The Islamic Banking and Economic Growth Nexus:

A Panel Var Analysis for Organization Islamic Cooperation Countries

Fusun Celebi

Bayburt University

Mohammad Kabir Hassan

University of New Orleans

Duygu Zirek

University of New Orleans

Abstract

In this paper, we examine the relationship between Islamic banking size, Islamic investment, Islamic banking deposit and economic growth in member countries of Organization of Islamic Cooperation. We have a balanced panel consisting of 16 countries with 13 years of annual data in our panel. Fixed effects controlling for autocorrelation and heteroscedascitiy is applied to see the contemporaneous effect of our Islamic Banking variables on real GDP growth rate. To check the response of real GDP growth rate over time to a shock in Islamic Banking variables, we also applied Panel VAR analysis. Islamic deposit, Islamic Investment and Islamic Size variables positively and significantly explains real GDP growth rate at 1% significance level in our panel of 16 countries. Impulse response functions and variance decomposition show the magnitude and significance of this effect in the long run. Our results are robust after controlling for macroeconomic variables.

INTRODUCTION

The relationship between financial development and economic growth has attracted a great deal of attention based on improvement of banking industry and other financial intermediaries. One of the important tools of economic growth is financial market. When financial markets develop, Individuals, want to save much more money, relating to capital accumulation increase. Also, increase of capital accumulation stimulates investments. The result of increase of investments are allocated more capital to process of production, therefore can contribute positively to economic growth. There are many different views related to financial market and economic growth nexus. Levine (1997) indicated that financial intermediaries play an important role. Financial

intermediaries that are a part of financial markets not only provide risk diversification services but also help to resource allocation for economic growth. While Lucas (1988) examined that, share of financial matters in economic growth is badly over-stressed, as a new determinant of economic growth has started to research in endogenous growth literature.

The role of Islamic finance has increased in importance over time in the financial markets. Although history of Islamic finance based on nearly forty years ago, main improvement provided after the 1980s especially Islamic finance institutions demonstrated rapid growth in the last decades. While Islamic assets were approximately USD $ 150 million in the 1990s (Gravel, 2011), market size of this assets estimate to reach $ 2 trillion dollar at the end of 2014 (The City UK, 2013). Regarding to development of Islamic finance, Islamic banking that is known the interest-free banking has been rapidly increasing in importance. The rules of Islamic banking based on principles of Sharia and money is used for medium of exchange. Also these banks aren't capable of doing certain transactions like business of alcohol, gambling, speculate in Islamic rules (Fasih, 2012). Apart from these, profit and loss sharing principle come into prominence in Islamic banking, according to profit and loss share (PLS) the relationship between lender, borrower and intermediary depend on financial trust and partnership (Yudistira, 2004). There are three basic components of Islamic financial institutions especially Islamic banking that can compete against other financial constructions. Meanwhile, these components help to improve socially and ethically responsible business practices. Business practices are indicated respectively Sharia supervision, screening, community based investment (Zaher and Hassan, 2001).

Even though, Islamic banking and economic growth nexus attract attention in academic literature there are limited studies about this. Furqani and Mulyany (2009) made first empirical study that indicated the relationship between Islamic finance and economic growth in Malaysia. In the short term while they find no causality relationship between Islamic banking and economic growth, there is an uni-directional relationship among Islamic banking and investments. When investments increase by Islamic banking, real sectors develop in Malaysia. But in long term among Islamic banking and investment is found bi-directional. While Islamic banking facilities increase, investing activities promote in productive sectors and also more investment develop Islamic banking. In the way of Islamic banking, economic growth stimulates Islamic banking intuitions but not vice versa. Therefore they support demand following hypothesis.

Abduh and Omar (2012) emphasized that the relationship between Islamic banking and economic growth is bidirectional in Indonesia. Improvement of Islamic banking promote economic growth, likewise economic growth stimulate evolution of Islamic banking. Tajgardoon et al. (2013) searched Islamic banking and economic growth nexus in selected Asian countries (Bahrain, Iran, Malaysia, United Arab Emirates, Pakistan, Kuwait, Saudi Arabia, Qatar, Iraq, Turkey, and Yemen). According to results Islamic banking and Islamic facilities effect on economic growth positively.

