

# NEREUS

Núcleo de Economia Regional e Urbana  
da Universidade de São Paulo  
The University of São Paulo  
Regional and Urban Economics Lab

## Chaining Juan Valdez: Linkages in the Colombian Coffee Industry

*"International Workshop on Interregional Economic  
Modeling: Applications for the Colombian Economy"*

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# Research team

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# Introduction

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Juan Valdez is a fictional character, that represents the Colombian coffee grower, which appears in advertisements for the National Federation of Coffee Growers of Colombia

Used to designate that Colombian coffee has specific benefits to the ground, height, varieties and hand harvesting ripe coffee beans

Today it is the brand of the biggest chain of coffee shops in Colombia



# Introduction

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The National Federation of Coffee Growers of Colombia is a non-governmental association, founded in 1927

It has more than 500 thousand associated coffee farmers, considered as one of the biggest rural NGOs in the world.

Main goals:

- Promote Colombian coffee
- Guarantee purchase
- Improve productivity and quality

# Juan Valdez

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# Coffee growing and coffee producing in Colombia

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## Coffee growing sector

- ✓ Value added = 5,299 COP billions (0.73% of total)
- ✓ Employment = 620,935 (2.80% of total)
- ✓ Formalization ≈ 2.5% (15,374 jobs)

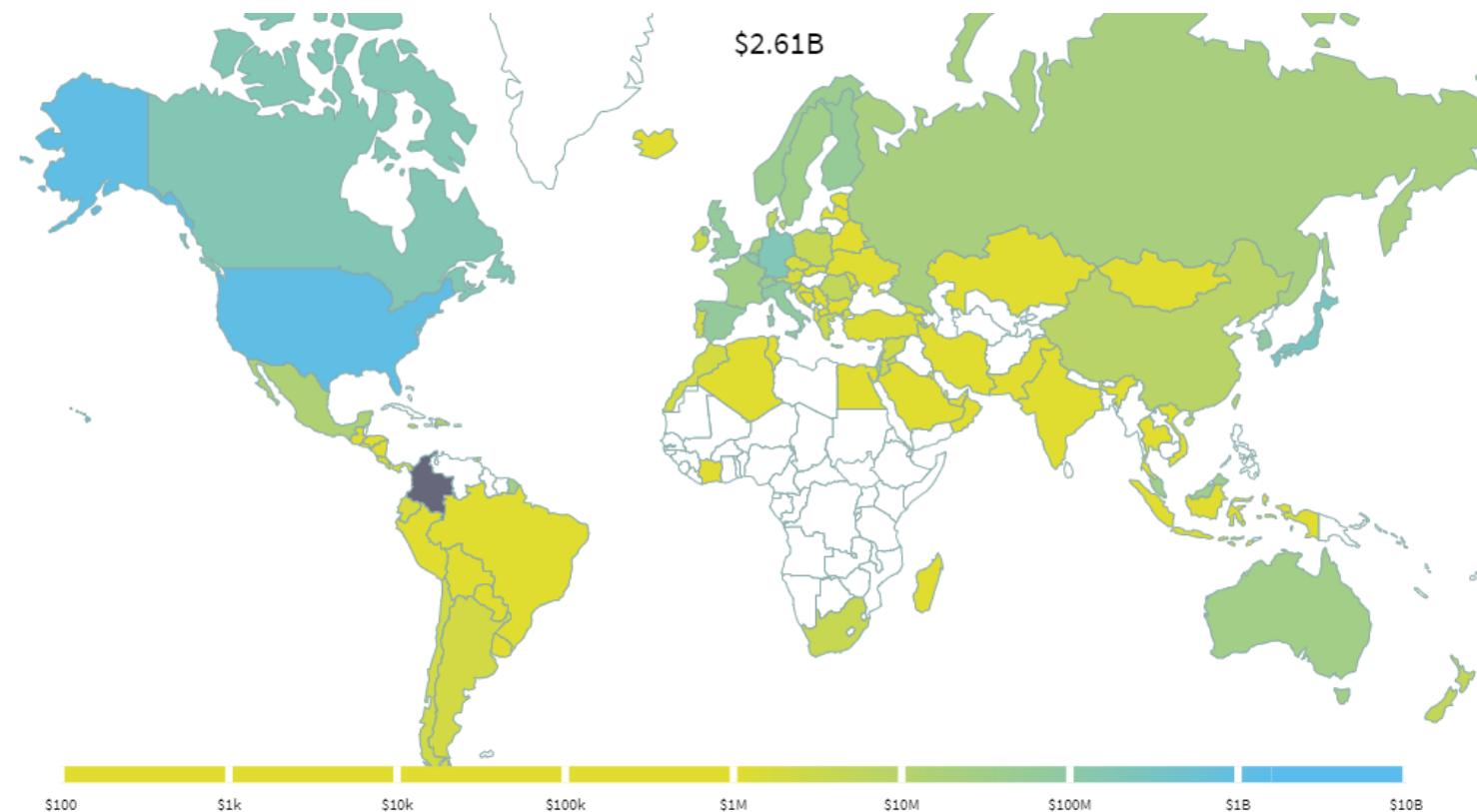
## Coffee producing sector

- ✓ Value added = 702 COP billions (0.10% of total)
- ✓ Employment = 5,176 (0.02% of total)
- ✓ Exports = 6,725 COP billions (5.65% of total)

