

Industries without Smokestacks in Uganda and Rwanda

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Main findings

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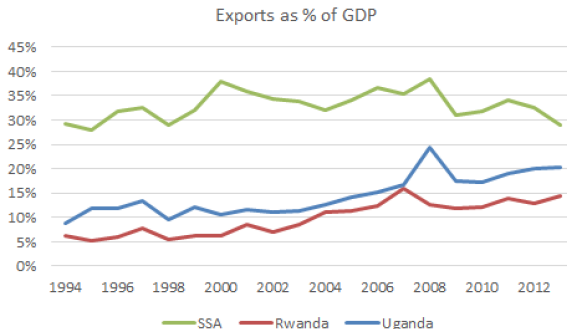
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- ① Openness to trade is vital for the performance of the economy
- ② Overlooked 'industries without smokestacks' are already successful
- ③ IWS can connect economy and drive output growth

Outline

- 1 Context
- 2 Descriptive Section: High productivity industries and exports
- 3 Analytical Section: Interconnections and growth
- 4 Conclusions and Policy Recommendations

What has driven Uganda and Rwandan export growth?



- Exports have grown from 5 to 15% of GDP in RWA and 12 to 20% in UGA over last 20 years
- Services make up more than 40% of exports, according to WDI data
- What are the characteristics of firms which have driven this growth?

Variation in productivity within and across sectors



Figure: Histograms of output/worker across industries in Uganda, logarithmic scale of USD, 2009-2015

Table: Ranking of top 30 Ugandan industries by labor productivity, at ISIC level

	ISIC	Industry	# of Comp.	Av. Wage	# of Workers	Av. Output	%is exp.	%EAC exp.	%OECD exp.	%supply exp.	Export/ Import
1	Marine aquaculture	Agriculture	3	64	103	1,570,713	0.67	0.33	0.67	0.00	10.93
2	Manufacture of cement, lime and plaster	Manufacturing	4	49	80	7,129,316	0.50	0.50	0.50	0.75	0.01
3	Manufacture of fertilizers and nitrogen	Manufacturing	1	334	12	487,294	1.00	0.00	0.00	1.00	0.01
4	Other telecommunications activities	Services	13	315	6	52,651	0.00	0.00	0.00	0.00	.
5	Wholesale of solid, liquid and gaseous fuels	Services	106	252	23	565,767	0.08	0.05	0.03	0.31	0.01
6	Post-harvest crop activities	Agriculture	15	133	22	130,088	0.60	0.60	0.53	0.40	6.01
7	Activities of holding companies	Services	2	284	2	79,134	0.00	0.00	0.00	0.00	.
8	Marine fishing	Agriculture	15	172	24	451,096	0.27	0.20	0.20	0.00	35.60
9	Manufacture of malt liquors and malt	Manufacturing	12	73	52	2,223,659	0.42	0.25	0.17	0.17	0.14
10	Wholesale on a fee or contract basis	Services	67	118	29	233,772	0.09	0.04	0.01	0.19	0.45
11	Wholesale of waste and scrap etc	Services	54	213	12	84,916	0.13	0.09	0.02	0.35	0.37
12	Retail sale of beverages	Services	44	158	21	154,863	0.05	0.00	0.02	0.25	1.18
13	Medical and dental practice activities	Services	81	83	19	218,558	0.04	0.04	0.00	0.05	0.39
14	Retail sale of automotive fuel	Services	158	108	22	277,667	0.05	0.03	0.02	0.21	0.02
15	Manufacture of tanks, reservoirs etc	Manufacturing	3	143	13	246,699	0.67	0.67	0.00	0.67	0.03
16	Retail sale of hardware, paints and glass	Services	531	172	5	30,909	0.07	0.02	0.01	0.17	0.63
17	Manufacture of pharmaceuticals	Manufacturing	10	100	65	558,610	0.60	0.50	0.00	0.50	0.09
18	Passenger air transport	Services	21	228	19	388,441	0.33	0.14	0.19	0.24	0.16
19	Manufacture of veg and animal oils and fats	Manufacturing	25	103	60	1150981	0.32	0.32	0.16	0.24	0.18
20	Manufacture of refined petrol. products	Manufacturing	8	193	29	281,205	0.38	0.38	0.00	0.50	0.04
21	Extraction of natural gas	Mining	7	265	50	155,324	0.29	0.14	0.29	0.43	0.03
22	Electric power generation, transm. and dist.	Services	147	219	23	253,193	0.09	0.03	0.04	0.24	0.09
23	Tanning and dressing of leather and fur	Manufacturing	9	119	39	473,625	0.67	0.44	0.56	0.56	3.73
24	Manufacture of pumps, compressors etc	Manufacturing	1	608	1	22,678	0.00	0.00	0.00	1.00	.
25	Wholesale of construction materials	Services	448	176	10	62,497	0.11	0.05	0.00	0.31	1.04
26	Wireless telecommunications activities	Services	8	183	48	559,512	0.13	0.13	0.00	0.38	0.76
27	Wholesale of food, beverages and tobacco	Services	493	137	15	67,611	0.09	0.03	0.03	0.14	5.06
28	Retail sale of second-hand goods	Services	137	159	5	59,815	0.06	0.01	0.00	0.02	0.34
29	Other specialized construction activities	Services	45	316	26	25,004	0.02	0.02	0.00	0.18	0.00
30	Sale of motor vehicles	Services	827	201	7	36,947	0.03	0.01	0.00	0.05	0.55
Mean across all ISIC industries			88	182	17	34,813	0.04	0.02	0.01	0.05	3.89