We aim to find economic growth and Islamic banking nexus significant and bi-directional by using determinants of banking and also evaluate components of economic growth through regions (MENA, OIC, East Asia, OECD). Furthermore to understand why the savings are low level in some of countries and try to develop saving policy. At the same time, we rendered explanatory variables (trade, current account balance, life expentancy, fertility HDI index etc) of economic growth using empirical model. While there are rare literature about Islamic finance and economic growth, other components of economic and financial development impact on economic development.

This paper organized as follows. Section II provides literature review, we explained data and proxy measures of financial development and economic growth together effect on economic growth of other variables in Section III, Section IV describes model, We analyze the empirical results in Section V, Section VI provides policy implications on financial and social development to increase economic growth, Section VII indicate conclusions.

2. Literature Review

We looked at finance and economic growth nexus in literature before we investigate the relationship Islamic banking and economic growth. First of studies Schumpeter (1912) discussed

financial intermediaries stimulate technological innovation and economic development. Also financial developments contribute the mobilization of productive savings and improve risk management by evaluating projects (King and Levin, 1993a). Goldsmith (1969) stated that the link between financial development and economic activity is positive correlation (Demirguc-Kunt and Levine, 2001). According to McKinnon (1973) and Shaw (1973), efficient financial system can promote economic growth and financial depression cause to decline investment through savings (Huang, 2010). When we looked at the contemporary theoretical and empirical studies the relationship between economic growth and finance nexus, (Greenwood and Jovonavic (1990); Bencivenga and Smith (1991); Roubini and Sala-i-Martin (1992); King and Levine (1993a); Greenwood and Smith 1997) indicated that growth and financial structure were inevitable linked and also financial repression effect on economic growth negatively. Therefore, financial markets and instutions become more efficiently than by evaluating and monitoring services. They influence either decision of investment or to mitigate transaction cost frictions and the effects of information (Hassan, Sanchez & Suk Yu, 2011). That way productivity investments impress economic growth positively.

Authors which study about finance and economy in literature, discuss direction of causality in finance and economic growth nexus by evaluating empiricial and theoritical models. Some of authors find that there is a causal direction from FD to economic growth. Development of financial systems tend to economic growth (McKinnon (1973), King and Levin (1993a), Levine, Loayza & Beck (2000), Christopoulos and Tsionas (2004). Other authors indicated that the directon is economic growth to financial development. While economy grow, demand of financial services increase and also this situation stimulate expansion in financial sector. Gurley and Shaw (1967), Goldsmith (1969) and Jung (1986) supported this opinion.

On the other hand other authors showed that, there is a bidirectional causality relationship between financial development and economic growth. Financial development and economic growth reinforce each other. Blackburn and Hung (1998) establish positive and two way causality relationship between financial development and economic growth. Also privately informed designers obtain external finance for their research projects through incentive-compatible loan products. Luintel and Khan (1999) stated that bidirectional causality between financial development and economic growth. When borrowing is limited, producers with access to financial

intermediary loans obtain higher returns to investment than other producers. This creates incentives for others to undertake the technology adoption necessary to access investment loans. Therefore costs of financial intermediation reduce and increase rate of economic growth. Patrick (1966) describes hypothesis the direction of causality between financial development and economic growth in relation to stages of economic development. In early stages of economic development, financial development stimulate growth and innovation. Resources are transferred from traditional to modern sectors of the economy and support real sector. This situation indicate the supply-leading relationships. When the real sector develops in the stage of economic growth, demand of financial services increase and result of financial expansion growth causes finance. Therefore, in this model, causality runs economic growth to financial development under the deman-following hypothesis (Banerjee and Ghosh, 2010).