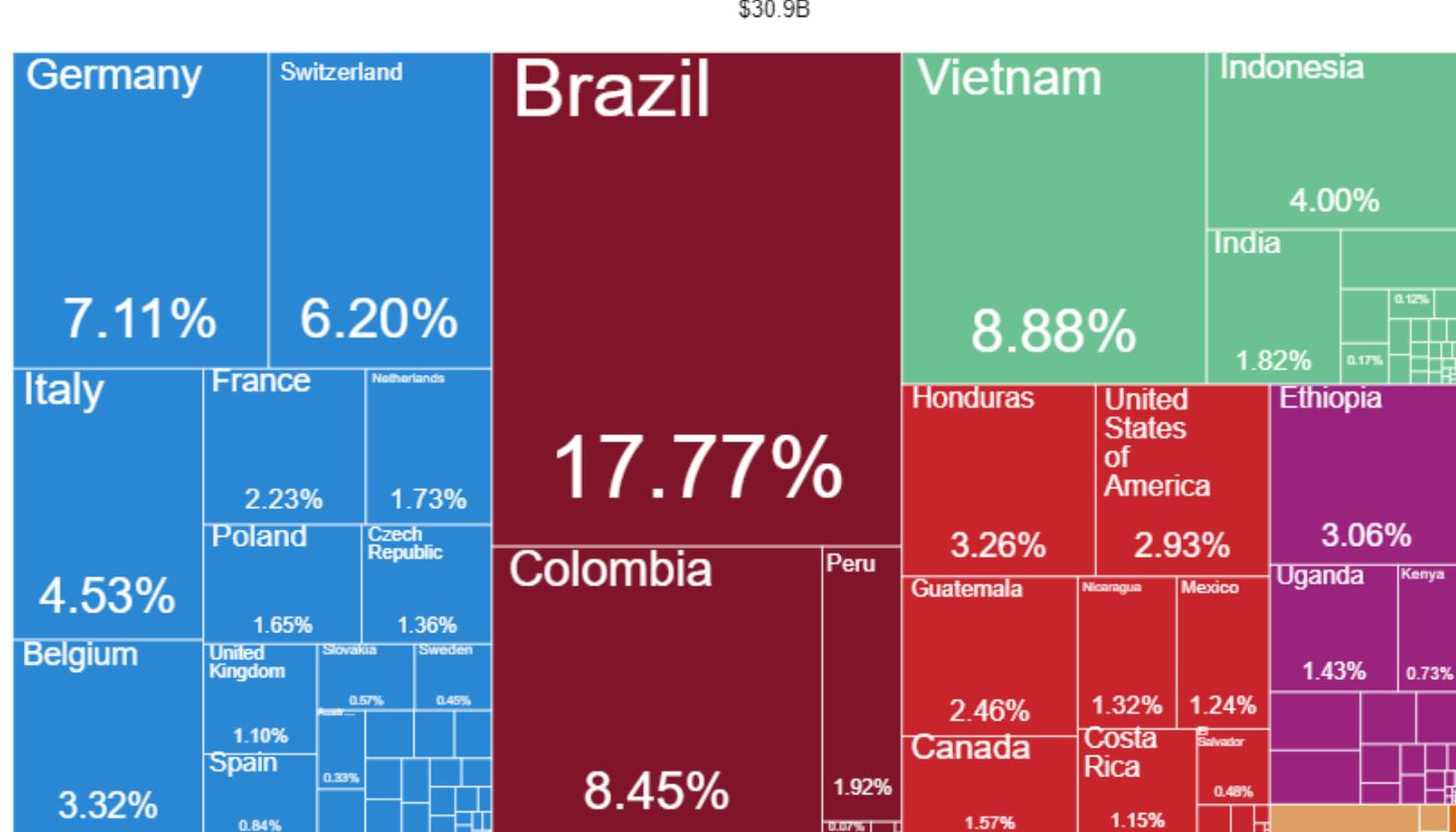
# Colombian Exports – 2015

#	Commodity	Code	COP Billions	Share
1	Extracción de petróleo crudo y gas natural y actividades de apoyo para actividades de explotación	S7	\$37,598.00	32%
2	Extracción de carbón de piedra y lignito	S6	\$11,712.72	10%
3	Fabricación de sustancias químicas básicas	S24	\$ 8,678.10	7%
4	Fabricación de productos metalúrgicos básicos	S27	\$ 8,341.61	7%
<b>5</b>	<b>Elaboración de productos de café</b>	<b>S14</b>	<b>\$ 6,725.24</b>	<b>6%</b>
6	Agricultura y actividades de servicios conexas	S1	\$ 6,574.54	6%
7	Coquización, fabricación de productos de la refinación del petróleo y actividades de mezcla de combustibles	S23	\$ 5,769.66	5%
8	Alojamiento y servicios de comida	S45	\$ 4,850.11	4%
9	Transporte aéreo	S42	\$ 4,146.46	3%
10	Preparación, hilatura, tejeduría y acabado de productos textiles	S19	\$ 2,187.16	2%
11	Actividades profesionales, científicas y técnicas; Actividades de servicios administrativos y de apoyo	S49	\$ 2,172.02	2%
12	Fabricación de productos de caucho y de plástico	S25	\$ 1,778.92	1%
13	Fabricación de aparatos y equipo eléctrico; fabricación de productos informáticos, electrónicos y ópticos	S28	\$ 1,732.52	1%
14	Fabricación de vehículos automotores, remolques y semirremolques	S30	\$ 1,492.23	1%
15	Fabricación de papel, cartón y productos de papel y de cartón; actividades de impresión	S22	\$ 1,462.61	1%
16	Información y comunicaciones	S46	\$ 1,352.06	1%
17	Fabricación de otros productos minerales no metálicos	S26	\$ 1,162.33	1%
18	Fabricación de maquinaria y equipo n.c.p.	S29	\$ 1,071.57	1%
19	Elaboración de azúcar y elaboración de panela	S15	\$ 1,027.38	1%
20	Elaboración de aceites y grasas de origen vegetal y animal	S11	\$ 962.36	1%

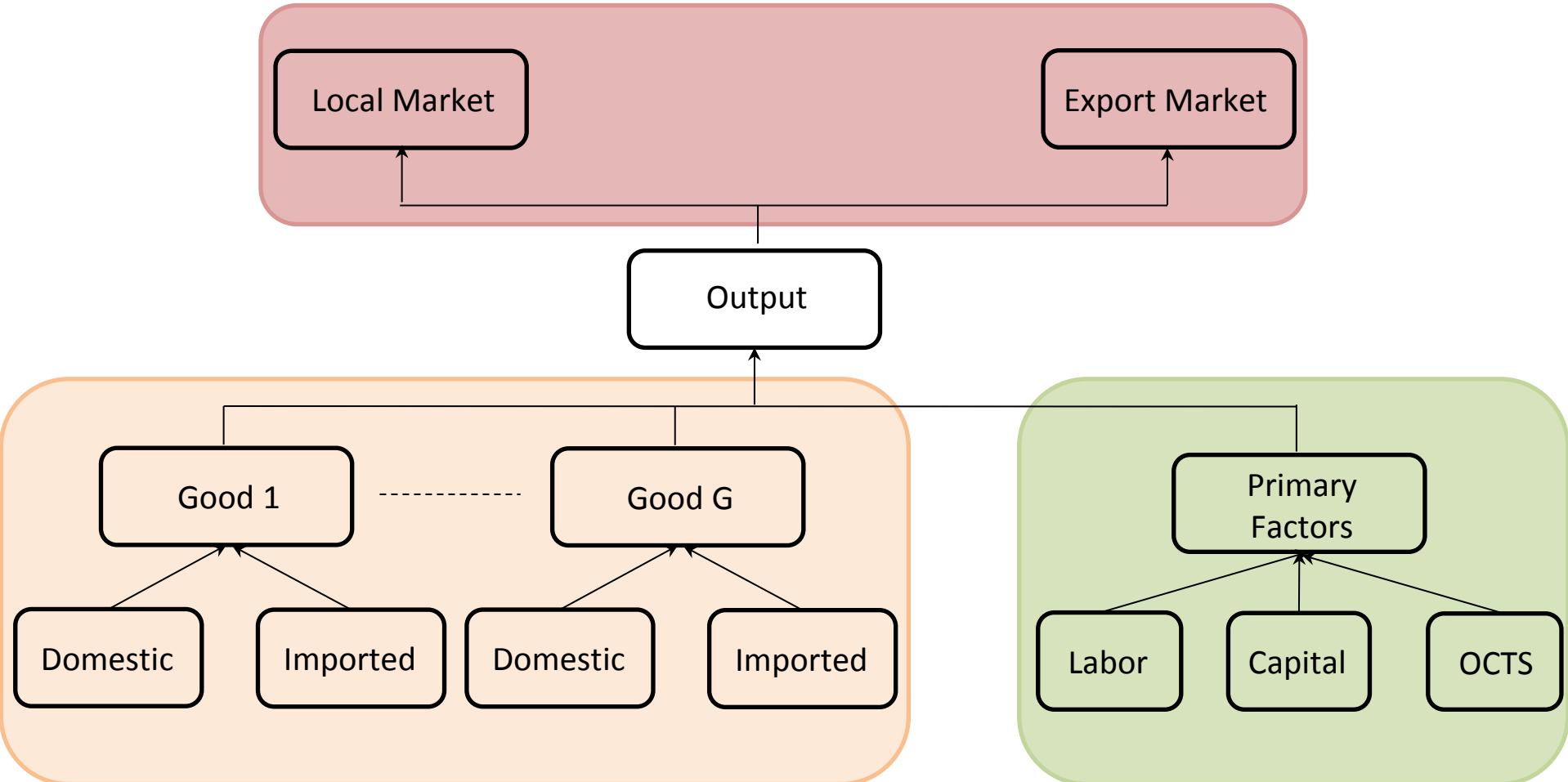
# Destination of Colombian coffee exports – 2015



