress shocks in Turkey. Akdoğan and Yıldırım (2014) have concluded that the level of non-core liabilities in the Turkish banking system is currently at moderate levels.

## 2. Turkish Bank Liabilities

The banking sector is the key-element of the financial system in Turkey. It represents 87% of the domestic financial system. The major source of borrowing in the Turkish banking system is deposits. Other sources of borrowing are payables to banks, funds from repo transactions, securities issued, other liabilities, payables to the central bank and payables to the money market.

**Table 2.** The Liabilities of the Turkish Banking System (December 2015)

Deposits	59.36%
Payables to Banks	17.35%
Funds from Repo Transactions	7.45%
Securities Issued	4.68%
Other Liabilities	9.79%
Payables to the Central Bank	1.12%
Payables to the Money Market	0.25%

*Source:* Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, December 2015.

3. Harutyunyan *et al.* (2015): their findings are indicated in Tables 2 and 3 and Figure 8.

The key elements of bank liabilities in the Turkish banking system are presented in Table 2. Deposits, payables to banks, funds from repo transactions and securities issued come to nearly 90% of bank liabilities in the Turkish banking system. It is a well-known fact that the size of every element in the liabilities depends on the specific country characteristics. In this paper, deposits are classified as core liabilities of the Turkish banking sector. Other components of bank funding (payables to the money market, payables to banks, funds from repo transactions and securities issued) are classified as non-core liabilities of the banking sector in Turkey<sup>4</sup>.

**Table 3.** Core and Non-Core Liabilities of the Turkish Banking System

Core Liabilities	Non-Core Liabilities
Deposits	Payables to Banks (BB)
	Funds from Repo Transactions (REP)
	Securities Issued (IMK)
	Payables to Money Market (PPB)

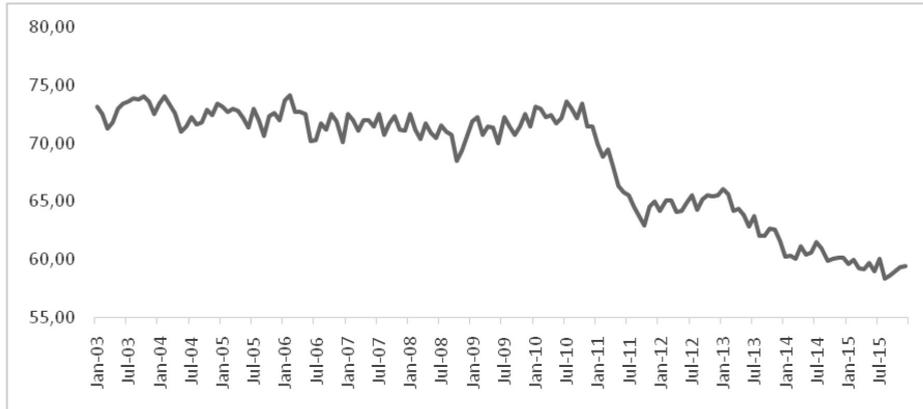
*Source:* Authors' definitions.

This classification is an essential tool in analysing credit growth in Turkey during/after the global crisis. Turkey received huge capital inflows through the banking system during/after the global crisis. Banks applied to less reliable and volatile sources of funding during the global crisis in order to meet their credit demands, which intensified the vulnerability of the banking sector to systemic risks (Akdoğan and Yıldırım, 2014).

Graph 1 presents deposits as a percentage of total liabilities declined in the beginning of 2011 due to decrease in local currency (TL) deposits and foreign exchange (FX) deposits in the Turkish banking system. Deposits might limit the capacity for growth, but they constitute a sounder and more stable source of funds, not so dependent on external factors of the bank (Oliver, 2013). Turkey is an emerging country which has not solved its structural and economic problems. As a conclusion, declining deposits in the banking system exacerbate the economic vulnerability of the country.

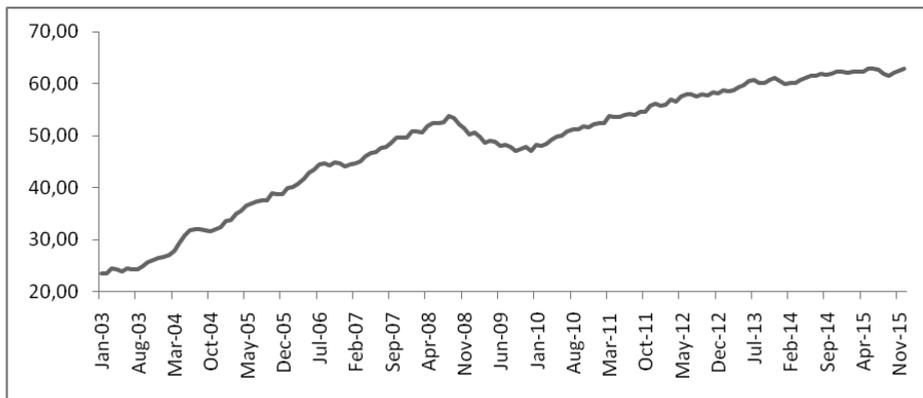
4. Deposits represented 60% and non-core liabilities represented 30% of the liabilities of the Turkish banking system in December 2015. In this analysis, 10% of total liabilities are classified as "other liabilities".

**Graph 1.** Deposits to Total Liabilities Ratio (%) in the Turkish Banking System (2003-2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))



Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

**Graph 2.** Credit to Total Assets Ratio (%) in the Turkish Banking System (2003-2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

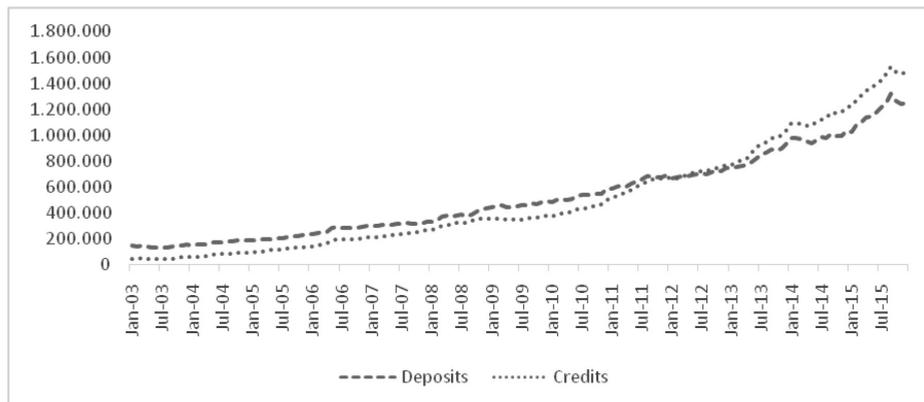


Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

An increasing trend in credit demand (except 2008-2009) is clearly apparent in Graph 2. Credit to total assets ratio began to increase at the onset of 2011. Credit growth reached 30 percent between early 2010 and late 2011. Such rapid credit growth is a main indicator of financial and economic crises (Mendoza and Terrones, 2008; Schularick and Taylor, 2012; Dell’Ariccia *et al.*, 2012). The Central Bank of the Republic of Turkey has introduced the interest rate corridor, the reserve requirement

and the reserve option mechanism so as to lessen credit growth and credit volatility (Başçı and Kara 2011; Aysan *et al.*, 2014). Special emphasis has been placed on credit variables as an indicator of financial stability (Kara *et al.*, 2013). Emerging economies have increased their credit levels during the past decade, but Turkey has experienced a very different condition compared with other emerging countries. Escribano and Han (2015) have calculated the average credit growth rate for 32 emerging countries in the last decade<sup>5</sup> and this study showed that Turkey has had the highest annual credit growth in the last decade. We emphasise the sources of credit growth rather than the credit growth rate. All historical data of banking balance sheets in Turkey indicate that the gap between credits and deposits (Credits > Deposits) arises from the enormous growth of non-core liabilities. The equilibrium between credits and deposits in the 2003-2015 period can be seen in Graph 3. This equilibrium was in favour of deposits (Deposits > Credits) before 2011, but it changed in favour of credits (Credits > Deposits) since the beginning of 2011.

