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Sectoral Linkages and Key Sectors of the Georgian Economy

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Abstract: ***Since 2003 Georgia has implemented many successful reforms, however economic growth, poverty alleviation and unemployment reduction are still major challenges facing country's economy. This is due to that fact that most reforms during the past 2 decades were mainly geared toward improving the institutional environment, while economy's sectoral composition and industrial policy were largely ignored. Each individual sector plays its own specific role in the functioning of the whole economy that cannot be accomplished by any other sector. However, given the unavoidable reality that one sector uses intermediate inputs from other industries to produce its output, and sells part of its output to other sectors, the importance of sectors should consider these sectoral interdependencies as well. Simply put, not all industries are equally useful for economic growth and development. In this context, the aim of this paper it to identify the key economic sectors of the Georgian economy. Leontief input - output analysis have been used in the deriving backward and forward linkages for all sectors in the Georgian economy for 2020 and 2021. Sectors with both high backward and forward linkages have been identified as key sectors of the economy. The results obtained are beneficial for success of the economic and industrial policy of Georgia. If targeted properly by a thoughtful policy intervention, key sectors identified in this paper will have a high potential of spreading growth impulses throughout the economy and will possibly generate higher economic growth.***

Keywords: Structural Change; Key Sectors; Development Strategies; Input - Output Analysis

1. Introduction

The framework for input - output analysis was created by Wassily Leontief in the beginning of the 20th century and its major goal is to consider the linkages between different economic sectors during the production process [1]. In the original 1936 study, Leontief provided a thorough description of the IO methodology, which he later applied to the structure of the American economy. The main applications of IO analysis have Later been discussed by Leontief [2], Schnabel [3], Thijs ten Raa [4], Eurostat [5], Miller and Blair [6], Murray and Lenzen [7], and by the United Nations [8], among many others.

According to the model, a given industry's (sector's) production has two different types of economic effects on other areas of the economy. The first relates to the relationship between the industry and its suppliers. If an industry A expands its output, it places more demands on the other sectors whose products it uses as inputs to manufacture its products. This effect is known as a Backward Linkage and demonstrates the direction of causality in the typical demand - side model. The second refers to the relationship between an industry and its customers. As a result of industry A's higher output, more of its goods will be accessible to be used as inputs by other industries for their own production, which will result in increased supply from industry A for the industries that use its products. This type of interconnectedness is referred to as Forward Linkage, and it demonstrates the direction of causation in the supply - side model. One way for determining "key" or "leading" sectors in an economy is to compare the strengths of backward and forward connections for the various industries within that economy.

The major goal of this research paper is to examine the backward and forward linkages that make up the Georgian economy's production structure based on the input - output analysis and to identify the "key" or "leading" sectors in the Georgian economy. The results of the research will be of the paper will be of particular importance for shaping Georgia's industrial and economic policy. The data used in the research came from Georgian National Bureau of Statistics, Input - Output Tables (GeoStat) [9].

2. Methodology and Data

The basic Leontief model analysis presented in our methodology follows the instructions detailed by Miller and Blair, the UN Handbook, and the Eurostat Manual of Supply, Use and Input - Output Tables.

In the input–output model, the total output of an industry is equal to the sum of inter-industry demands and the final demand by the ultimate consumers of its goods and services. The total output x_i of an industry *i* is expressed as follows: $x_i = z_{i1} + z_{i2} + ... + z_{ij} + ... + z_{in} + y_i$, i=1,2,...,n(1), where x_i is the total output of industry *i*, z_{ij} is the intermediate demand of the products or services of industry *i*by industry j (i.e. the flow from industry *i* to industry j), y_i is the final demand of the products or the services of industry *i*. The ratio of the intermediate inter-industry demand z_{ij} to the total output of industry j is called a technical coefficient (direct requirement coefficient) and is denoted as: $Aij = \frac{Zij}{Xj}$(2).

After substituting (2) in (1), the total output of the industry *i* is: $x_i = a_{i1}x_1 + a_{i2}x_2 + ... + a_{ij}x_j + ... + a_{in}x_n + y_i$,i=1,...,n.In matrix notation the total output of the economy is given by:

X = AX +Y , (3) where X is the column vector of industrial outputs, A is the square matrix of technical coefficients (direct requirement matrix), Y is the column vector of industrial final demands.