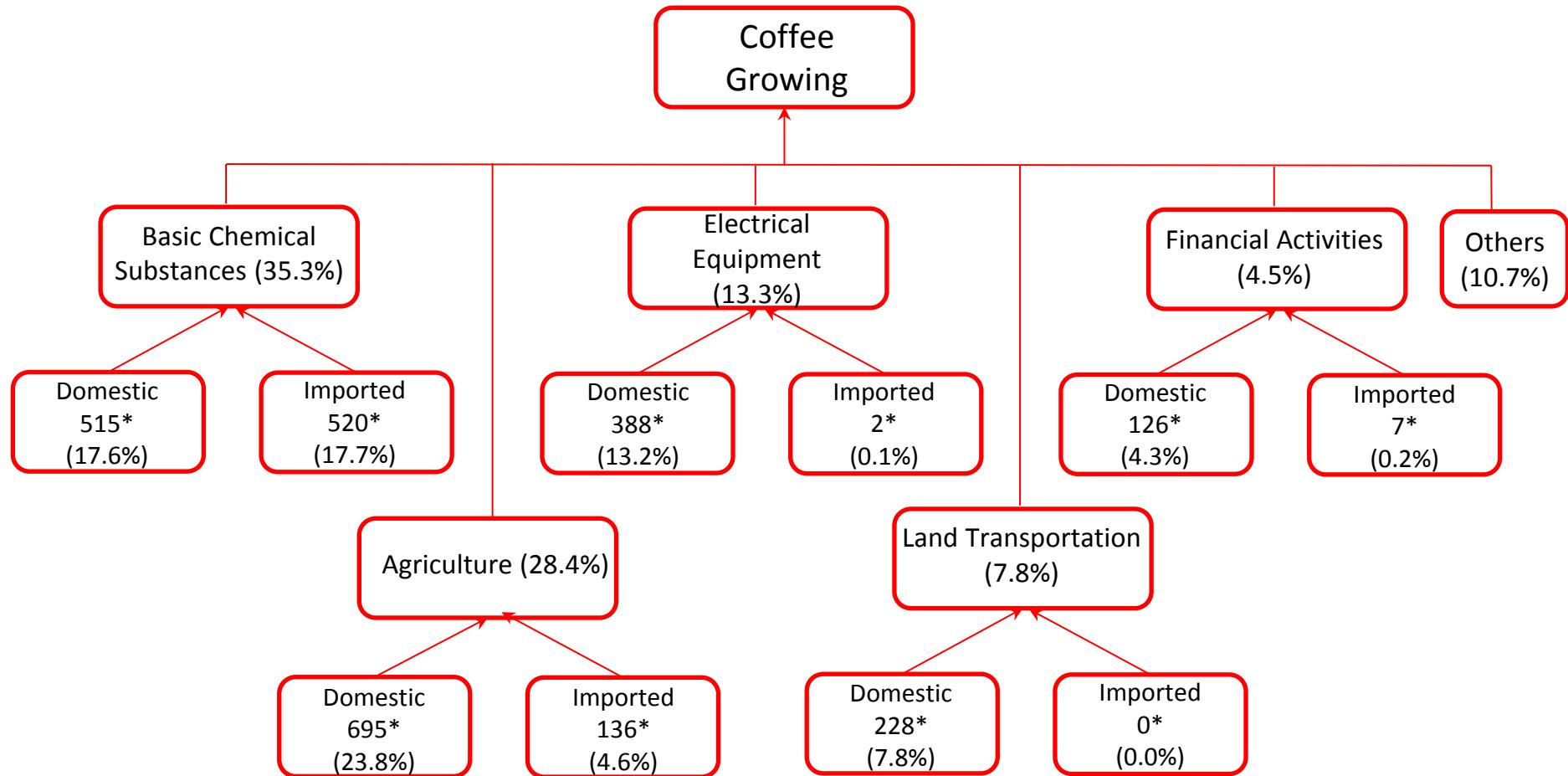
# Origin of world coffee exports – 2015



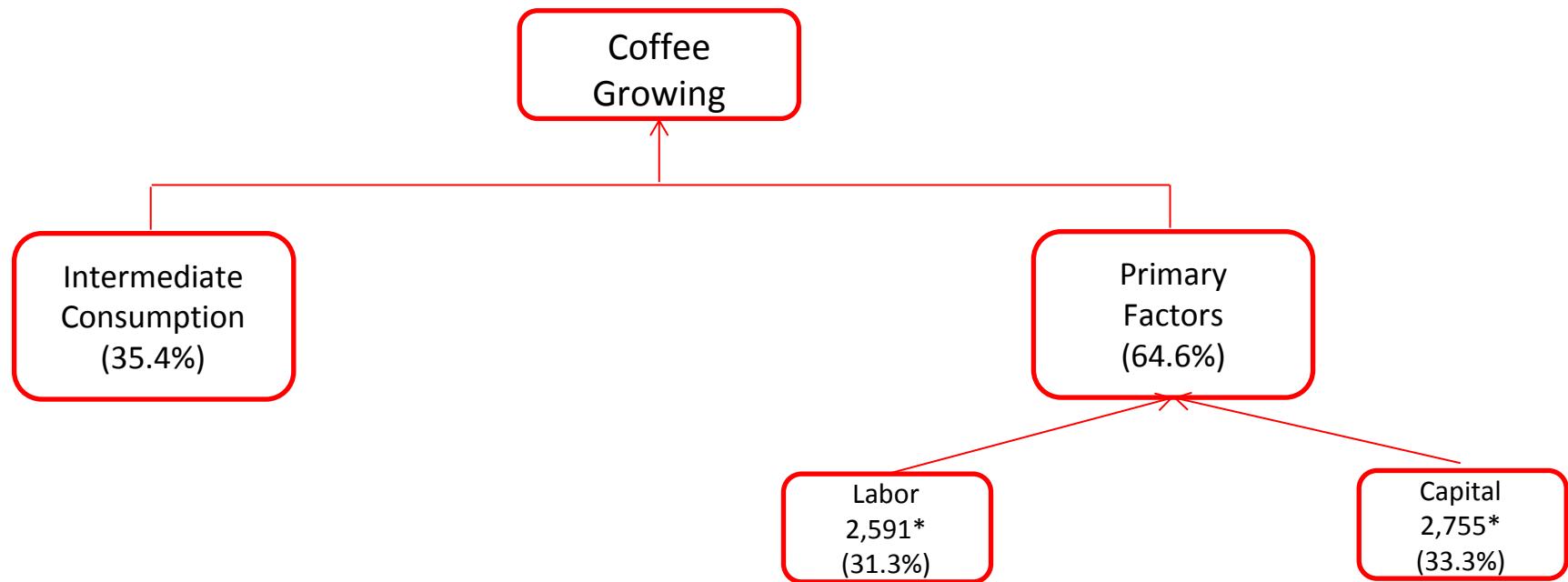
# General Structure of Production



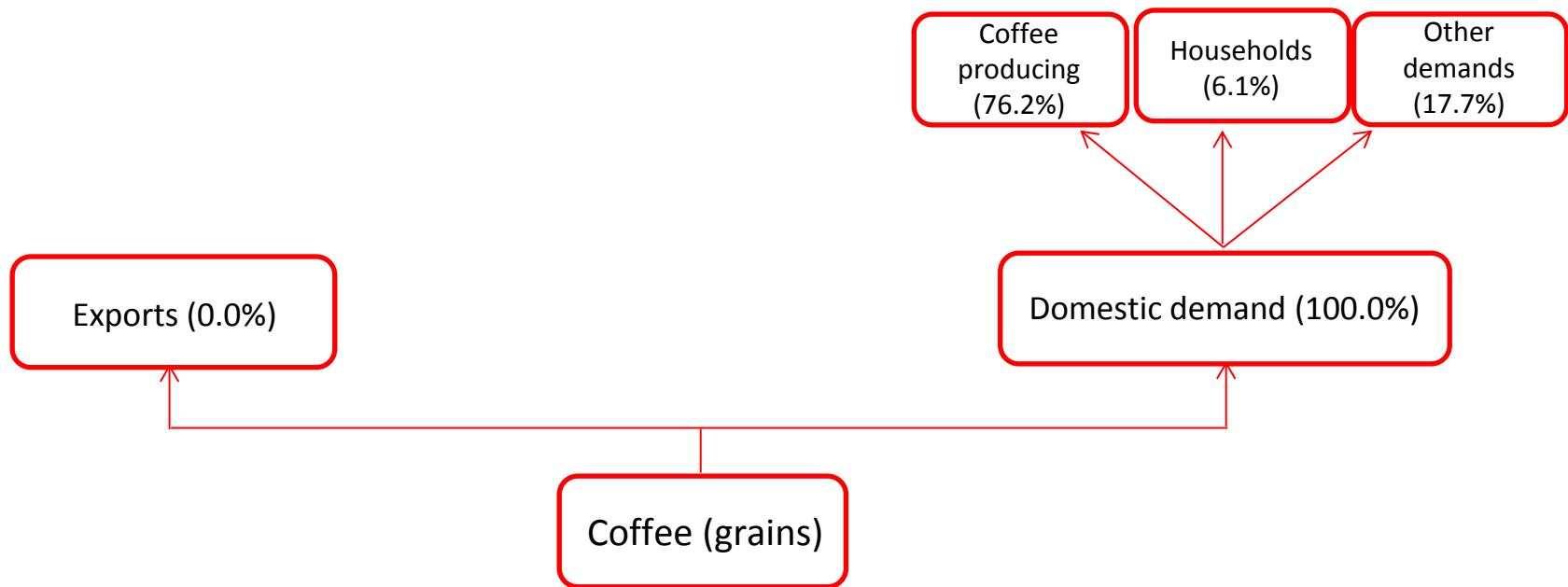