**Graph 3.** Credits and Deposits (Million Liras) in the Turkish Banking System (2003-2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

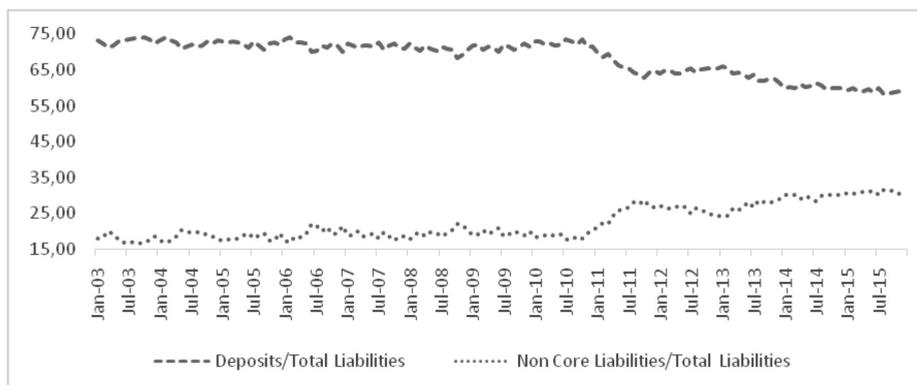


Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

The credits-deposits gap started in the first quarter of 2012 and increased dramatically until December 2015. When credit grows faster than the pool of available deposits, then banks turn to other sources of funding to support their credit growth (Hamn *et al.*, 2012a). There is a close correlation between credit growth and growth of non-core liabilities in the Turkish banking system. Non-core liabilities are the main drivers of this gap.

5. Annual growth rates in 2003-2012, real credit variables according to Escribano and Han (2015).

**Graph 4.** Deposits and Non-Core Liabilities to Total Liabilities Ratio (%) in the Turkish Banking System (2003-2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

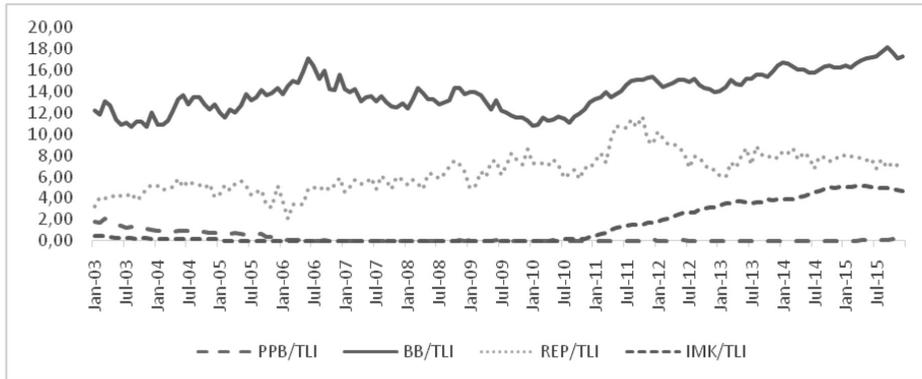


Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

It is clearly seen that deposits, as a percentage of total liabilities, have decreased and non-core liabilities, as a percentage of total liabilities, have increased (Graph 4). Deposits as a percentage of total liabilities decreased from 73% in 2003 to 60% in 2015. Non-core liabilities as a percentage of total liabilities increased from 17% in 2003 to 30% in 2015. Decreasing deposits as a percentage of total liabilities have been compensated by increasing non-core liabilities as a percentage of total liabilities.

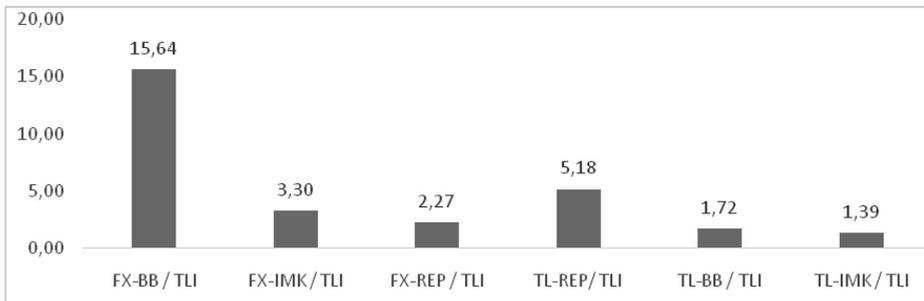
Key elements of non-core liabilities in the Turkish banking system are presented in Graph 5. PPB represents payables to the money market, BB represents payables to banks, REP represents funds from repo and IMK represents securities issued. It is preferable to use only three of them (BB, REP and IMK) because the size of other source (PPB) is merely symbolic. The drastic drop in deposits is compensated by an enormous rise in payables to banks, funds from repo and securities issued. Most of the Turkish banking system liabilities are largely foreign exchange-dominated and this situation is particularly important for Turkey. In this perspective, the non-core liabilities can be classified as foreign exchange (FX) denominated non-core liabilities and local currency (TL) denominated non-core liabilities.

**Graph 5.** Payables to the Money Market (PPB), Payables to Banks (BB), Funds from Repo (REP) and Securities Issued (IMK) to Total Liabilities (TLI) Ratio (%) in the Turkish Banking System (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))



Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

**Graph 6.** FX | TL Payables to Banks (BB), FX | TL Funds from Repo (REP) and FX | TL Securities Issued (IMK) to Total Liabilities (TLI) Ratio (%) in the Turkish Banking System (December 2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))



Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

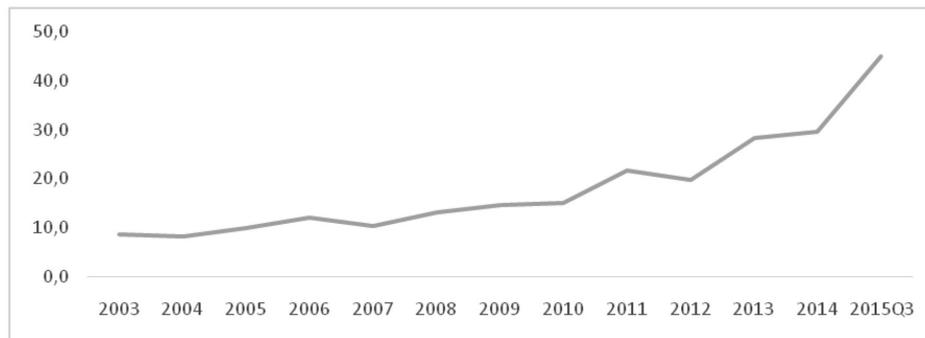
The TL-BB represents the local currency denominated ‘payables to banks’, FX-BB represents foreign currency denominated ‘payables to banks’, TL-REP represents local currency denominated ‘funds from repo’, FX-REP represents foreign currency denominated ‘funds from repo’, TL-IMK represents local currency denominated ‘securities issued’, FX-IMK represents foreign currency denominated ‘securities

issued' and TLI represents total liabilities in Graph 6. FX denominated non-core liabilities (FX-BB and FX-IMK) are greater than TL denominated non-core liabilities (TL-BB and TL-IMK). TL denominated 'funds from repo' is slightly greater than FX denominated 'funds from repo'. It is apparent that FX denominated non-core liabilities are two times greater than TL denominated non-core liabilities.