Levine (2005) also stated that a strong positive link between the functioning of the financial system and long run economic growth (as well as King and Levine, 1993a 1993b). Khan and Senhadji (2000,2005) find that effective financial markets impact economic growth positively. Claessens and Laeven (2005) searched banking system competition and economic growth. They indicated that the higher competition between banks cause to grow faster in external financially dependent sectors. Demetriades and Hussein (1996) and Shan, Morris and Sun find that bi-directional causality by using time series technique in their samples. Calderon and Liu (2002) study 109 developing and industrial countries 1960-1994. Economic growth encourages financial development, as well financial development stimulates economic growth. Moreover, financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries.

One of the other important issues that are discussed in literature is Islamic finance and economic growth nexus. Although there are limited studies, Islamic finance and derivatives have received a great deal of attention from researchers. Mulyany and Furqani (2009) were first researchers to investigate as empirical model the relationship between the Islamic finance and economic growth. When they studied for Malaysia over the period (1997Q1 to 2005Q4), They have found that in the long run Islamic bank finance is positively and significantly correlated with economic growth and

capital accumulation of Malaysia. Furthermore, development of financial infrastructures contributes to real economic sectors and long run economic welfare.

Abduh and Chowdhury (2012) examined that the causal relationship among Islamic banking and economic growth for Bangladesh by using quarterly data (2004Q1 to 2011Q2). Also Abduh and Omar (2012) showed that Islamic banking and economic growth nexus for Indonesia through quarterly time series data (2003Q1 to 2010Q2). Both of them have found that the relationship is bi-directional. Improvement of Islamic banking and finance stimulates economic growth and at the same time related to economic growth, expansion of real sector can significantly influence the development of Islamic banking. Majid and Kassim (2010) examined different the direction of the relationship. According to them there is a supply-leading view among Islamic financial development and economic growth link (Abduh and Chowdhury,2012).

Farahani and Hossein (2012) with Farahani and Dastan (2013) searched that Islamic banking and economic growth nexus. As a result Islamic banking and economic growth influnce each other. In the short term and in the long term the causal direction is bi-directional. Other author, Tabash and Dhankar demonstrated that the causality between Islamic banks' financing and economic growth is bi-directional relationship and vice versa for Bahrain and Oatar. They also find that unique direction from the development financial system to economic growth, but not opposite direction in UAE. Tajgardoon et al. (2013) searched that the relationship between Islamic banking and economic growth in Asia countries over the period of 1980-2009. As a result Islamic banking and Islamic activities impact on economic growth positively. The causality direction is bidirectional either Islamic banking and economic growth or trade and economic growth nexus.

Studies are about Islamic banking and economic growth link showed that the causality direction is positive, however according to K. Johnson (2013) diffusion of Islamic banking has no significant explanatory power for GDP growth. Also she said that Islamic banks may be more beneficial to development of the financial sector in French legal origin countries.

Fixed Effects Regressions

Panel A.

	Islamic Size	Avg. Inflation	Agricultural Land	Pop. Growth	Unemp	Gov. Expend	Cell Phone	Export Value	Cap Stock	Gdp-Lag
Coefficient	0.0004	0.0002	0.0023	0.0058	-0.0038	-0.1791	0.0009	0.0416	0.1108	0.7420
t-stat	2.65***	0.37	2.89***	4.01***	-1.23	-1.47	0.18	2.84***	2.61***	14.13***

Panel B.

	Islamic Deposit	Avg. Inflation	Agricultural Land	Pop. Growth	Unemp	Gov. Expend	Cell Phone	Export Value	Cap Stock	Gdp-Lag
Coefficient	0.0004	0.0002	0.0023	0.0059	-0.0040	-0.1617	0.0005	0.0426	0.1110	0.7406
t-stat	3.54***	0.38	3.08***	4.04***	-1.27	-1.28	0.10	2.91***	2.58***	13.69***

Panel C.