# Coffee Growing – Intermediate Inputs Demand



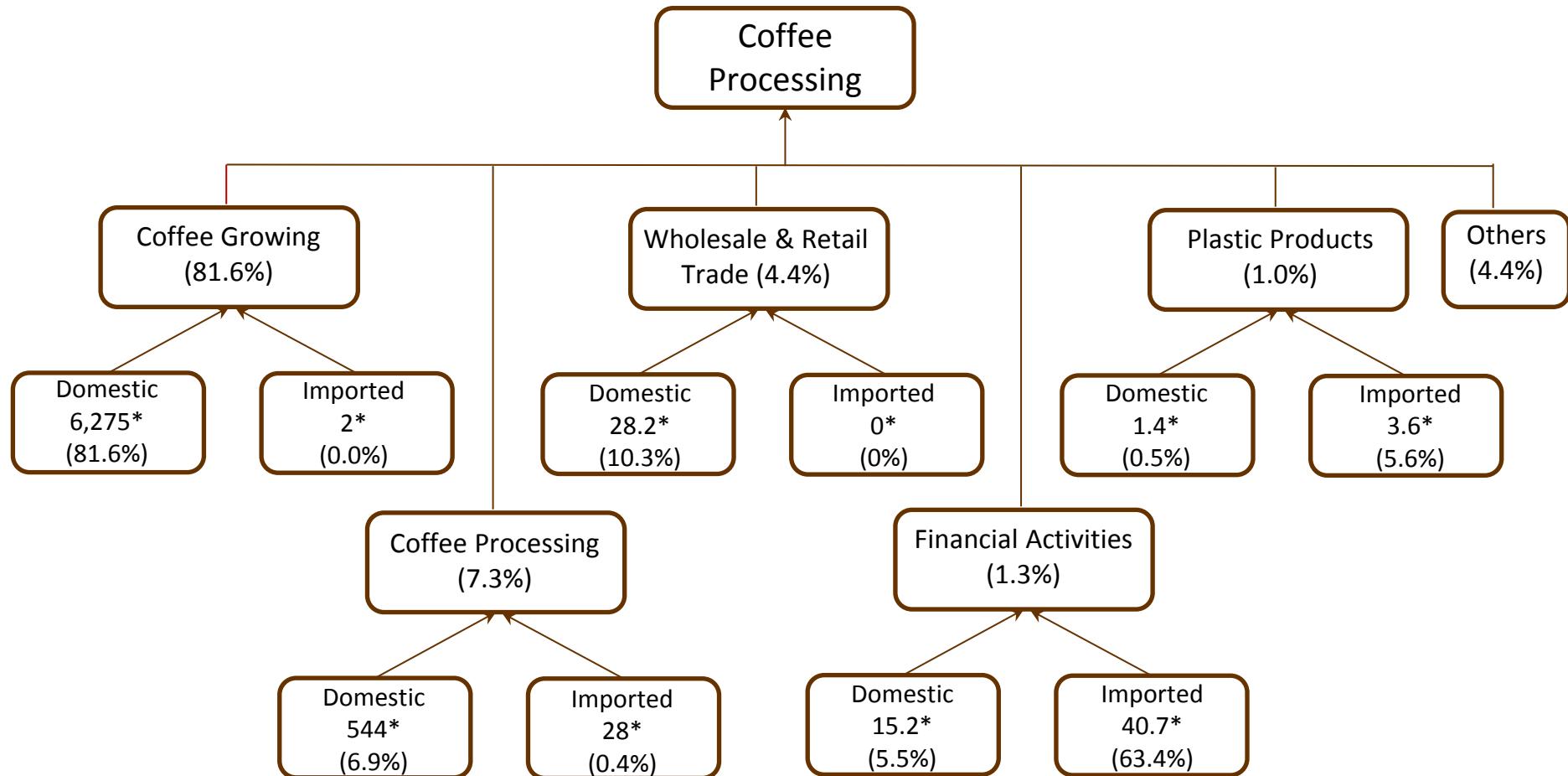
# Coffee Growing – Primary Factors Demand



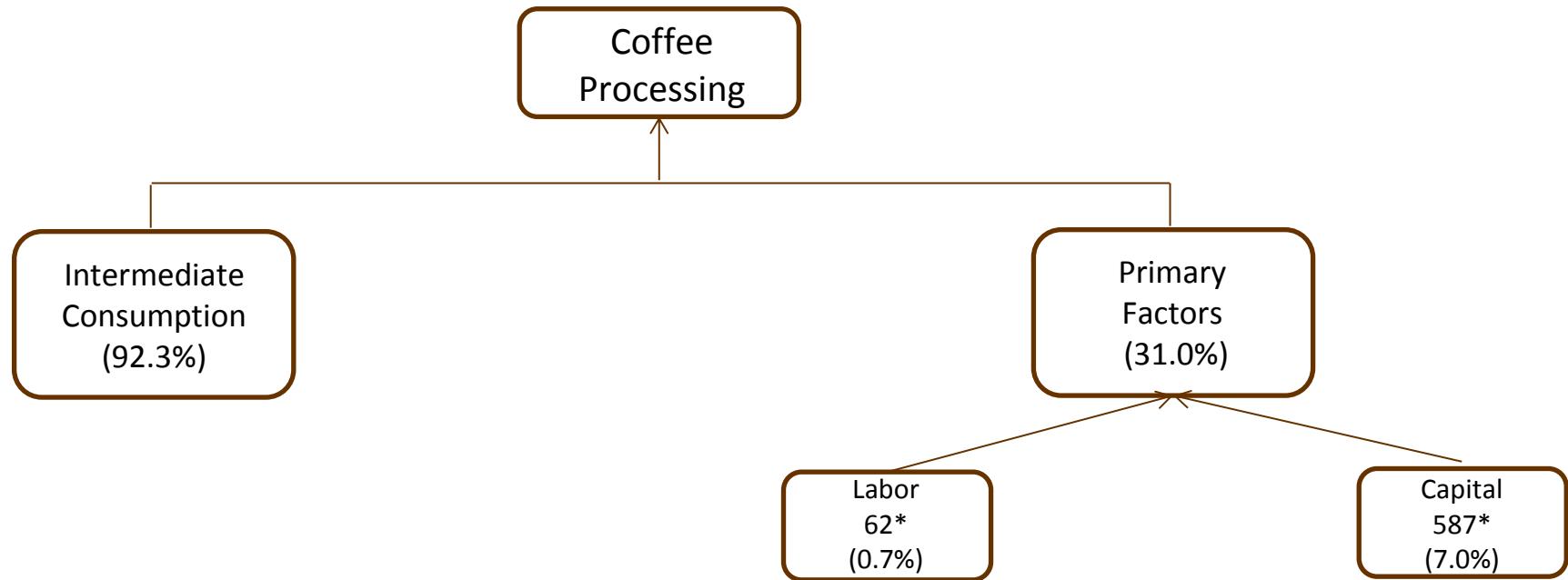
# Coffee Growing – Destination of Output