### 3. Evaluating Turkish Non-Core Liabilities

There are no international standards in the academic literature for evaluating the level of non-core liabilities, although there are several approaches for analysing and comparing the level of non-core liabilities. A first approach uses the non-core liabilities to Gross Domestic Product<sup>6</sup> (GDP) ratio. In Graph 7, it is clearly shown that there has been a progressive upward trend in non-core liabilities to GDP ratio in Turkey since the global crisis. This trend accelerates after the global crisis and coincides with the growing gap between credits and deposits.

**Graph 7.** The Non-Core Liabilities to GDP Ratio (%) in Turkey (January 2003-September 2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))



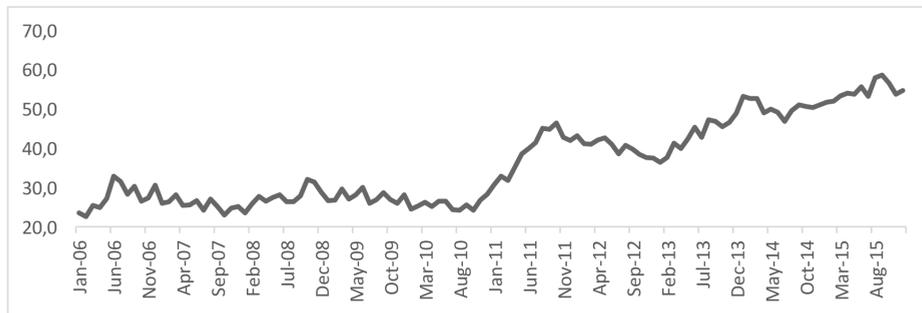
*Source:* Banking Regulation and Supervision Agency Statistics (BRSA) and Turkish Statistical Institute Statistics (TURKSTAT), September 2015.

The drawback in this ratio is that GDP is not a real time variable and it is frequently revised. Furthermore, non-core liabilities are published monthly; however, GDP is published quarterly in Turkey. A second approach uses monetary aggregates, which are financial data and are published more frequently (weekly and monthly). Shin

6. Expenditure on the Gross Domestic Product (at Current Prices) (2015 third quarter) is taken from the national account of the Turkish Statistical Institute (TURKSTAT).

and Shin (2010) used the non-core liabilities to M2 money supply ratio in analysing the financial system of Korea and concluded that this ratio reached maximum level during the global crisis and then decreased rapidly. This ratio is used to indicate the pro-cyclical nature of non-core liabilities in the Korean economy. It is seen that, in the Korean economy, this ratio reached a peak level in the economic crisis (1997 and 2009) and then sharply decreased. M2 money supply in Turkey comprises the currency in circulation, demand deposits and time deposits in the financial system.

**Graph 8.** The Non-Core Liabilities to M2 Ratio (%) in the Turkish Banking System (2006-2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

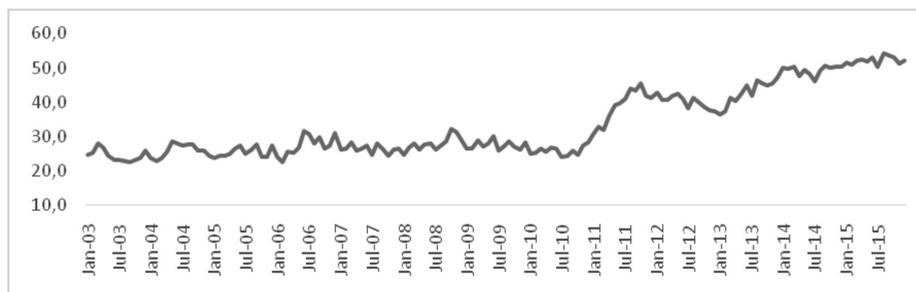


*Source:* Banking Regulation and Supervision Agency Statistics (BRSA) and Turkish Central Bank Statistics (CBRT), 2015.

Graph 8 illustrates that the non-core liabilities to M2 money supply ratio increased from 23.6 % in 2006 to 54.8 % in 2015. Shin and Shin (2010) and Hahm *et al.* (2012a) have indicated that this ratio was nearly 50% in Korea at the onset of the global crisis and then decreased sharply. This ratio is another important indicator to determine the size of non-core liabilities in Turkey, but the drawback in this ratio is that there is no common M2 definition among the countries. Third approach uses the non-core to core ratio to determine the size of non-core liabilities.

The non-core liabilities to core liabilities ratio increased from 24% in January 2003 to 52% in December 2015 (Graph 9). This ratio slowly increased between 2003 and 2010 and it was only 28% in December 2010. However, it began to increase dramatically in January 2011 and it reached 52% in December 2015.

**Graph 9.** The Non-Core Liabilities to Core Liabilities Ratio (%) in the Turkish Banking System (2003 -2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))



Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

**Table 4.** Elements of Non-Core Liabilities in the Turkish Banking System (%) (December 2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

BB / Non-Core Liabilities	REP / Non-Core Liabilities	IMK / Non-Core Liabilities
58.85%	25.27%	15.89%

Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

The elements of non-core liabilities in the Turkish banking system are shown for December 2015 (Table 4). Most of non-core liabilities are composed of payables to banks. The expansion of non-core liabilities originated from the enormous growth of payables to banks. Non-core liabilities should be analysed from the point of FX and TL composition.

**Table 5.** FX and TL Composition of Non-Core Liabilities in the Turkish Banking System (%) (December 2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

	BB	REP	IMK
FX	90.1%	30.5%	70.4%
TL	9.9%	69.5%	29.6%

Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

FX and TL composition of non-core liabilities in the Turkish banking system are shown for December 2015 (Table 5). FX denominated “payables to banks” and “securities issued” are greater than TL denominated “payables to banks” and “securities issued”, whereas TL denominated “funds from repo” is greater than FX “funds from repo”. It is clearly seen that, in December 2015, FX denominated non-core liabilities were greater than TL denominated non-core liabilities in the Turkish banking system. There is no doubt that the distinction between short-term and long-term non-core liabilities is significant for the detailed analysis of non-core liabilities. The term structure of non-core liabilities is presented in Table 6.

**Table 6.** The Term Structure of Non-Core Liabilities in the Turkish Banking System (Million Liras) (December 2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))

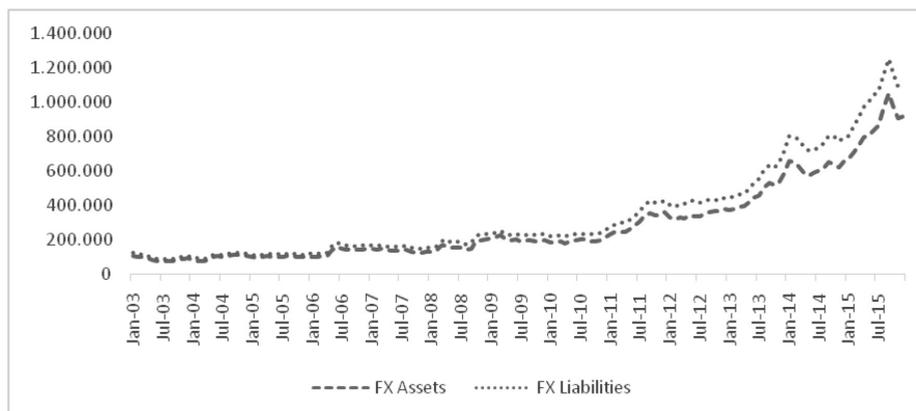
	FX BB	FX REP	FX IMK	TL BB	TL REP	TL IMK
Short	133.456	48.023	6.255	11.011	109.425	19.888
Long	176.657		70.870	4.948		8.875

*Source:* Banking Regulation and Supervision Agency Statistics (BRSA) and Central Bank of the Republic of Turkey Statistics (CBRT) and The Banks Association of Turkey Statistics (BAT), Turkey, 2015.<sup>7</sup>

Short-term non-core liabilities were greater than long-term non-core liabilities in December 2015. The term structures of FX and TL denominated non-core liabilities are significantly different. The short term TL denominated non-core liabilities are greater than the long term TL denominated non-core liabilities. The long term FX denominated non-core liabilities are slightly greater than the short term FX denominated non-core liabilities. It is clear that the average term structure of foreign exchange liabilities is relatively medium-term. This situation is very important because the Turkish banking system has widened the net FX short position since the beginning of 2011.