	Islamic Investment	Avg. Inflation	Agricultural Land	Pop. Growth	Unemp	Gov. Expend	Cell Phone	Export Value	Cap Stock	Gdp-Lag
Coefficient	0.0003	0.0002	0.0023	0.0058	-0.0036	-0.1874	0.0006	0.0406	0.1070	0.7512
t-stat	1.84*	0.36	2.78***	3.98***	-1.19	-1.52	0.12	2.75***	2.54**	14.38***

Unit Root Tests

Augmented Dickey Fuller Unit Root Test

(Subtracting cross-sectional means)

Variables	Statistic	P-Value
Lnrealgdp	15.2793	0.9976
ΔLnrealgdp	87.4283	0.000
Islamic Dep.	27.5663	0.7744
ΔIslamic Dep.	122.9061	0.000
Islamic Inv.	30.2838	0.6504
ΔIslamic Inv.	109.5413	0.000
Islamic Size	25.5327	0.8518
ΔIslamic Size	113.8350	0.000
LnCapital Stock	25.9216	0.8383
ΔLnCapital Stock	31.4035	0.5955
Δ2Lncapitalstock	66.4767	0.000
Lnexport	32.7110	0.5307
ΔLnexport	201.6334	0.000
Unemployment	48.0661	0.0555
Inflation	165.3226	0.000

Phillips-Perron Unit Root Test

(Subtracting cross-sectional means)

Variables	Statistic	P-Value
Lnrealgdp	15.2793	0.9976
ΔLnrealgdp	110.6342	0.000
Islamic Dep.	27.5663	0.7744
ΔIslamic Dep.	122.9061	0.000
Islamic Inv.	30.2838	0.6504
ΔIslamic Inv.	109.5413	0.000
Islamic Size	25.5327	0.8518
ΔIslamic Size	113.8350	0.000
LnCapital Stock	25.9216	0.8383
ΔLnCapital Stock	31.4035	0.5955
Δ2Lncapitalstock	66.4767	0.000
Lnexport	32.7110	0.5307
ΔLnexport	201.6334	0.000
Unemployment	48.0661	0.0555
Inflation	165.3226	0.000

First-Order Panel VAR Results

Panel A: Islamic Size

	$\Delta lngdp_{j,t}$	$\Delta IslmcSize_{j,t}$	$\Delta 2CapStock_{j,t}$	$\Delta Export_{j,t}$	$Unemp_{j,t}$	$AvgInf_{j,t}$
$\Delta lngdp_{j,t-1}$	0.32097533***	-41.341942	0.05359393	1.2519464**	-2.8048019**	21.990655
[t-stat]	3.3154594	-1.0708344	0.87985038	2.3465089	-2.0374153	0.84850118
$\Delta IslmcSize_{j,t-1}$	0.00039782***	0.03104271	0.00013757	-0.00090848	0.0050155	0.06944799*
[t-stat]	2.5723283	0.35149194	0.86011452	-0.45105748	0.721292	1.7214603
$\Delta 2CapStock_{j,t-1}$	0.43216789***	28.553907	0.29740166***	0.94074188	0.09826408	18.981356
[t-stat]	3.2736509	1.2535562	2.8381075	1.2838706	0.04769858	0.55846889
$\Delta Export_{j,t-1}$	-0.05207885***	2.9556911	-0.04140153***	-0.12859761	0.1803434	-5.2302324
[t-stat]	-3.0401957	0.80013763	-3.9502442	-1.1068653	0.41388727	-1.2297805
$Unemp_{j,t-1}$	-0.00018454	-0.12865329	0.0004708	0.02933466**	0.68523525***	0.38558564
[t-stat]	-0.07286812	-0.45514008	0.26006526	1.9991112	8.5932724	0.59507779
$AvgInf_{j,t-1}$	0.00047351	-0.00738326	0.00029091	-0.00164434	-0.00432767	0.13356732
[t-stat]	1.0407993	-0.10102118	0.7525885	-0.68632693	-0.43717798	1.0014427