After rearrangement, the Leontief model is as follows: Y=(I–A)X or Y=LX (4), where the matrix L=I–A is called the Leontief matrix. If $|I - A| \neq 0$, then the equation (4) can be written as: $X=L^{-1} Y$ (5). Matrix L^{-1} is known as the Leontief inverse or the total requirements matrix. Its *i*, *j*-th element represents the sensitivity of the i-th sector total output to the 1-unit change of *j*-th sector final demand. In other words, matrix L^{-1} translate final demand changes into total output changes, encompassing direct and indirect effects, which are the sense of the multipliers.

In its simplest form backward and forward linkages can be derived from the direct requirement matrix A. The sum of the elements in the *j*-th column of the matrix A is a measure of the strength of the backward linkage of sector *j*, showing the amount by which sector j production depends on the inputs from other industries. On the other hand, the sum of the elements in the *i*-th row of the matrix A is a measure of the strength of the forward linkage of sector *i*, showing the amount by which sector *i* production is used by other industries. Since the coefficients in A capture the direct effects only, these measures are called direct backward and direct forward linkages. To encompass both direct and indirect effects, the Leontief inverse matrix (the total requirements matrix) is used.

Column sums of the Leontief inverse matrix are proposed as a total backward linkage measures. These measures are also known as output multipliers. The sector with the biggest backward linkage is important, because the increase in final demand of its goods by 1 unit will result in the biggest increase in total output of the economy. The most backward - linked industries provide the biggest demand - pull effects on the economy.

Similarly, row sums of the Leontief inverse matrix are proposed as a total forward linkage measure. These measures are known as well as input multipliers. The sector with the biggest forward linkage is important, because if the final demand of all industries' goods increases by 1 unit, it will be needed (or will result in) the biggest increase in total output of this sector. So, the most forward - linked industries provide the biggest supply - push effects on the economy.

3. Results of the Research

The multipliers and the backward and forward linkages will be derived using a 20x20 sectoral disaggregation level from an Input - Output Table for the Georgian economy in 2020 and 2021, provided by GeoStatand will cover the following sectors:

a) Agriculture, Forestry and Fishing
b) Mining And Quarrying
c) Manufacturing
d) Electricity, Gas, Steam and Air Conditioning Supply
e) Water Supply; Sewerage, Waste Management
f) Construction
g) Wholesale &Retail; Repair ofVehicles &Motorcycles
h) Transportation and Storage
i) Accommodation And Food Service Activities
j) Information And Communication
k) Financial And Insurance Activities
l) Real Estate Activities
m) Professional, Scientific and Technical Activities
n) Administrative And Support Service Activities
o) Public Administration and Defense; Social Security
p) Education
q) Human Health Activities
r) Arts, Entertainment and Recreation
s) Other Service Activities
t) Activities Of Households as Employers of Domestic Personnel and Undifferentiated Goods and Services Production of Households for Own Use

Firstly, matrix of technical coefficients or direct requirement matrix has been constructed, based on the Input-Output tables provided by GeoStat for 2020, which is displayed on the Fig. I. Secondly Leontief matrix$(I - A)$ and Leontief inverse$(I - A)^{-1}$ (or total requirements matrix) were constructed, which are displayed in the Fig. II and Fig. III. Same methodology was used to analyze sectoral independencies for the year of 2021.

Sector	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
A	0,15	-	0,11	0,00	0,00	0,00	0,00	0,00	0,03	0,00	0,00	0,00	0,00	0,00	-	0,00	0,00	0,00	0,00	-
B	0,00	0,03	0,01	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-
C	0,04	0,07	0,12	0,02	0,06	0,11	0,04	0,07	0,10	0,02	0,01	0,01	0,03	0,02	0,05	0,02	0,08	0,04	0,05	-
D	0,00	0,03	0,03	0,07	0,04	0,00	0,01	0,02	0,03	0,01	0,01	0,01	0,00	0,00	0,01	0,01	0,02	0,01	0,02	-
E	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,01	-
F	0,00	0,00	0,01	0,02	0,02	0,16	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,00	0,01	0,01	0,01	0,01	-
G	0,03	0,06	0,08	0,02	0,04	0,06	0,04	0,06	0,05	0,01	0,01	0,01	0,02	0,02	0,03	0,01	0,04	0,02	0,03	-
H	0,03	0,03	0,03	0,01	0,01	0,02	0,05	0,10	0,02	0,01	0,01	0,00	0,01	0,03	0,01	0,01	0,01	0,03	0,02	-
I	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,00	0,02	0,00	0,01	0,03	0,03	0,02	0,01	0,02	0,04	-
J	0,00	0,00	0,00	0,02	0,00	0,01	0,00	0,00	0,00	0,09	0,03	0,00	0,01	0,00	0,01	0,01	0,00	0,01	0,01	-
K	0,03	0,02	0,02	0,03	0,02	0,02	0,02	0,02	0,01	0,02	0,01	0,06	0,02	0,03	0,01	0,01	0,02	0,02	0,01	-
L	0,00	0,00	0,01	0,00	0,00	0,00	0,05	0,03	0,03	0,03	0,08	0,02	0,03	0,10	0,03	0,00	0,02	0,02	0,10	-
M	0,00	0,00	0,01	0,04	0,00	0,01	0,01	0,01	0,01	0,01	0,04	0,01	0,12	0,01	0,00	0,00	0,01	0,02	0,01	-
N	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,00	0,01	0,01	0,00	0,00	0,00	0,01	0,00	-
O	-	-	0,00	0,00	-	0,00	0,00	0,00	0,00	0,00	0,00	-	0,00	0,01	0,00	0,00	0,00	0,00	0,00	-
P	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	-
Q	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,09	0,00	0,00	-
R	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,12	0,00	-
S	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	-
T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Figure I: Direct Requirement Matrix A