7. FX - BB values are provided by CBRT (Outstanding Long Term Loans Received From Abroad by the Private Sector), TL - BB values are provided by BRSA (Sectoral Loan Distribution - Loans Extended to Banks), FX - REP | TL - REP values are provided by BRSA (Funds from Repo Transactions) and FX -IMK|TL - IMK values are provided by BAT (Bills and Bonds).

**Graph 10.** FX Assets and FX Liabilities in the Turkish Banking System (2003-2015) (Million Liras) (December 2015) (Adjusted FX Values by CPI Based Real Effective Exchange Rate (2003=100))



Source: Banking Regulation and Supervision Agency Statistics (BRSA), Turkey, 2015.

The gap (FX Liabilities > FX Assets)<sup>8</sup> has increased sharply since the beginning of 2011 (Graph 10). The net FX short position of the banks in the balance sheet reached -170.2 billion TL in December 2015. This gap (FX Liabilities > FX Assets) is covered by the same amount of the net long TL position (TL Assets > TL Liabilities) of the banks. The credit growth of the Turkish banking system over the past four years has been largely funded by FX non-core liabilities. The long term FX non-core liabilities are slightly more than the short term FX non-core liabilities in the Turkish banking system and, therefore, FX non-core liabilities are medium-term. The first problem is that the Turkish banking system has a net FX short position (-170.2 billion TL) and the secondly problem is that the long term FX non-core liabilities are slightly more than short term FX non-core liabilities in the Turkish banking system. The Central Bank of the Republic of Turkey (CBRT) raised the remuneration rate for the required reserves maintained in Turkish liras for the purpose of supporting core liabilities and took additional measures to extend the maturity of banks' non-core foreign currency liabilities (CBRT, 2015a). The Central Bank of the Republic of Turkey (CBRT) has claimed that the share of non-core liabilities with maturities up to one year gradually dropped and this drop was mainly substituted by liabilities with maturities of 1-3 years (CBRT, 2015a). This declaration seems to be unclear and doubtful when analysing

8. FX Liabilities equal Foreign Exchange General Position - Total Foreign Exchange Liabilities (million TL) and FX Assets equal Foreign Exchange General Position - Total Foreign Exchange Assets (million TL) in the Banking Regulation and Supervision Agency Statistics (BRSA).

banks' FX borrowing policy. Of the \$15.5 billion of syndicated loans that Turkey's banks have borrowed since the start of 2015, about 90 percent have a maturity that is longer than a year by between one and 10 days (Bloomberg, 2015). Turkish banks take advantage of paying fewer reserve requirements through this borrowing behaviour and Turkish banks record these loans in 1-3 years' maturity.

Any sudden change in international liquidity conditions leads to an FX funding problem which is a very dangerous situation for the Turkish banking system. The Turkish banking system should focus on creating core liabilities for financing their assets.

This paper finds out that

- The Turkish banking system depends more on non-core liabilities
- FX non-core liabilities are more than TL non-core liabilities
- Short term non-core liabilities are more than long term non-core liabilities
- Long term FX non-core liabilities are slightly more than short term FX non-core liabilities.

#### 4. Conclusion

Developed countries used a loose economic policy after the global crisis and it encouraged huge capital inflows into emerging markets. The Turkish banking system took advantage of foreign capital inflows during/after the global crisis. Turkey has experienced significant credit growth and credit volatility. It has been shown that the main source of the credit growth in Turkey between 2010 and 2015 has been the high level of non-core liabilities in the Turkish banks' balance sheets. This paper is the first study in which term structure and composition of non-core liabilities are examined in Turkey. Non-core liabilities in the Turkish banking system have significantly increased after the global crisis and non-core liabilities have been the main source of credit growth. It is apparent that FX denominated non-core liabilities are greater than TL denominated non-core liabilities, short term non-core liabilities are more than long term non-core liabilities and long term FX non-core liabilities are slightly more than short term FX non-core liabilities in the Turkish banking system. Non-core liabilities have been growing dramatically in the Turkish banking system. Most of the non-core liabilities are medium-term foreign exchange denominated liabilities. This system is very susceptible to national or international liquidity problems.

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*Economic and Policy Foundations for Growth in South East Europe:  
Remarking the Balkan Economy*

edited by Adam Benett, G. Russel Kincaid, Peter Sanfey, Max Watson

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reviewed by George Makris\*

The book by the writers mentioned above provides an invaluable analysis of the transition south-eastern European countries recently experienced from a planned economy system to market economy and the democratic functioning of society. The book is also a useful tool aiming at analyzing the techniques through which a more effective implementation of reforms and practices will lead to the economic growth of these countries. The need for a more carefully designed economic policy has become obvious, especially after the global financial crisis reached the region in 2008/09 and following the recent turmoil within the Eurozone. This is necessary if we want to avoid the distortions and impasses caused by the transition model formed in the course of twenty five years. These problems were not readily visible during the euphoric second decade of the period in question. More specifically, the need to strengthen the existing economic policy of the countries of the region is supported, through targeted and coordinated assistance from relevant expertise of international institutions. In addition, EU's development of more efficient practices to implement reforms is supported, particularly in regard to its architecture and the architecture of the Eurozone, the aim being to accelerate European integration.

The first chapter of the book describes the economic model of the region, as this was formed during the transition period, which identifies three stages: the difficult implementation of the first decade's reforms; the rapid growth that ensued until the global financial crisis and the Eurozone turmoil. This chapter focuses on the transmission of these recent crises to the economies of the region through their integration into the global and, mainly, the European financial system and, in particular, through the financing of domestic consumption and the impact this had on shaping the production structure of these economies.

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The second chapter focuses on structural reforms carried out until the beginning of the crisis. It should be noted that a lack of enthusiasm on the part of the public in the countries concerned prevented the continuation of such reforms. This, in some cases, is masked by the encouraging developments in production and employment. According to the authors, an ongoing implementation of these reforms is deemed necessary, through using a different approach from that of past experience. This concerns both EU member states and candidate countries. Therefore, the role of the EU, as well as that of the International Monetary Fund, is vital, without underestimating the role of the EBRD, the EEIB and the World Bank within a project conditionality context.

The fiscal policy being applied and the financial institutions available - an issue whose importance was strongly felt after the transmission of the crisis into the region - are the subject of the third chapter. The need for fiscal reforms has become evident, although there are differences between countries as to the intensity of the problems caused to the budgetary balance. However, according to the authors, the best guarantee to tackle both current difficulties and future contingencies is to strengthen the financial architecture of the region, namely, the institutions and rules. In this case the recent EU experience can be particularly useful.

The fourth chapter focuses in detail on the problem of the financial sector, the role of which is considered largely responsible for the derailment of certain economies of the region during the second transition period. In that sense, the negative effects of credit expansion, which contributed towards overheating these economies, ignoring the requirements of a rational configuration of production structure, became apparent during the crises. In this chapter, after a detailed presentation of the financial sector in SEE, attention is drawn to the criteria of Optimal Currency Areas, which should be met by countries outside the Eurozone. In addition, experience on the effectiveness of macroprudential measures is gained, which, in combination with traditional macroeconomic instruments, has tried to help limit the impact of the crisis on certain countries of the region. Nevertheless, according to the authors, implementation of such macroprudential policies cannot possibly have long-term potential for success with chances of growth, unless applied in coordination by national and supranational authorities.