Panel B: Islamic Investment

	$\Delta lngdp_{j,t}$	$\Delta IslmcInv_{j,t}$	$\Delta 2CapStock_{j,t}$	$\Delta Export_{j,t}$	$Unemp_{j,t}$	$AvgInf_{j,t}$
$\Delta lngdp_{j,t-1}$	0.32165912***	-39.89447	0.04928544	1.2494595**	-2.8992299**	22.044569
[t-stat]	3.3135559	-1.0213428	0.82454292	2.3298373	-2.1407696	0.84626946
$\Delta IslmcInv_{j,t-1}$	0.00038278***	0.0260796	0.00003022	-0.00089491	0.00250981	0.06535022*
[t-stat]	2.7604469	0.28198909	0.30254954	-0.43109472	0.43528042	1.7130097
$\Delta 2CapStock_{j,t-1}$	0.43368039***	26.200346	0.30771637***	0.93928152	0.33934171	19.386409
[t-stat]	3.271632	1.1487269	2.8003074	1.2963043	0.16132037	0.57954956
$\Delta Export_{j,t-1}$	-0.05196288***	1.6489257	-0.04129601***	-0.12884913	0.18328875	-5.2090452
[t-stat]	-3.0335738	0.46883763	-3.9946493	-1.1099125	0.42072044	-1.2249907
$Unemp_{j,t-1}$	-0.00022572	-0.07606705	0.00033695	0.02940433**	0.68200433***	0.37667552
[t-stat]	-0.08829928	-0.28154199	0.17815454	2.0171072	8.5191874	0.58243826
$AvgInf_{j,t-1}$	0.00046473	0.02703823	0.00028983	-0.00162391	-0.00439406	0.13206353
[t-stat]	1.0173991	0.38037842	0.75174175	-0.68002343	-0.4427854	0.99029461

Panel C: Islamic Deposit

	$\Delta lngdp_{j,t}$	$\Delta IslmcDep_{j,t}$	$\Delta 2CapStock_{j,t}$	$\Delta Export_{j,t}$	$Unemp_{j,t}$	$AvgInf_{j,t}$
$\Delta lngdp_{j,t-1}$	0.32024231***	-35.166978	0.05930868	1.2719198**	-2.8290647**	21.499931
[t-stat]	3.3618096	-0.87943373	0.94807239	2.4021259	-2.0149814	0.84063752
$\Delta IslmcDep_{j,t-1}$	0.00047366**	0.07731905	0.00034483	-0.00052655	0.00551588	0.07168204*
[t-stat]	2.4993717	0.86411743	1.0802298	-0.27946745	0.77878152	1.7565653
$\Delta 2CapStock_{j,t-1}$	0.41230827***	40.716008	0.26834062***	0.91804466	-0.09625419	16.863434
[t-stat]	3.1164958	1.4165005	2.7225514	1.2155263	-0.04719062	0.48460251
$\Delta Export_{j,t-1}$	-0.05124867***	2.5129533	-0.04093517***	-0.12994371	0.19035851	-5.0962054
[t-stat]	-2.9835164	0.58238097	-3.8530939	-1.1246	0.43218885	-1.2070159
$Unemp_{j,t-1}$	-0.00011823	-0.36406788	0.00070612	0.02983447**	0.68553664***	0.38425123
[t-stat]	-0.04758373	-0.81264414	0.41942529	2.0328756	8.6026183	0.59430319
$AvgInf_{j,t-1}$	0.00048606	-0.05839943	0.00030061	-0.00165658	-0.00418291	0.13543278
[t-stat]	1.0909386	-0.69516051	0.81789697	-0.68697897	-0.42661886	1.0198626

Variance Decomposition

Panel A: Islamic Size

	s	AvgInf	Unemp	ΔIslmcSze	ΔExport	Δ2CapStock	Δlngdp
AvgInf	10	0.9780	0.0003	0.0072	0.0037	0.0049	0.0058
Unemp	10	0.0083	0.9562	0.0048	0.0007	0.0045	0.0255
ΔIslmcSze	10	0.0004	0.0195	0.9582	0.0001	0.0033	0.0186
ΔExport	10	0.4159	0.0120	0.0068	0.5051	0.0230	0.0372
Δ2CapStock	10	0.0241	0.0020	0.0456	0.0461	0.8772	0.0050
Δlngdp	10	0.0448	0.0151	0.0399	0.1024	0.1120	0.6859