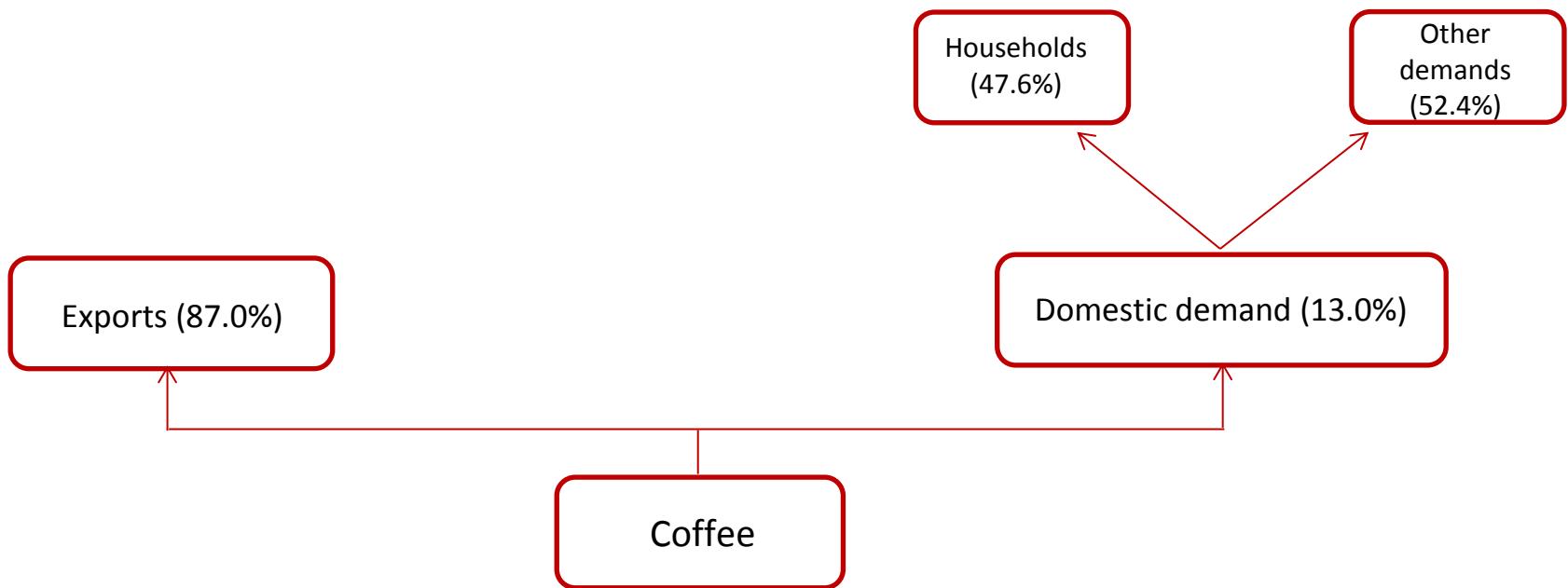
# Coffee Processing – Intermediate Inputs Demand



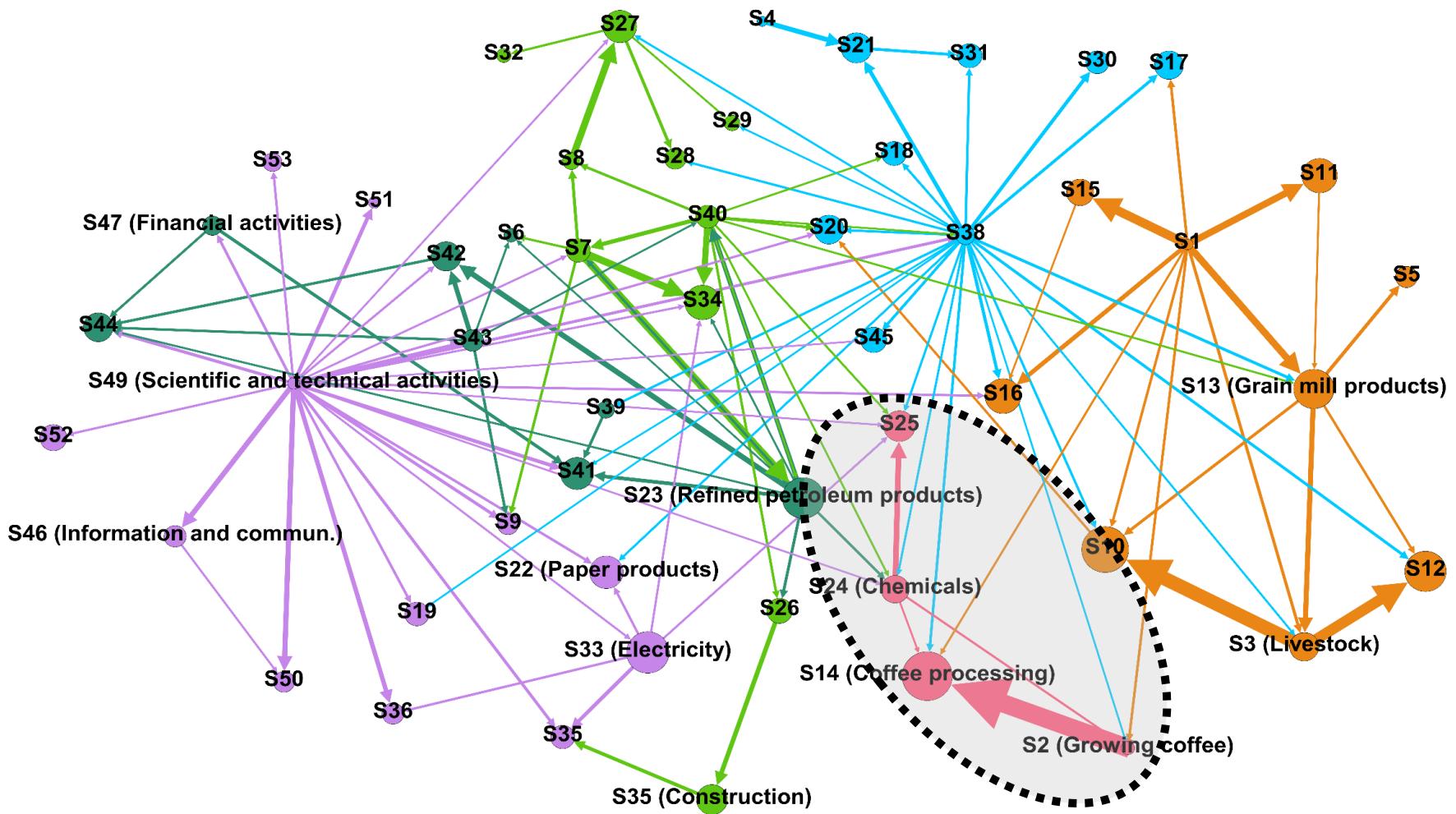
# Coffee Processing – Primary Factors Demand