The fifth and final chapter of the book is a continuation of the previous one and focuses on the solutions needed so as to address the financial sector challenges to be faced in SEE. The region's particularities are portrayed in detail by the authors. What they stress is that risks are arising from the intense europisation of this sector, the extensive participation of banks in public debt or the high volatility of the economic activity in the region. These hazards, which also entail a high financial cost for non-financial sectors, can be managed by ensuring financial stability, effectively using a grid of macroprudential tools over and through the cycle. The authors consider this to be effective at a cross-border level, within the EU and with the EU, and, indeed, in the context of the new architecture of the EU financial sphere, which is analysed in detail.

This book can be useful in two ways: on the one hand, it helps us understand the current state of the economies of SEE countries, as shaped over a course of twenty five years, highlighting errors and weaknesses of its dynamics. On the other hand, it recommends concrete solutions to overcome obstacles impeding these economies from long-term growth.

There is one issue that could possibly lead us to further reflection, though it is somewhat remote from the very specific goal of the book: the, albeit theoretical, connection between achieving the objectives of the nominal economic variables in the region -which is what the proposed reforms and measures seek to do- and reaching an actual convergence of the countries' economies with the European average. Indeed, this is a challenging issue that will have to be addressed in the future. This final comment, however, does not detract anything at all from the fact that this book can be of great interest to academics, practitioners and policymakers.



*Should Britain Leave the EU?*  
*An Economic Analysis of a Troubled Relationship*

edited by Patrick Minford, Sakshi Gupta, Vo Phuong Mai Le,  
Vidya Mahambare and Yongdeng Xu  
published by Edward Elgar, Cheltenham, UK • Northampton, MA, USA, with the  
Institute of Economic Affairs, 2015, pp. 200, ISBN: 978 1 78536 032 9 (hardback)

reviewed by Christopher Tsoukis\*

This book is an effort to bring economics to bear upon the question of whether being a member of the European Union (EU), or exiting from it, is in the interests of the UK. The second edition of the book (2015) is timely, with an impending referendum on EU membership that is now set for 23 June 2016; however, it was announced several months ago (and, thus, known, when the book was published, to be due at an uncertain time in the near future). Arranged in seven Chapters, the book brings together, in a fairly impressive way, much of what economics can offer in answering the question of its title – including factual information, literature reviews, technical analyses and simulations.

Chapter 1 is a pre-ambule, summarising the relationship of the UK with the EU and the conclusions arising from subsequent Chapters. Chapter 2 is a descriptive account of EU regulation in all spheres, namely, labour and product markets, financial services, social protection. A key conclusion running through the book is that regulations of all kinds have eased in recent years, while the UK remains more liberal on all fronts, with lighter regulation than the EU average; that in service markets, the EU is more interested in harmonising regulatory practices than creating greater competition; and, finally, that in the case of financial services, in particular, EU regulation threatens to weaken, often purposefully, the UK's comparative advantage. In the book's estimates (see Table 2.1), the costs of imposing protective measures like those in the EU on the UK labour market are moderate to large (mostly in the order of a few percentage points of lost output or increased unemployment).

Chapter 3 is about the benefits and costs (more likely) of the UK joining the Eurozone. This is now more of a historical question, as the prospect is not likely to arise any time soon, but the Chapter is a tour de force of relevant literature including references to

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optimal currency areas. The main point is that a potential Euro entry would deprive the UK of the stabilising force of an independent monetary policy, but would also recalibrate the volatility of the UK currency; it would stabilise the latter versus the Eurozone (self-evidently) but increased volatility vis-à-vis the rest of the world (including the US) would ultimately be detrimental.

Chapter 4, on the cost of EU trade policies for the UK, is in many ways the core of the book. Currently, the EU is a 'common market', where there is free trade between member states and common trade policies vis-à-vis the rest of the world. The key-argument of the book is that the UK would benefit from exiting the EU and trading with the rest of the world independently, with trade policies decided by the UK in line with WTO rules and likely communication with trade partners. The big question that emerges here is what trade arrangements will arise between the UK and the EU. The discussion in pages 19-20 treats the issue as a straightforward question, arguing that, as a rule, the "EU [will levy] its usual (MFN) tariff-equivalents on us when we leave." (p. 19) Then, it is conceded, highly integrated sectors, such as the high volume car industry, are likely to seek special arrangements in order to preserve market integration. However, fixing such arrangements will certainly require protracted and costly negotiations with the EU during a period of uncertainty. Anyway, disregarding this question, it is implied that trade protection is costly, but estimates are rather small, in the order of 3-4% of one-off lost output or welfare (Tables 4.3/4). Consequently, the UK would gain from exiting and liberalising trade, but relevant estimates are hardly show-stoppers (or rather, show-movers).

The same overall conclusions emerge from Chapters 5-7, which present a detailed, informative, and quite interesting -in their own right- descriptive accounts of agriculture, manufacturing and service sectors and the state of EU trade protection for them. These sectors are interesting for a variety of reasons: agriculture is the sector subject to the heaviest trade and overall policy intervention by the EU; protection in manufacturing is weakening as (any correlation here?) the sector is becoming less important, while services are increasingly more important but still fairly heavily protected. Whatever the estimates might be (from other sources surveyed) on the effects of trade liberalisation, they point to modest gains at best (see Section 5.5 on agriculture, Section 6.5 on manufacturing, Tables 7.6/7 on services). It could be argued that dynamic effects (gains?) may be greater than such, mainly static, estimates, but there is limited concrete evidence supporting this view. Estimates in Chapter 4 on trade liberalisation gains are derived from the authors' previous work using dynamic simulations. Those are rigorous, drawing on state-of-the-art technical advances, based on carefully thought out assumptions and questions raised seeking answers (nature of shocks, etc). But, inevitably, brought to bear on big questions like that of the title, such simulations are in for the Lucas critique (as the author(s) themselves acknowledge): Simulations are OK when a limited change to the structure is being considered (a 'shock'); would, however, a model's structure hold unaltered when a potential game-changer (a massive and multi-faceted 'shock'), such as an exit from the

EU, occurs? Would elasticities, factor shares and intensities, and other such parameters, routinely taken as 'deep', 'structural' and constant, not change? If so, simulations and other technical welfare analyses of a possible entry into the Eurozone, or trade liberalisation, etc. offer rather tenuous information.

A bigger point emerges here: One is led to concur with Backhouse (2010, *The Puzzle of Modern Economics*, CUP) that Economics is better geared to answering specific, but, from a broader point of view, more focused questions, rather than answering 'big issues' (e.g., it helped design efficient telecoms auctions, but failed to predict the 2007-9 and other crises). Of course, big questions do not admit of precise answers; what one should aim for (I think in line with Backhouse's ideas) is reasonable arguments indicating clear directions - whether the gains be 'x%' or 'y%' is irrelevant or even misleading. The book's arguments stem from the basic tenets of neoclassical economics, i.e., free markets and free, unimpeded trade maximise economic welfare. The authors see no 'market failures' (such as some goods being of the nature of public goods, or the presence of externalities, natural monopolies, asymmetric information, and the like) that would justify departure from these principles. Trade protection, it is argued, is often motivated by rent-seeking rather than the objective of maximising welfare. These are the only (albeit strong) guiding principles, coupled with a belief that the EU is inexorably moving towards an ever-closer union with an (unspoken) aversion to joint decision-making. There is no consideration of the 'unknown unknowns': The rise of other economic areas and a possible challenge that this might present to the 'first world'; climate change and the challenge of shifting to sustainable resources; demographics and debt crises; migration and other political and security challenges for Europe. Many of these challenges involve important economic dimensions that the discussion, as framed in the book, ignores. There is much emphasis these days, even within mainstream economics, on the fact that cooperative solutions are superior exactly in cases of shared problems like those above, which would, otherwise, be likely to receive selfish, but inferior, solutions. The overarching question is whether global or regional challenges can best be met using national or pooled powers? The likely answer, i.e. shared decision-making, is hugely different to subservience to the EU, as projected by popular discourse (though the book never suggests that). With its simple prior guiding principles and technical focus, the book misses out on all these considerations.