Sector	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
A	0,85	-	(0,11)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,03)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	-	(0,00)	(0,00)	(0,00)	(0,00)	-
B	(0,00)	0,97	(0,01)	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	-
C	(0,04)	(0,07)	0,88	(0,02)	(0,06)	(0,11)	(0,04)	(0,07)	(0,10)	(0,02)	(0,01)	(0,01)	(0,03)	(0,02)	(0,05)	(0,02)	(0,08)	(0,04)	(0,05)	-
D	(0,00)	(0,03)	(0,03)	0,93	(0,04)	(0,00)	(0,01)	(0,02)	(0,03)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,01)	(0,01)	(0,02)	(0,01)	(0,02)	-
E	(0,00)	(0,00)	(0,00)	(0,00)	0,99	(0,00)	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	(0,01)	-
F	(0,00)	(0,00)	(0,01)	(0,02)	(0,02)	0,84	(0,01)	(0,01)	(0,02)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	-
G	(0,03)	(0,06)	(0,08)	(0,02)	(0,04)	(0,06)	0,96	(0,06)	(0,05)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,01)	(0,04)	(0,02)	(0,03)	-
H	(0,03)	(0,03)	(0,03)	(0,01)	(0,01)	(0,02)	(0,05)	0,90	(0,02)	(0,01)	(0,01)	(0,00)	(0,01)	(0,03)	(0,01)	(0,01)	(0,01)	(0,03)	(0,02)	-
I	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	0,99	(0,00)	(0,02)	(0,00)	(0,01)	(0,03)	(0,03)	(0,02)	(0,01)	(0,02)	(0,04)	-
J	(0,00)	(0,00)	(0,00)	(0,02)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	0,91	(0,03)	(0,00)	(0,01)	(0,00)	(0,01)	(0,01)	(0,00)	(0,01)	(0,01)	-
K	(0,03)	(0,02)	(0,02)	(0,03)	(0,02)	(0,02)	(0,02)	(0,02)	(0,01)	(0,02)	0,99	(0,06)	(0,02)	(0,03)	(0,01)	(0,01)	(0,02)	(0,02)	(0,01)	-
L	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	(0,05)	(0,03)	(0,03)	(0,03)	(0,08)	0,98	(0,03)	(0,10)	(0,03)	(0,00)	(0,02)	(0,02)	(0,10)	-
M	(0,00)	(0,00)	(0,01)	(0,04)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,04)	(0,01)	0,88	(0,01)	(0,00)	(0,00)	(0,01)	(0,02)	(0,01)	-
N	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,00)	(0,01)	0,99	(0,00)	(0,00)	(0,00)	(0,01)	(0,00)	-
O	-	-	(0,00)	(0,00)	-	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	-	(0,00)	(0,01)	1,00	(0,00)	(0,00)	(0,00)	(0,00)	-
P	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	1,00	(0,01)	(0,00)	(0,00)	-
Q	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	0,91	(0,00)	(0,00)	-
R	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	0,88	(0,00)	-
S	(0,00)	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	0,99	-
T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,00