Panel B: Islamic Investment

	s	AvgInf	Unemp	ΔIslmcInv	ΔExport	Δ2CapStock	Δlngdp
AvgInf	10	0.9793	0.0004	0.0056	0.0038	0.0051	0.0058
Unemp	10	0.0078	0.9604	0.0019	0.0006	0.0040	0.0253
ΔIslmcInv	10	0.0011	0.0169	0.9602	0.0005	0.0030	0.0183
ΔExport	10	0.4156	0.0124	0.0061	0.5055	0.0236	0.0367
Δ2CapStock	10	0.0246	0.0023	0.0341	0.0474	0.8874	0.0041
Δlngdp	10	0.0455	0.0144	0.0395	0.1025	0.1155	0.6826

Panel C: Islamic Deposit

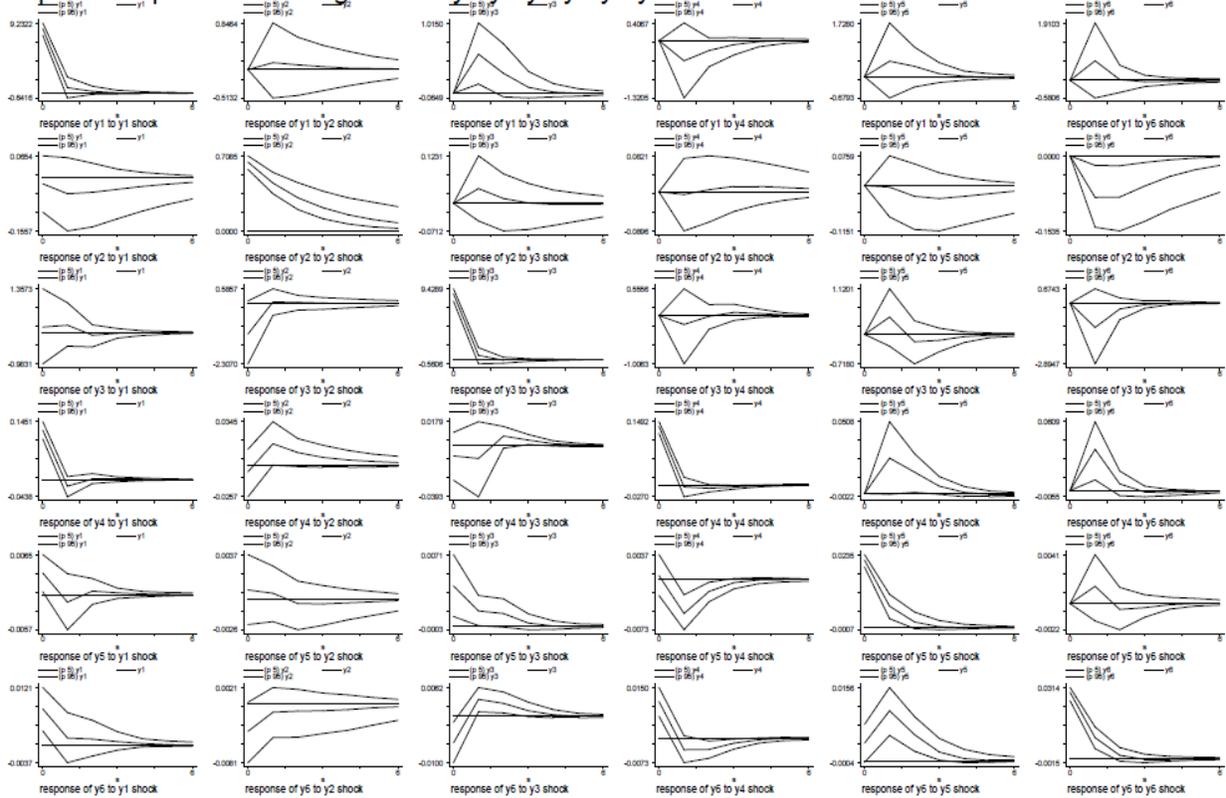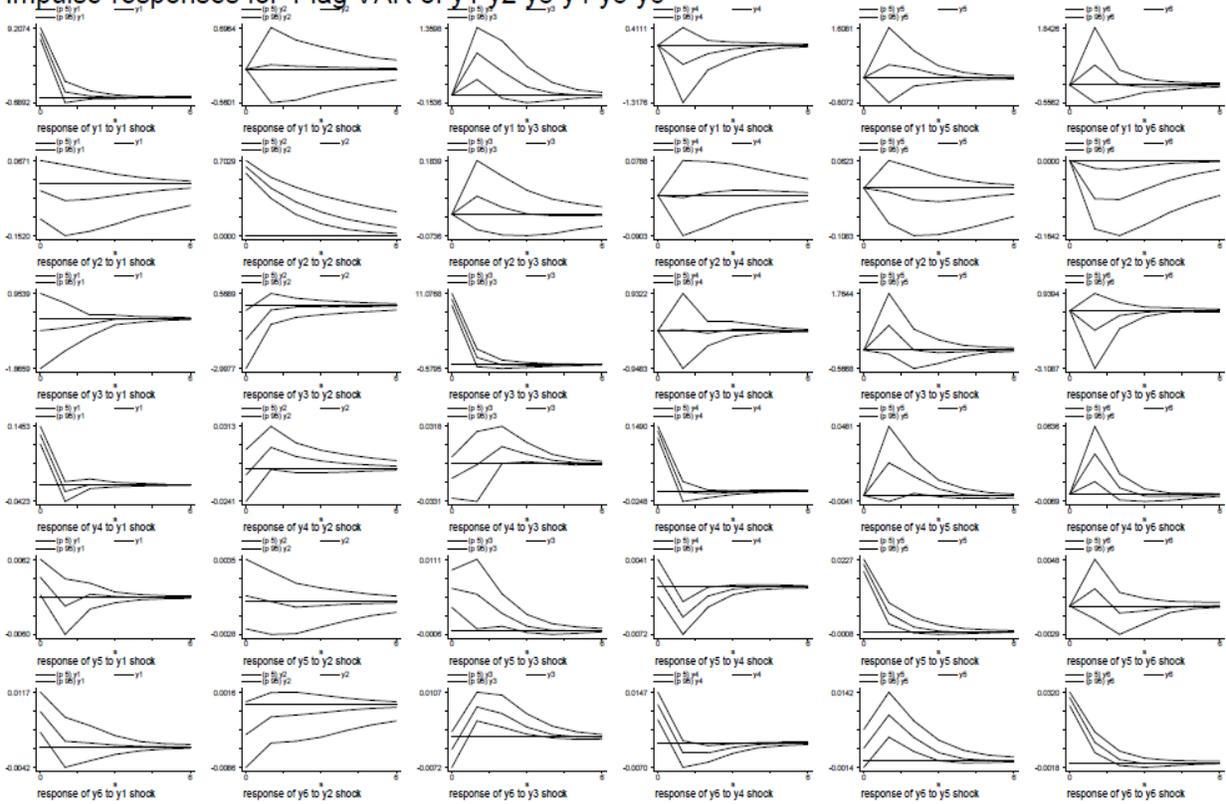|	s	AvgInf	Unemp	ΔIslmcDep	ΔExport	Δ2CapStock	Δlngdp
AvgInf	10	0.9743	0.0001	0.0132	0.0032	0.0036	0.0056
Unemp	10	0.0090	0.9554	0.0052	0.0006	0.0038	0.0260
ΔIslmcDep	10	0.0031	0.0242	0.9567	0.0001	0.0054	0.0105
ΔExport	10	0.4169	0.0109	0.0118	0.5030	0.0187	0.0386
Δ2CapStock	10	0.0212	0.0012	0.1363	0.0419	0.7929	0.0064
Δlngdp	10	0.0418	0.0180	0.0701	0.0999	0.0873	0.6829

Impulse Response Functions

Impulse-responses for 1 lag VAR of y1 y2 y3 y4 y5 y6

Errors are 5% on each side generated by Monte-Carlo with 1000 reps

Impulse-responses for 1 lag VAR of y1 y2 y3 y4 y5 y6

Errors are 5% on each side generated by Monte-Carlo with 1000 reps

Impulse-responses for 1 lag VAR of y1 y2 y3 y4 y5 y6

Errors are 5% on each side generated by Monte-Carlo with 1000 reps