Three characteristics identify successful firms in Uganda

Rank	Industry (n)	Output	# employees	% exporters	% supply exp	imp/out
1	Marine aquaculture (3)	1,570,713	103	67	0	0.04
6	Post harvest crop activity (15)	130,088	22	60	40	0.08
17	Manufacture of pharma (10)	558,610	65	60	50	0.72
23	Tanning of leather (9)	473,625	39	67	56	0.2
Economy average		34,813	17	4	5	0.44

How do successful industries differ?

- Economies of scale
- Connection to external sector
- Importance of imports

Which products have seen largest export growth?

5 year- Export Growth Rank	SITC product group	# of firms	Product survival - years	Firm survival - years	Monthly Output in mUSD	# of emp	Out/ Worker Rank
1	Leather products	13	2.37	4.15	0.49	38	7
5	Vegetables and fruits	192	0.72	3.19	0.35	38	21
8	Processed Feedstuff for animals	42	1.82	4.88	1.14	67	4
10	Processed Animal and vegetable oils/fats	10	2.2	7.1	1.59	96	5
19	Cereals and cereal preparations	159	0.78	3.18	0.4	52	17
	Economy average	44	1.17	4.3	0.58	70	

How high-growth export products differ?

- high value-addition, high-productivity;
- traditional low value-addition

Industry-to-industry connections and growth

Three questions:

- What are the most important industries to the Ugandan economy?

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- What are the most important industries to the Ugandan economy?
- What role does international trade play in these industries?
- How does output growth in connected industries relate to performance in the wider economy?