Figure II: Leontief Matrix $(I - A)$

Sector	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
A	1,18	0,01	0,15	0,00	0,01	0,02	0,01	0,01	0,05	0,01	0,00	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,01	-
B	0,00	1,03	0,02	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-
C	0,06	0,10	1,15	0,03	0,08	0,16	0,05	0,09	0,12	0,04	0,02	0,02	0,05	0,04	0,06	0,03	0,11	0,06	0,08	-
D	0,01	0,04	0,04	1,08	0,05	0,01	0,02	0,02	0,04	0,02	0,01	0,01	0,01	0,01	0,02	0,01	0,03	0,02	0,03	-
E	0,00	0,00	0,00	0,00	1,01	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,01	-
F	0,00	0,01	0,01	0,02	0,03	1,19	0,01	0,01	0,03	0,02	0,01	0,02	0,02	0,01	0,01	0,02	0,02	0,01	0,01	-
G	0,05	0,08	0,11	0,03	0,06	0,10	1,06	0,08	0,08	0,02	0,02	0,01	0,03	0,03	0,05	0,02	0,07	0,04	0,05	-
H	0,04	0,04	0,05	0,02	0,02	0,04	0,06	1,12	0,03	0,01	0,02	0,01	0,02	0,04	0,02	0,01	0,02	0,05	0,03	-
I	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,02	1,01	0,01	0,02	0,00	0,01	0,03	0,03	0,02	0,01	0,03	0,04	-
J	0,00	0,00	0,00	0,02	0,00	0,01	0,01	0,00	0,01	1,11	0,03	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	-
K	0,04	0,03	0,04	0,04	0,03	0,04	0,03	0,03	0,03	0,03	1,01	0,06	0,03	0,04	0,01	0,01	0,03	0,03	0,02	-
L	0,01	0,01	0,02	0,01	0,01	0,02	0,06	0,04	0,04	0,04	0,08	1,03	0,04	0,11	0,04	0,01	0,03	0,03	0,12	-
M	0,01	0,01	0,02	0,05	0,01	0,02	0,02	0,01	0,01	0,02	0,05	0,01	1,13	0,01	0,01	0,01	0,01	0,03	0,01	-
N	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,00	0,01	1,01	0,01	0,00	0,00	0,01	0,00	-
O	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	1,00	0,00	0,00	0,00	0,00	-
P	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,00	0,01	0,00	0,00	-
Q	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,10	0,00	0,00	-
R	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	1,14	0,00	-
S	0,00	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,01	-
T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,00

Figure III: Leontief Inverse $(I - A)^{-1}$

The final results of our research are presented in the Table I and Table II, where backward and forward linkages of all20 sectors in the Georgian economy are listed for the years of 2020 and 2021. Column sums of the Leontief inverse matrix are proposed as a backward linkagemeasures. These measures are also known as output multipliers. For sector *j* it is given by:

$$BL_{\mathrm{j}} = \sum_{i=1}^{n} l_{ij}$$

where $l_{ij}$is *i,j* element of the Leontief inverse matrix. Similarly, row sums of the Leontief inverse matrix are proposed as a forward linkage measure. These measures are known as well as input multipliers. For sector *i* it is:

$$FL_{\mathrm{j}} = \sum_{j=1}^{n} l_{ij}$$

Table I: Backward and Forward Linkages, 2020

Sector	Backward Linkage	Forward Linkage
A	1, 41	1, 62
B	1, 38	1, 07
C	1, 64	2, 34
D	1, 41	1, 47
E	1, 36	1, 06
F	1, 66	1, 47
G	1, 33	1, 93
H	1, 46	1, 63
I	1, 49	1, 28
J	1, 38	1, 43
K	1, 32	1, 58
L	1, 17	1, 81
M	1, 36	1, 48
N	1, 45	1, 14
O	1, 28	1, 01
P	1, 15	1, 03
Q	1, 49	1, 11
R	1, 51	1, 18
S	1, 48	1, 07
T	1, 00	1, 00

Table II: Backward and Forward Linkages, 2021

Sector	Backward Linkage	Forward Linkage
A	1, 40	1, 54
B	1, 38	1, 08
C	1, 64	2, 36

D	1, 32	1, 49
E	1, 32	1, 06
F	1, 63	1, 46
G	1, 33	1, 97
H	1, 45	1, 64
I	1, 48	1, 26
J	1, 36	1, 29
K	1, 31	1, 58
L	1, 18	1, 74
M	1, 39	1, 46
N	1, 37	1, 11
O	1, 30	1, 02
P	1, 17	1, 02
Q	1, 47	1, 12
R	1, 49	1, 17
S	1, 44	1, 05
T	1, 00	1, 00

Fig. IV and Fig. V shows the dispersion of the industries according to linkage measures values, respectively for the years of 2020 and 2021. It allows to identify the key industries, as well as some important backward - linked and forward - linked industries in the economy.