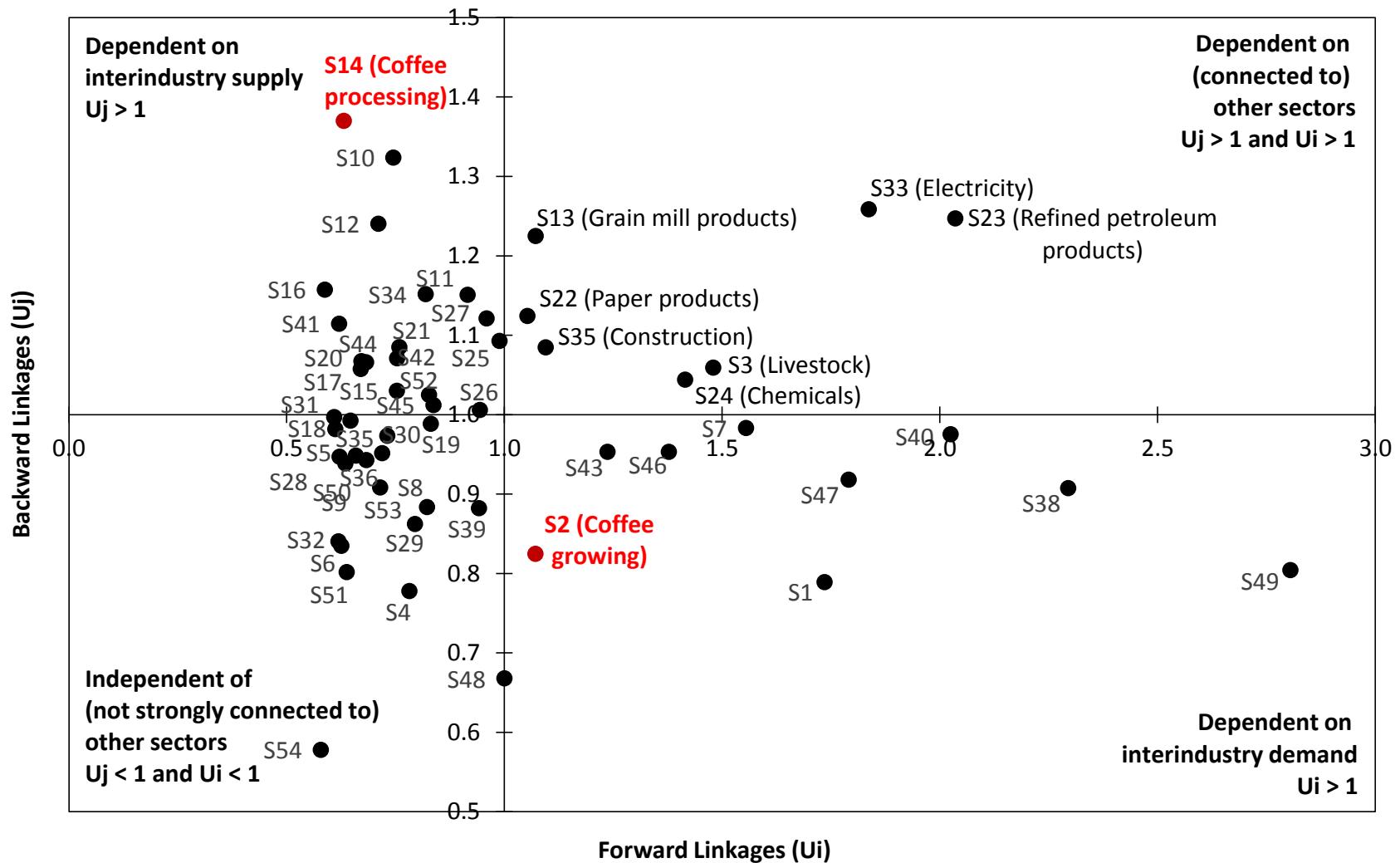
# Coffee Processing – Destination of Output