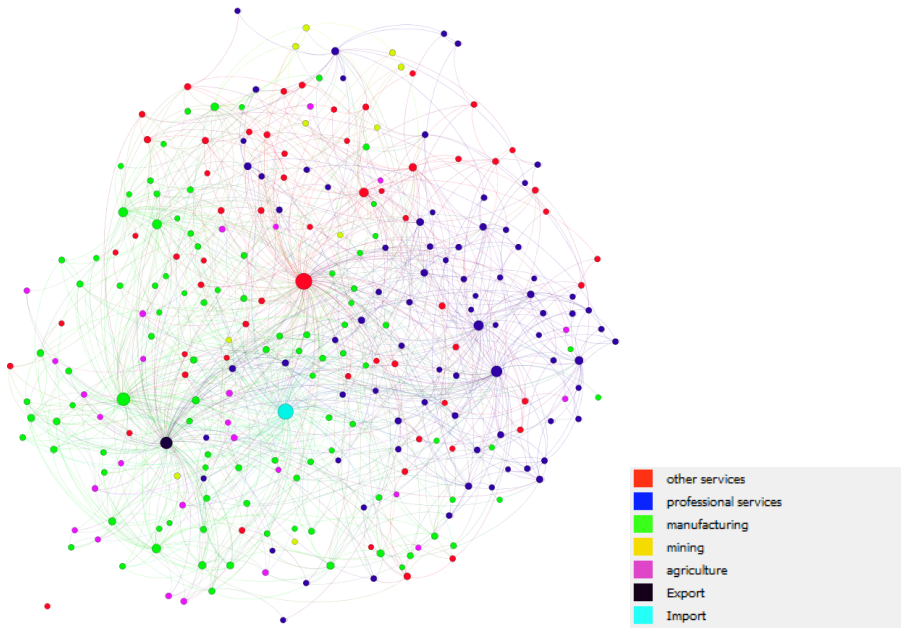


Figure: Network map industries in Uganda. Nodes scaled by number of connected sectors.

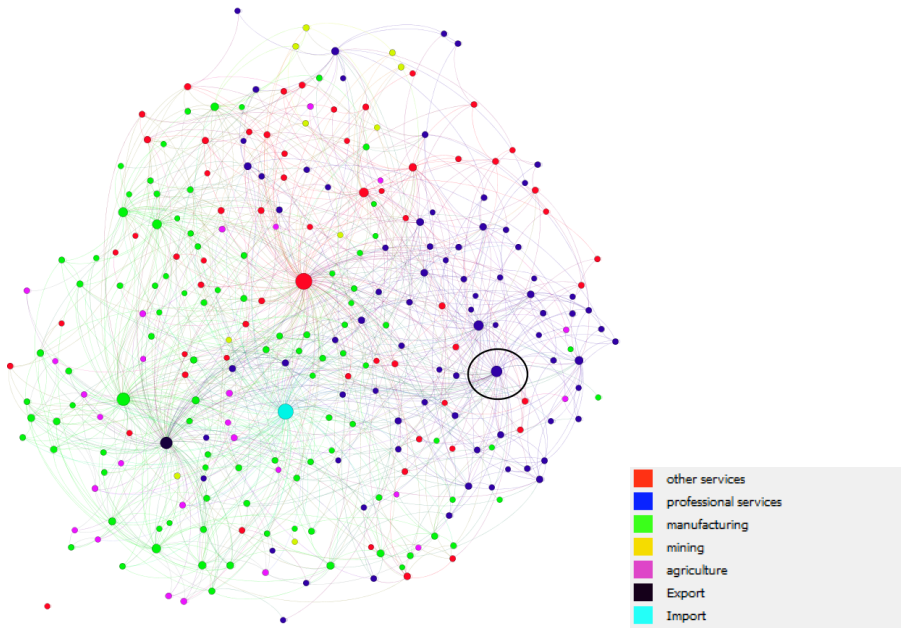


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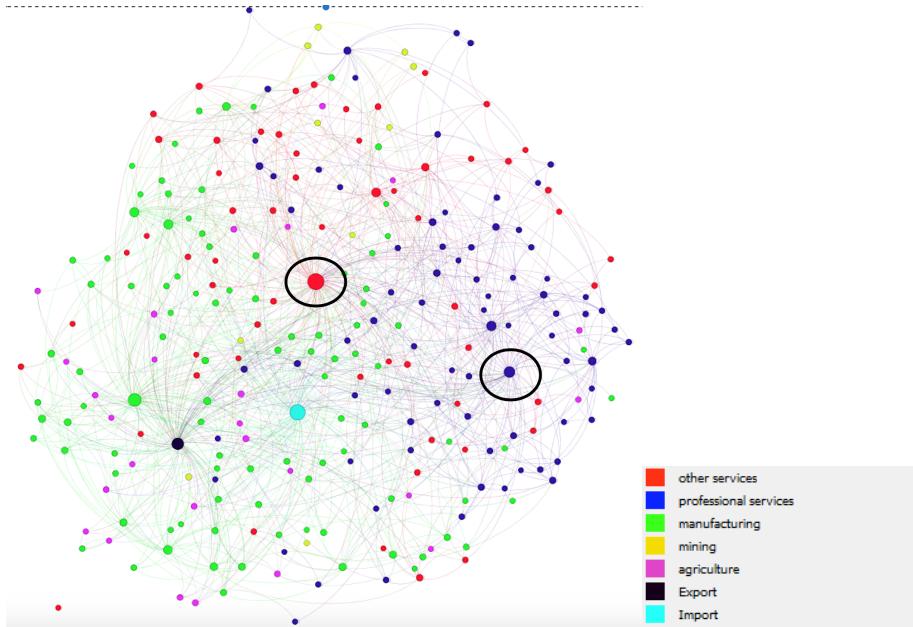