Besides, not everyone shares the view that socially-minded regulations, like EU social and labour market protection regulations, are bad – for many people, they are, indeed, good, and help protect the UK labour force from being exposed to an otherwise ruthless labour market (as evidenced by the duality of labour markets and arrangements like the 'zero hours contracts', for example). Moreover, on the whole, the EU is more interested in fighting inequalities (social, regional) and promoting industrial regeneration than the UK seems to be. What we are encountering in the UK these days is a reminder of regional inequalities and the threat posed by industrial decay, with the impending bankruptcy of

Tata Steel and the possible loss of tens of thousands of jobs; we hear that UK politicians are lobbying the EU to allow anti-dumping tariffs so as to protect the industry from the unduly low prices of Chinese imports. In other words, not only is the EU's concern on such matters justified and greater than the UK's, but at a moment of crisis, the EU is part of the solution and not of the problem. Similarly, on the issue of general inequality, the EU shares many people's great concern, which is greater than that of either general mainstream economics or of the book, the implicit throughout emphasis of which is mainly on 'efficiency' and very little on 'equity'.

The question of membership, of course, involves even broader considerations: Despite numerous criticisms it can and does receive, paramount among which must be the democratic deficit, the European Union is a zone of economic prosperity, political liberty and social solidarity. Do we want this to break up? Are we sure of the alternatives that will emerge? If the break-up process of the EU begins, for the first time in its history, what is the 'economic atom', the smallest unit that will be immutable to break-up, that will emerge? If it is in the interests of the UK to be an independent, free-market economy, might that not also be the case for Scotland or Wales versus the UK? Might we, therefore, see a large number of regions breaking away from current conventional states? What will their number be? Who can guarantee stability in this possibly chaotic world? These considerations may lead one to suggest that wholehearted engagement and work towards reform, rather than exit, should be the way forward.

It was said (by the late UK Labour Party politician Denis Healey) that an economist is one who, asked about a telephone number, offers an estimate. That may be so more due to the nature of reality than because of the nature of economists, but this book offers quite a sophisticated estimate. As precise and clear an estimate as the jumbled and fuzzy section of human affairs called 'the economy' can offer, the book draws on a big pool of knowledge of all relevant, recent and rigorous advances concerning the subject. For any professional economist, no less interested than the general public, it is a joy to read and sharpen one's arguments whatever one's views. Ultimately, though, one is left with the impression that the real driver of the book's unambiguous conclusion, i.e., that exit from the EU is in the UK's interests, implies two preconceived tenets: that free, unimpeded trade and a free-market economy are the best creators of economic welfare; as those ideals are best pursued outside the EU, an exit is the best option. Technical, factual and other analyses are only providing limited support to this prior. If someone is completely agnostic, the results of Chapters 2-7 would perhaps suggest an exit but would not be enough to create strong convictions. Put it another way, due to priors, there is an implicit null hypothesis, namely 'exit is best', that technical results fail to disprove. I strongly suspect that, had the null been 'stay in', the evidence would have been sufficient to disprove that, as well.

So, one could discern three parts in the title question: firstly, 'what input can mainstream economics offer to the question of the UK's EU membership?', secondly, 'what

are the broader considerations involved in the question and, particularly, their economic dimensions?', and, finally, what is a possible final answer?' A review of this book cannot but be concerned with all three questions. As far as the first question is concerned, taking neoclassical, mainstream economics as the reference framework, the book gets nearly full marks; it suggests that there are small to moderate (at best and not fully certain) gains to be had by the UK moving out of the EU and pursuing 'free' trade with the rest of the world, with trade relation between the UK and the EU left to be decided. Yet, the book fails to consider the second question, the broader questions and challenges mentioned above and their economic dimensions. We argued that there are reasons to support that the EU is a force for good on these matters, that co-operative solutions and joint decision-making may be the answer to regional and global questions. By framing the discussion in terms of seeking precise and, therefore, narrow estimates of free trade gains outside the EU, and the like, the book misses out on such considerations. As a result, when it comes to the third question on the final verdict, readers are left with considerable food for thought before they can make up their own minds.



*Full Industry Equilibrium  
A Theory of the Industrial Long Run*

by Arrigo Opocher and Ian Steedman

Published by Cambridge University Press, Cambridge, United Kingdom, 2015, pp. 232.  
ISBN: 978-1-107-09779-7

reviewed by Lefteris Tsoulfidis\*

Opocher and Steedman, two influential economists working within the modern classical economic theory, attempt to combine two competing approaches to microeconomics, namely, the neoclassical long-run theory of the firm and the Sraffa-inspired classical version of economics. Both approaches share some common ground and their cross-fertilisation could, arguably, be profitably utilised to develop more sensible microeconomic principles leading to firmer theoretical conclusions of practical significance. Such a synthesis of two approaches, hitherto developing parallel to each other, has not been tried so far and, in this sense, the book is characterised by originality. It is important to stress at the outset that the potential for synthesis lies only in the production or supply (not consumer demand) side of the economy, where the authors lay out the implications of a rigorous long-period point of view. They show, in particular, that there is, generally, no presumption made to the effect that demand for a factor is inversely proportionate to this factor's price, as is commonly assumed in the neoclassical microeconomic analysis currently prevailing in economics classrooms.

The process through which the authors seek to achieve such a synthesis is the method of comparative statics analysis, according to which one starts off with a state of equilibrium and then hypothesises an exogenous change to a variable, such as, for example, real wage (or profit rate), taxation, terms of trade, price of a strategic input (e.g. the price of oil), productivity (total factor), etc. Then the object of study becomes the movement of all relative prices, which, following the aforementioned exogenous event, must change in such a way so as to be consistent with arriving at a situation of zero maximum profits earned by all industries. The authors describe this situation using the Wicksellian term of 'full industry equilibrium' (FIE). The question at issue concerns predicting the size and

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the sign of such price changes by taking into account the inter-industry structure of the economy and the attainment of the final equilibrium status, where there are no net (excess economic) profits. It is noteworthy that FIE differs from neoclassical general equilibrium, since it does not assume consumer preferences or demand decisions associated with them. Opocher and Steedman are two authors with significant contributions to both neoclassical (from a critical perspective) and classical theories and, as such, they are well equipped to also make a meaningful contribution towards bridging these two approaches. To this end, they argue that both approaches would benefit from mutually recognising that they are built upon the key concept of FIE. More specifically, the authors argue that what both classical and neoclassical approaches share is the long-run method of analysis in production. The study is further simplified by stipulating firms' homogeneity and by leaving aside complications arising from economies of scale external or internal to the firm or industry. If we find any difference in the approach of the book from the usual Sraffian one, it is that the focus is on individual industries rather than the totality of industries comprising a national economy. The book focuses on "micro" productive choices and often assumes a zero interest rate. Moreover, in order to make the approach comparable to neoclassical microeconomics, the authors use the standard U-shaped average cost curves, although these are precisely the kind of curves that Sraffa, in his famous (1926) article, found to be inconsistent with the neoclassical requirements of a perfectly competitive firm, while subsequent empirical research at Cambridge in the 1930s showed that in manufacturing, at least, cost curves are mainly characterised by constant returns to scale. Opocher and Steedman seem to apply the methodological principle, i.e., that the worse the circumstances, the stronger the argument used becomes. It is important to note that the neoclassical microeconomic theory, unlike macroeconomics, has pretty much remained the same for decades. In effect, microeconomics, as it emerged in the 1930s, mainly as a result of Sraffa's (1926) article, and as formulated in the 1970s, has not essentially changed to date.