# Input-output network in Colombia

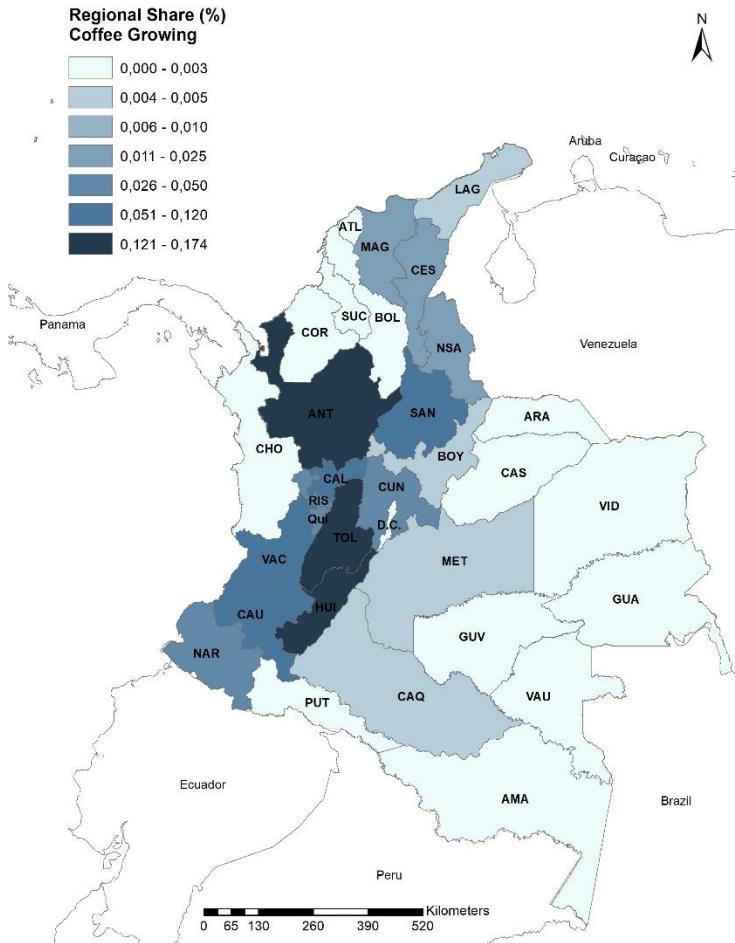


# R-H backward and forward linkages

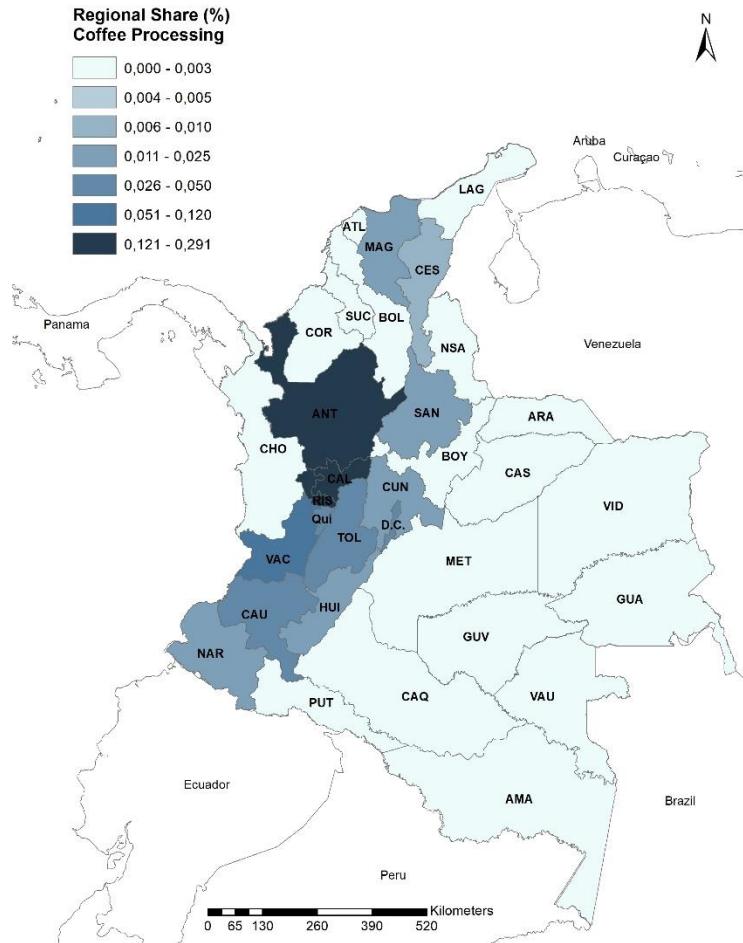


# Regional output

## Coffee growing

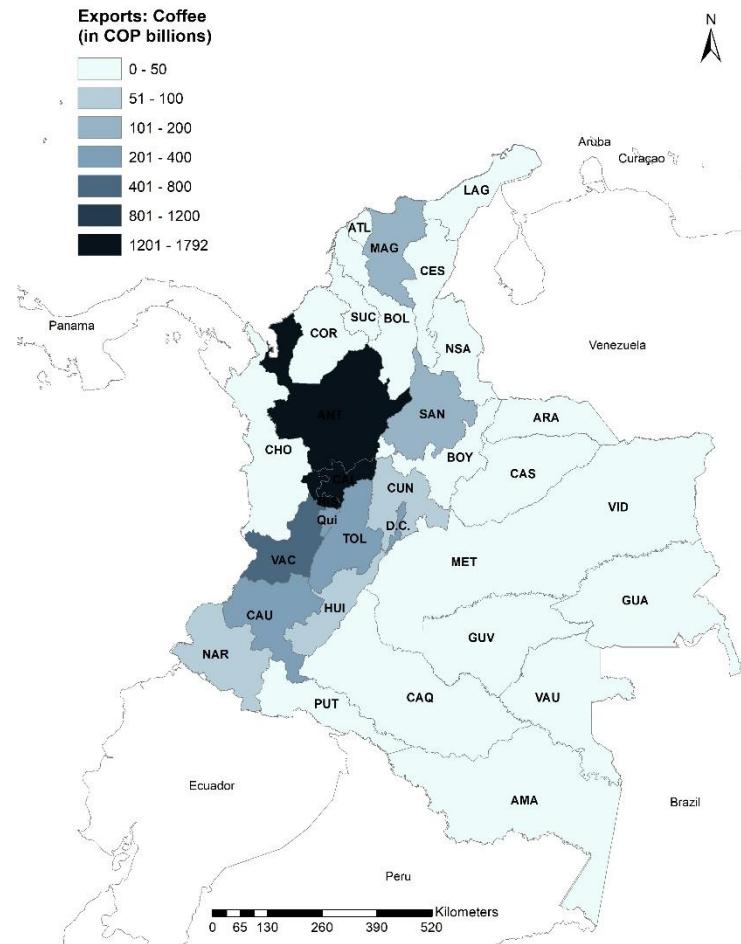


## Coffee processing



# Foreign exports

## Coffee processing



# The Extraction Method

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The extraction method, initially proposed by Dietzenbacher et al. (1993), consists of the hypothetical extraction of a sector/region in the input-output matrix

The purpose is to quantify how much the total output of an economy with  $n$  sectors could change (or reduce) if a particular sector/region were removed from this economy

This technique allows to analyzing the importance of a sector/region in an economic structure given its extraction and consequent reduction in the level of activity in the economy

It should be emphasized that the greater the level of interdependence of this sector/region in relation to the others, the greater the impact, in a **systemic way**

## The Extraction Method (cont.)

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Initially, the extraction is modeled by an input-product matrix deleting the  $j$ -th row and column of matrix  $\mathbf{A}$

Using  $\bar{\mathbf{A}}_{(j)}$  for the matrix of dimensions  $(n - 1) \times (n - 1)$  without the sector  $j$  and  $\bar{\mathbf{f}}_{(j)}$  for the reduced final demand vector (i.e. without sector  $j$ ), production in the reduced economy (i.e. without sector  $j$ ) will be given by:

$$\bar{\mathbf{x}}_{(j)} = (\mathbf{I} - \bar{\mathbf{A}}_{(j)})^{-1} \bar{\mathbf{f}}_{(j)} \quad (1)$$

Instead of physically deleting the  $j$ -th row and column in matrix  $\mathbf{A}$  and the  $j$ -th element of vector  $\mathbf{f}$ , one can simply replace these values with zeros

## The Extraction Method (cont.)

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In the complete model, with  $n$  sectors, the output of the economy is given by:

$$\mathbf{x} = (\mathbf{I} - \mathbf{A})^{-1} \mathbf{f} \quad (2)$$

Therefore, after extraction:

$$T_j = \mathbf{i}' \mathbf{x} - \mathbf{i}' \bar{\mathbf{x}}_{(j)} \quad (3)$$

where  $T_j$  is the aggregate measure of loss in the economy – decrease in total output if the sector  $j$  "disappears". In other words, it is a measure of the relative importance of sector  $j$ , or the total linkages of sector  $j$

# What if the coffee growing and coffee producing sectors did not exist?

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We base our empirical strategy on the “hypothetical extraction” method, which serves as the methodological anchor to isolate the systemic economic effects related to the coffee industry value chain in a typical year of operations