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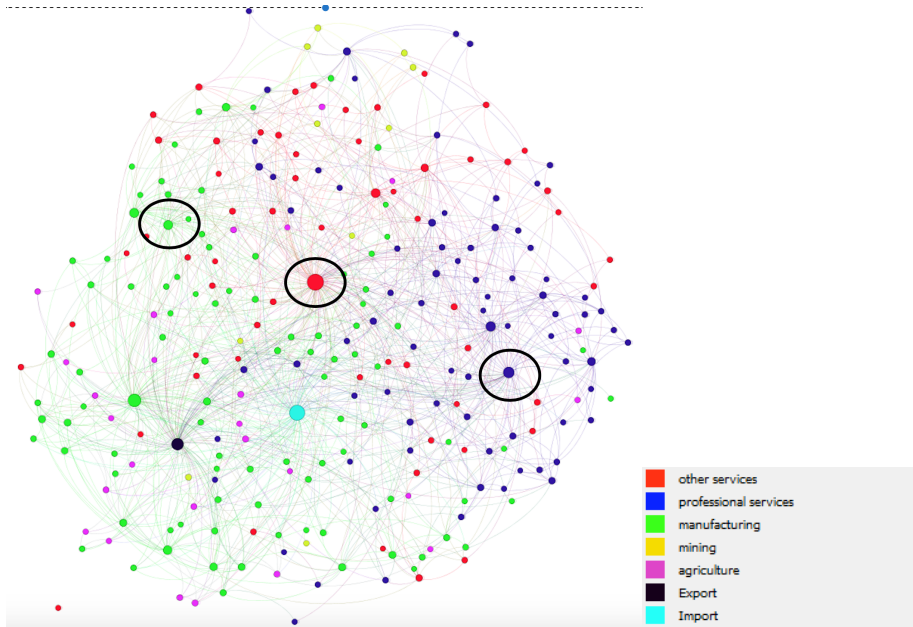


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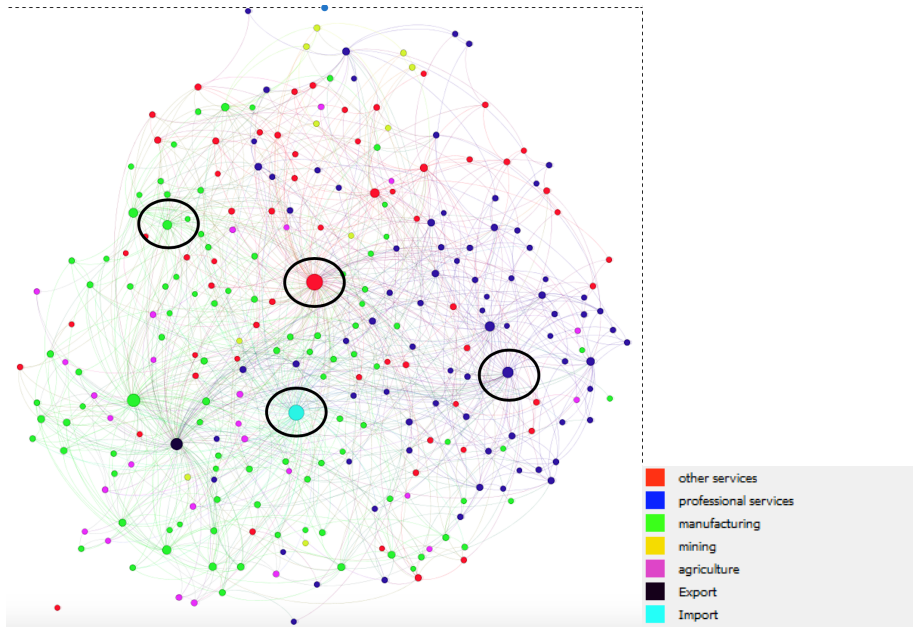