The book is divided into ten chapters, all connected to each other and all aspiring to attain the authors' goal, i.e., to contribute to the formulation of a new and broader, long-run microeconomic approach derived from the cross-fertilisation of two microeconomic approaches moving in parallel to each other. Chapter 1 is about preliminaries and explanations of the FIE, its properties and its connections with both the neoclassical microeconomics and the Sraffa-inspired economic approach.

Chapter 2 presents the neoclassical long-run theory of the firm and explains the underlying structure of relative prices. Some further complications are added to this model, such as the presence of produced (as opposed to primary) inputs and discontinuities in profit-maximising input use. Furthermore, some unexpected behaviour is identified in the movement of the capital-output ratio with changes of the rent-wage rate. The analysis is generalised from single production to more realistic and harder to theorise multiproduct or joint production industries.

The details of the latter more complex case of production are taken up in Chapter 3, where it is shown that, in most cases, joint production may be thought of as a generalisation of the single product case, when we simply assume the presence of a single input. In the simplest formulation, this case bears similarities to the many inputs and the production of single products one.

In Chapter 4 the firm in the industry is placed in competition with other similarly motivated firms over produced and non-produced inputs. The analysis is carried out under the oxymoron scheme of maximum net profits equal to zero. Hence, there is no distinction between profits and the rate of profits, that is, profits estimated on a basis such as invested capital. Apparently, this is another methodological concession made to the standard neo-classical theory, according to which the mere presence of profits is sufficient to attract an inflow of firms until profits become equal to zero. In similar fashion and in an attempt to facilitate synthesis, the authors make frequent use of twice differentiable cost functions and they also rule out possible complementarities between inputs. In other words, the cost functions used in the analysis are assumed to be “well behaved”. All of the above is done in an attempt to facilitate analysis and make the synthesis of the two approaches easier for economists of both approaches to follow. Under these assumptions, two types of shocks are considered: (a) a change in the price of a primary input; (b) a change in the rate of interest. Competition (perfect) leads to changes in the structure of relative commodity prices and, as far as the prices of primary inputs are concerned, it is possible to derive qualitative restrictions within the framework of conventional partial equilibrium analysis. Furthermore, commodity prices react differently in the face of external shocks.

Chapter 5 relaxes the assumption of the well-behaved functions and focuses on primary input use per unit of gross output. The analysis is carried out at the industry level by taking into account inter-industry connections and a positive interest rate. The theoretical analysis suggests that employment coefficients and real wage can be positively correlated. This chapter is supposed to share common ground with the famous capital theory controversies and with the Sraffa-based critique in general, but these connections are not sufficiently explicit. The focus of the chapter is on FIE and the results of comparative statics exercises and not on possible connections to capital theory controversies.

Chapters 6, 7 and 8 extend and further elaborate on the first five chapters, as they examine key applied microeconomic questions, such as price effects of the introduction of a tax, changes in terms of trade, as well as effects of technological change. The answers are often surprisingly different from those derived in standard microeconomics; what is more important is that these answers are derived from a theorisation of the operation of total economy. In Chapter 6 the authors study what the effects on prices are when cost is, for some reason, reduced. The analysis is further concretised in Chapter 7, where price effects of taxation within an inter-industry setting are examined and certain regularities are singled out. The effect of sales taxation on primary inputs is magnified when the presence of produced inputs is accounted for. A uniform sales tax rate is expected to

have quite dissimilar effects on prices; however, we may find a neutral sales tax when it is imposed in proportion to the added value of industries. Not surprisingly, a higher sales tax imposed on an industry does not necessarily imply a higher relative price, because everything depends on the use of the taxed commodity by other industries and the various linkages between industries, not to mention the proceeds of taxation and the way in which these are spent by the government.

Chapter 8 is about the effects of (total factor) productivity on prices, which could be quite similar to those of taxation. However, there is an important difference in that, while taxation is directly observable (and, therefore, it can become a policy variable), productivity is not. The total factor productivity (TFP) growth rate in neoclassical economics is residually determined after subtracting the growth rates of normally employed factor inputs (weighted by their income shares) from output growth rate. The advantage of the FIE approach is that it breaks down the technical change measured by TFP into average primary input prices and distribution. Moreover, FIE price accounting enables identification of trend components of productivity in each individual industry. Lastly, the change in the average primary input price may be broken down to industry productivity change per se and to changes due to other industries. All of these are important in their own right and shed new light on discussions of TFP. Chapter 9 adds a retrospective and prospective view to the whole book and approach. Chapter 10 contains a summary and makes some concluding remarks about possible further research questions.

It is expected that the analysis and findings of the book will attract the interest of neoclassical and modern classical economists who will further use and expand FIE in order to tackle old and new microeconomic questions. The book will be useful to those taking intermediate or advanced courses in microeconomics or economic theory and to those interested in a rigorous formulation of economic problems and answers derived from such a formulation, which can shed further light on controversial issues in economic theory as well as use these answers and results for planning more effective economic policies. Finally, the book might also be useful to those interested in the history of economic thought and developments that have taken place, particularly those of the 1970s.

# call for papers



**20<sup>th</sup> Anniversary 1996-2016**

Association of Economic Universities  
of South and Eastern Europe  
and the Black Sea Region



Anadolu University  
Faculty of Economics  
and Administrative Sciences

## **12<sup>th</sup> INTERNATIONAL CONFERENCE of ASECU**

organized by

**Anadolu University**  
Faculty of Economics and Administrative Sciences

## **INCLUSIVE AND SUSTAINABLE DEVELOPMENT AND THE ROLE OF SOCIAL AND SOLIDARITY ECONOMY**

**September 29-30, 2016**  
in Eskişehir, Turkey

New Deadline for receipt of abstracts: **March 14, 2016**  
Deadline for receipt of full papers: **June 12, 2016**

<http://asecu2016.anadolu.edu.tr> or [www.asecu.gr](http://www.asecu.gr)

## GENERAL INFORMATION

We welcome submissions addressing the ASECU 2016 International Conference theme:

### **“INCLUSIVE AND SUSTAINABLE DEVELOPMENT AND THE ROLE OF SOCIAL AND SOLIDARITY ECONOMY”**

12th International Conference of ASECU, is organized by Anadolu University, on the 29<sup>th</sup>-30<sup>th</sup>, September, 2016 in Eskişehir, Turkey, on the occasion of the 20<sup>th</sup> Anniversary of the Association.

The conference aims to provide a professional discussion platform for both academic and business professionals from Southern and Eastern Europe as well as the Black Sea Region, and from the neighbouring countries.

The conference will address inclusive and sustainable development and the role of social and solidarity economy (SSE). SSE, is a phenomenon that has gained growing economic, social, political visibility in recent times, and that in practice allows us to think about actions that envisage the aspects making up the integrated approach to development.

The SSE, defined as a concept including organizations and enterprises producing goods, services and knowledge while pursuing social and economic objectives, emerges as a response to the need for innovation within the current model of production and consumption. During recent years a great deal of legislation has been adopted concerning SSE.