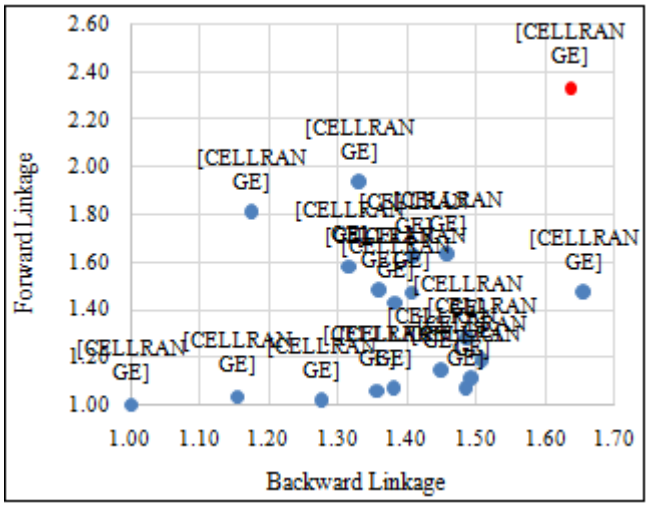

Figure IV: Key Sectors in the Georgian Economy, 2020

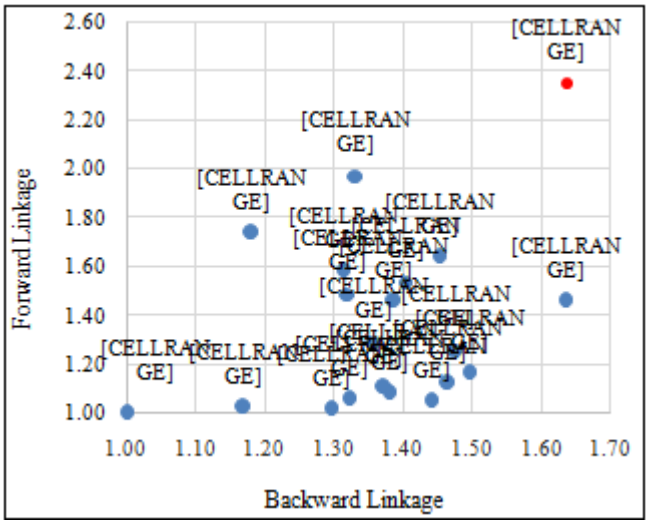

Figure V: Key Sectors in the Georgian Economy, 2021

It is identified that the industry C (Manufacturing) is the "key" or "leading" (with highest backward and forward linkage) in Georgia's economy both in 2020 and in 2021. This finding is of particular importance because manufacturing industry still remains underdeveloped in Georgia [10] and the country is in a need for a structural transformation from low to high - productivity sectors, like manufacturing [11]. Therefore, if manufacturing sector is developed through comprehensive industrial policy intervention, this industry will have a high potential of spreading growth impulses throughout the economy and will possibly generate higher economic growth.

Our analysis also showed that in 2021, the 5 most backward - linked industries were F (Construction), C (Manufacturing), R (Arts, Entertainment and Recreation), I (Accommodation and Food Service Activities) and Q (Human Health Activities), therefore they have most demand - pull effects on the economy. On the other hand, most forward - linked industries were C (Manufacturing), G (Wholesale & Retail; Repair of Vehicles & Motorcycles), L (Real Estate Activities), H (Transportation and Storage) and K (Financial and Insurance Activities), therefore they provide the biggest supply - push effects on the economy.

4. Conclusion

Backward and forward linkages based on input output analysis allow to identify key industries in the economy, as well as important backward - linked and forward - linked sectors.

Our analysis identified some important backward - linked and forward - linked sectors. For example, in 2021, the 5 most backward - linked industries were F (Construction), C (Manufacturing), R (Arts, Entertainment and Recreation), I (Accommodation and Food Service Activities) and Q (Human Health Activities). On the other hand, most forward - linked industries were C (Manufacturing), G (Wholesale & Retail; Repair of Vehicles & Motorcycles), L (Real Estate Activities), H (Transportation and Storage) and K (Financial and Insurance Activities).

The main finding of our analysis was that the "key" or "leading" sector of the Georgian economy was manufacturing for both 2020 and 2021. This finding is of particular importance because international experience and scientific literature shows that manufacturing sector in general, has higher potential of generating economic growth compared to the other sectors, especially for the developing economies like Georgia [12] [13] [14]. Our research has once again reinforced the importance of manufacturing sector in the economic development of Georgia. If targeted properly by policy intervention this sector will have high potential of generating economic growth, that will help reduce poverty and create more employment opportunities in the country.

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