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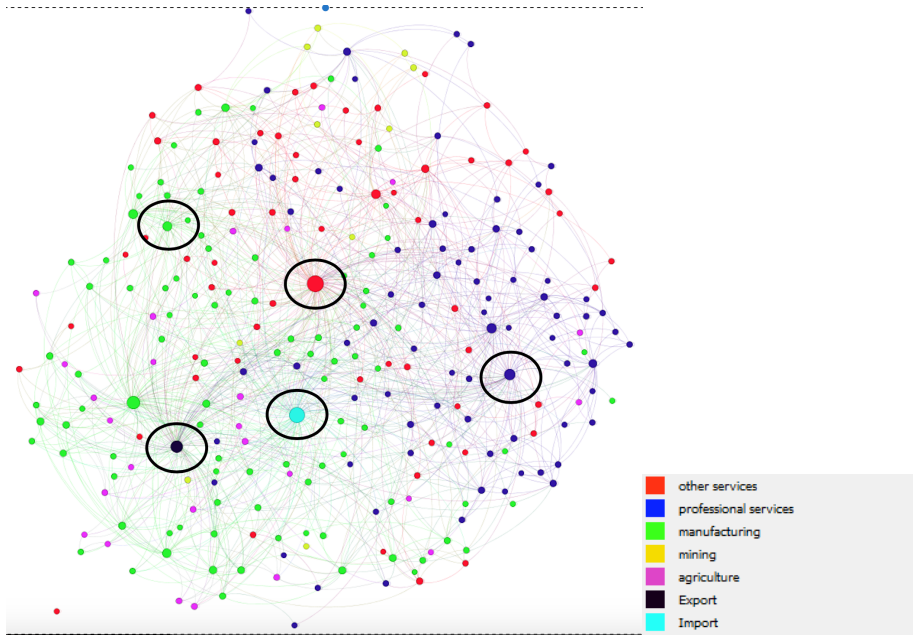


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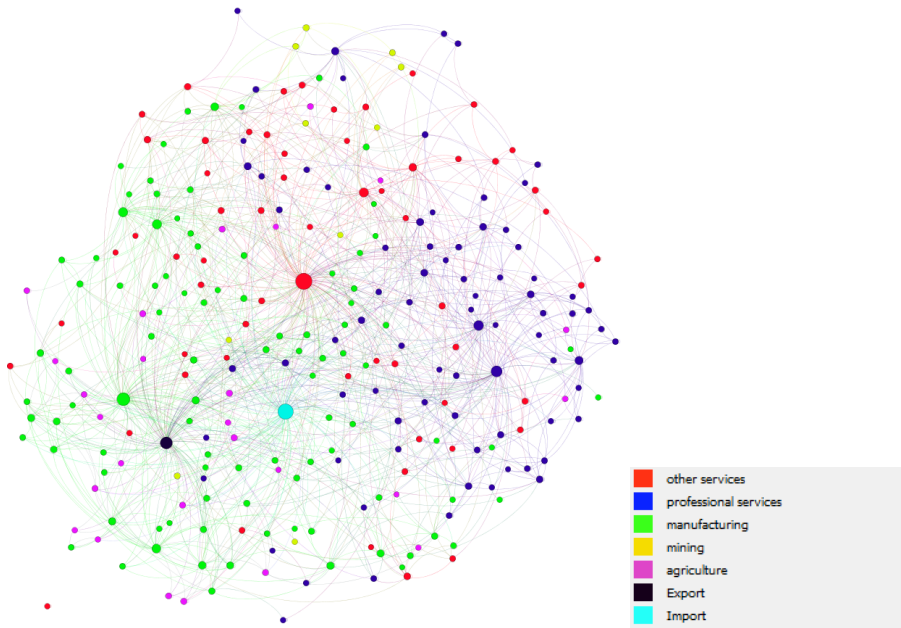


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Industries which are most interconnected in services and manufacturing