This legislative activity and institutional recognition of the SSE on an international level is characterized by efforts to incorporate economically dynamic and socially innovative aspects into the joint construction of public policies that aim to promote greater cohesion and inclusion.

Hence, organizers of the conference especially expect participants to explore and examine the impact of the SSE on inclusive and sustainable development.

The conference official language is English.

## CONFERENCE SUB-TOPICS

**1. Socioeconomic and Environmental Sustainability:** holistic, balanced development, integrating environmental, social, and economic aspects, considering different sectors and recognizing their inter-linkages. Special issue: utilizing the advantages of technology - entrepreneurship in the digitized ecosystem.

**2. Towards an alternative socio-economic model and institutional framework,** based on the further evolution of the post-modern conceptual paradigm the values and principles - (re)introducing mutualism and cooperation, equity, social welfare, social and economic democracy, pluralism and diversity, for the “creation of a better world”. Necessary innovations in education, ethics and ethos, integrating social entrepreneurship and sustainability.

**3. Innovative, progressive approaches for the introduction of participatory functionality,** allowing for the promotion of social cohesion and contributing to an increase of a region's social capital.

**4. Concerns about the “big picture”.** Socio-economic re-evolution with respect to wider issues of humanity: climate change; aging, population explosion and demographic issues; unemployment, inequality and poverty; misuse of children, women and special social groups, trafficking; environmental integrity and sustainability.

## IMPORTANT DATES

- March 14, 2016** : **New Deadline for receipt of abstracts**  
 June 12, 2016 : Deadline for receipt of full papers and application forms  
 July 3, 2016 : Notification for full-paper acceptance  
 July 10, 2016 : Deadline for registration and payment  
 (there is no returning payment in case of cancellation)  
 August 1, 2016 : Announcement of the preliminary conference program  
 September 19, 2016 : Announcement of the detailed conference program  
 (at <http://asecu2016.anadolu.edu.tr/>)

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#### **GUIDELINES FOR ABSTRACT SUBMISSION (All submissions are refereed)**

- Submissions must not have been published, submitted or presented at other conferences.
- Title of the paper written in English (type size - 16, font - Times New Roman, bold)
- The title page must include names, degree, affiliations, complete addresses (e-mail, telephone) for all authors
- Abstracts, written in English, should be no longer than 10-18 lines (format: Times New Roman 11 italic, Spacing: Before: 0, After: 0, Line Spacing: 1.5, Alignment: Justified, Indentation: Left: 0, Right: 0, Special: 0). JEL classification and up to 6 keywords should be used.

Detailed information concerning abstracts' submission can be found at [Abstract Submission](#) on the [asecu2016.anadolu.edu.tr](http://asecu2016.anadolu.edu.tr)

#### **GUIDELINES FOR FULL-PAPER SUBMISSION**

- The full paper should be a maximum of ten (10) pages including references and exhibits. Requirements for the paper formatting: Page: A4; Font: Times New Roman, Size: 11 pt; multiple line spacing (1,15); Page Setup: Margins: Left: 3; Right: 3; Top: 4; Bottom: 3.
- In the first mandatory page (presentation page) you insert the title of the paper (Center, times new roman, 16 point, bold). Leave 1 blank line (16 point) between the titles. Authors' names (Center, times new roman, 12 point). Affiliations such as Institution/Department, City, Country (Center, times new roman, 10 point) and e-mail of the corresponding authors.
- Headings: enumerate Chapter Headings by Arabic numbers (1., 2., etc.). First level Chapter Headings use all caps (Times New Roman, 11). Subchapter headings are font 11, italic, bold and will follow the enumeration of the previous heading (1.1., 1.2., etc.).

More information about full-paper submission are given at [Full-paper Submission](#) at the [asecu2016.anadolu.edu.tr](http://asecu2016.anadolu.edu.tr).

All the presented papers will be included at the Proceedings of the Conference, which will be issued, with an ISBN nr in electronic form. The authors will have a certain time after the conference for submitting the revised version of their papers.

The Editorial Board of South Eastern Europe Journal of Economics (SEEJE), the official journal of ASECU, after having the agreement of the authors, plans to publish selected conference papers following a blind refereeing process. More information at <http://www.asecu.gr/Seeje/>

Paper presented at the Conference ASECU2016 will have also the opportunity to be published at the Anadolu University Journal of Social Sciences (indexed in Econ Lit). Further details for the journal <http://sbd.anadolu.edu.tr/home.html>

The papers for both journals will follow the usual procedure of evaluation and the journals will be under no commitment to publish any article. However, they do promise an expedited refereeing process.

## CONFERENCE FEE AND HOTEL ACCOMMODATION

The conference fee amounts to **125 EURO** per participant (for all participants).

**Account name:** 12<sup>th</sup> Inter.Conference of ASECU2016

**Account owner:** Anadolu University, Genclik ve Spor Kulubu

**Address:** Anadolu Universitesi 26470 Eskisehir / Turkiye (Turkey)

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The payments should be clearly mentioned by the note: ASECU 2016, as well as the Name and Surname of Participant.

All prices are per person. Conference material as well as lunches, dinner, refreshments during the conference are included in the registration fee.

Registrations could be accepted also at the registration desk during the Conference. In this case the fee will amount 150 EURO.

Receipts will be prepared for the payments with the full name, university name and the country of the participant. In case that specific information is needed to be mentioned at the receipt, the participant is obliged to inform the Secretariat accordingly

Payment of the registration fee should be made by bank transfer. Payments by credit cards will not be accepted.

Each participant should cover travel costs to and from Eskisehir, and should directly book accommodation in Eskisehir (Accommodation is not included in the registration fee).

The following hotels are recommended by the Organizing Committee (list of hotels close to conference venue):

**Albatros Hotel:** This three star hotel is also located next to the university campus, 15 min. walking distance to the conference hall at the university campus, 20 min. walking distance to the train station, and 10 min. to the intercity bus station by tramway. For further information: <http://www.esalbatroshotel.com/>

**Dedepark Hotel:** This four star hotel is also located in the city center. It is within 20 minutes walking distance (or 5 min. by tramway) to the conference hall at the university campus, 15 minutes walking distance to the train station, and 10 minutes distance to the intercity bus station by tramway. For further information: <http://dedepark.com/>

**Divan Express Eskisehir:** This four star hotel is also located in the city center. It is within 20 minutes walking distance to the conference hall at the university campus (or 5 min. by tramway). The train station is within 15 minutes walking distance. It takes 20 minutes to the intercity bus station by tramway. <http://www.divan.com.tr/>

**IBIS Hotel:** This three star hotel is also located in the city center. It is within 20 minutes walking distance to the conference hall at the university campus (or 5 min. by tramway). The train station is within 15 minutes walking distance. Further information: <http://www.ibishotel.com/gb/hotel-6567-ibis-eskisehir/index.shtml>

**Namlı Otel:** This three star hotel is located in the city center. It is within a 30 minutes walking distance to the conference hall at the university campus (by bus it takes 15 minutes). It is within a walking distance to the train station and it takes 20 minutes to get to the intercity bus station by tramway. For further information:  
<http://www.namlotel.com.tr/tr/eskisehir.asp>;

**Sör Otel:** This three star hotel is located within a 10 minute walking distance to the conference hall at the university campus, 20 minute walking distance to the train station, and it takes 10 minutes to the intercity bus station by tramway. For further information see: <http://www.sorotel.net/>

**The Merlot Hotel:** This four star hotel is also located in the city center. It is within 20 minutes walking distance to the conference hall at the university campus (or 5 min. by tramway). The train station is within 15 minutes walking distance. It takes 20 minutes to the intercity bus station by tramway. For further information: <http://www.merlot.com.tr/>

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