Rank	Industry
1	Construction of buildings
2	Manufacture of plastic products
3	Real estate activities with own or leased property
4	Wired telecommunications activities
5	Manufacture of other fabricated metal products
6	Cargo Handling
7	Manufacture of corrugated paper and paperboard and of containers of paper and paper board
8	Manufacture of basic iron and steel
9	Accounting, bookkeeping and auditing activities
10	Short term accommodation activities

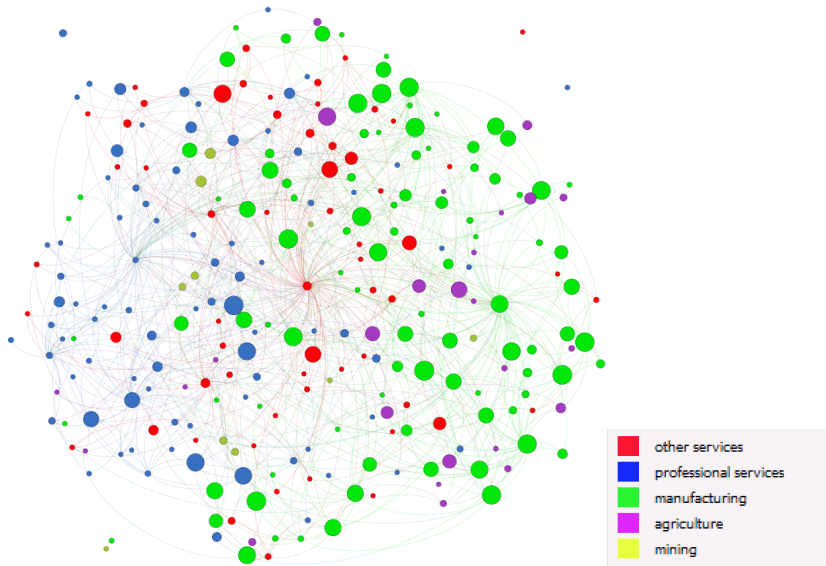


Figure: Network map industries in Uganda. Nodes scaled by % imported inputs. Figure shows Imports most important in the manufacturing sector

Output growth in top ten most interconnected sectors drives performance in the rest of the economy

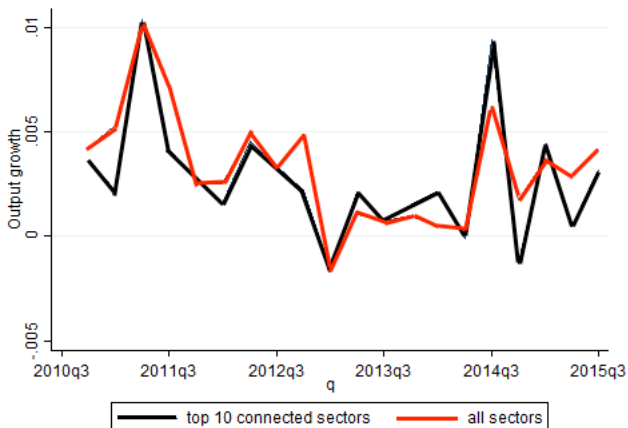


Figure: Output Growth top 10 and mid 10 most interconnected sectors and all sectors

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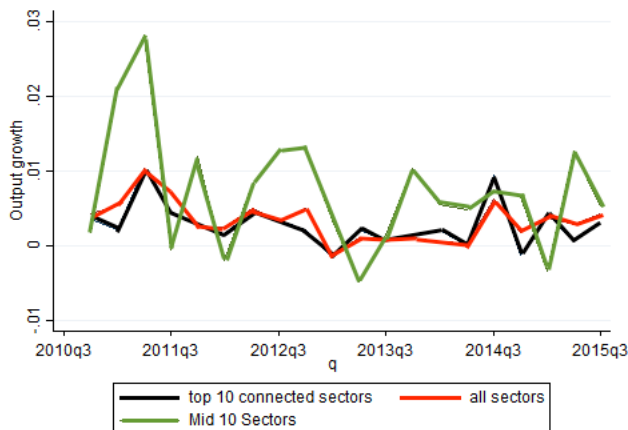


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- ④ Future research?
 - Trade costs, exporting and supply chains
 - Buyer-to-Seller search and matching