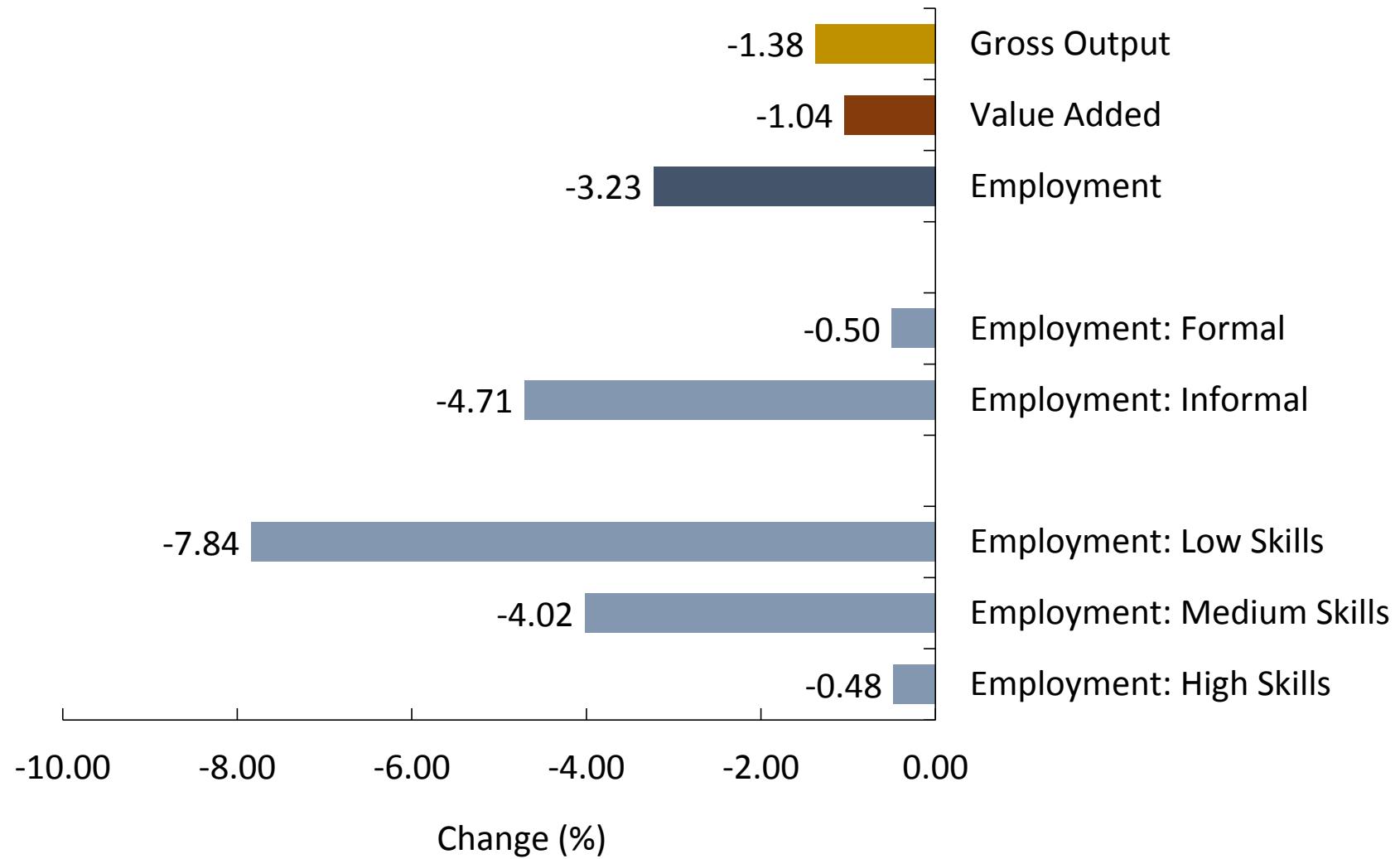
*S2 – coffee growing sector*

*S14 – coffee producing sector*

We look at the impacts on the following variables:

- Gross output
- Employment (formalization and skills)

# National results – summary



# Results – gross output

Hypothetical extraction: change in **gross output** for Colombia,  
2015 (in COP billions)

	R1	R3	R6	R8	R11	R13	R15	R17	R19	R20	R21	R23	R24	-	Colombia
	Antioquia	Bogotá D.C.	Caldas	Cauca	Cundina-marca	Huila	Magda-lena	Nariño	Quindío	Risaralda	Santander	Tolima	Valle del Cauca	Others	
S1 Agriculture	-33.8	-0.1	-34.5	-36.7	-40.8	-74.6	-5.2	-40.9	-20.0	-13.3	-65.1	-78.6	-69.5	-184.0	<b>-697.1</b>
S2 Coffee growing	-1,152.9	0.0	-651.2	-983.2	-352.9	-1,431.9	-137.5	-335.6	-253.9	-409.1	-476.8	-1,068.0	-560.4	-425.8	<b>-8,239.0</b>
S3 Livestock and hunting	-12.8	0.0	-3.1	-6.1	-5.7	-7.6	-2.8	-4.1	-3.9	-3.6	-7.9	-5.5	-7.7	-19.6	<b>-90.7</b>
S14 Processing of coffee products	-2,480.6	-372.7	-1,681.0	-311.8	-88.0	-101.5	-184.6	-88.8	-266.8	-1,730.9	-140.3	-223.9	-787.2	-77.9	<b>-8,536.0</b>
S19 Manufacture of textiles, and wearing apparel	-8.2	-3.1	-1.0	-1.3	-4.7	-0.3	0.0	-0.3	-0.1	-2.1	-2.2	-1.8	-2.5	-1.0	<b>-28.6</b>
S22 Manufacture of paper and paper products	-15.6	-15.0	-2.2	-2.8	-1.3	-0.2	-0.1	-0.2	-0.4	-4.0	-3.1	-1.0	-11.5	-2.2	<b>-59.6</b>
S23 Manufacture of coke and refined petroleum products	-5.7	-4.4	0.0	0.0	0.0	-0.6	-0.1	0.0	0.0	0.0	-4.1	-1.3	-3.3	-9.0	<b>-28.4</b>
S24 Manufacture of chemicals and chemical products	-129.5	-144.5	-11.2	-18.2	-8.5	-5.7	-0.5	-2.2	-4.3	-13.2	-27.9	-23.0	-110.5	-19.6	<b>-519.0</b>
S25 Manufacture of rubber and plastics products	-12.9	-8.5	-2.7	-1.5	-0.2	-0.1	0.0	0.0	-0.1	-1.7	-1.3	-0.2	-5.5	-1.8	<b>-36.7</b>
S38 Wholesale and retail trade	-160.2	-187.3	-44.7	-17.1	-20.3	-25.0	-9.0	-17.4	-18.2	-47.3	-21.7	-38.7	-79.3	-42.6	<b>-729.1</b>
S39 Repair of motor vehicles and motorcycles	-5.2	-5.6	-3.5	-1.9	-2.2	-1.2	-0.3	-0.7	-1.3	-3.2	-1.0	-3.1	-4.2	-1.6	<b>-35.0</b>
S40 Land transport and transport via pipelines	-50.0	-10.7	-29.8	-12.6	-7.5	-44.7	-5.4	-6.4	-6.6	-24.8	-20.6	-26.2	-32.4	-25.0	<b>-302.7</b>
S46 Information and communication	-10.3	-6.9	-6.1	-0.9	-0.8	-1.2	-0.6	-0.3	-0.8	-5.9	-1.3	-1.5	-4.1	-1.1	<b>-41.8</b>
S47 Financial and insurance activities	-49.5	-67.8	-16.4	-7.6	-2.2	-11.4	-2.2	-3.5	-3.6	-15.8	-6.3	-9.6	-20.7	-8.5	<b>-225.1</b>
S49 Administrative and support service activities	-10.6	-3.0	-5.9	-2.0	-0.6	-1.0	-0.3	-0.3	-0.7	-6.1	-0.8	-1.2	-4.8	-0.9	<b>-38.3</b>
- Other sectors	-48.0	-19.6	-26.5	-10.8	-8.5	-4.8	-2.3	-1.9	-3.7	-20.0	-9.4	-8.1	-28.4	-22.8	<b>-214.7</b>
<b>Total</b>	<b>-4,185.7</b>	<b>-849.1</b>	<b>-2,519.8</b>	<b>-1,414.6</b>	<b>-544.1</b>	<b>-1,711.7</b>	<b>-351.0</b>	<b>-502.7</b>	<b>-584.5</b>	<b>-2,301.1</b>	<b>-789.8</b>	<b>-1,491.6</b>	<b>-1,732.0</b>	<b>-843.7</b>	<b>-19,821.5</b>

# Results – value added

Hypothetical extraction: change in **value added** for Colombia,  
2015 (in COP billions)

	R1	R3	R6	R8	R11	R13	R15	R17	R19	R20	R21	R23	R24	-	Colombia
	Antioquia	Bogotá D.C.	Caldas	Cauca	Cundina-marca	Huila	Magda-leña	Nariño	Quindío	Risaralda	Santander	Tolima	Valle del Cauca	Others	
S1 Agriculture	-24.0	-0.1	-24.5	-26.1	-29.0	-53.1	-3.7	-29.1	-14.2	-9.4	-46.3	-55.9	-49.4	-130.9	<b>-495.9</b>
S2 Coffee growing	<b>-741.5</b>	0.0	-418.8	<b>-632.3</b>	-227.0	<b>-920.9</b>	-88.4	-215.9	-163.3	-263.1	-306.6	-686.9	-360.4	-273.9	<b>-5,299.0</b>
S3 Livestock and hunting	-6.0	0.0	-1.5	-2.9	-2.7	-3.6	-1.3	-1.9	-1.8	-1.7	-3.7	-2.6	-3.6	-9.2	<b>-42.5</b>
S14 Processing of coffee products	<b>-204.0</b>	-30.6	<b>-138.2</b>	<b>-25.6</b>	-7.2	-8.3	-15.2	-7.3	<b>-21.9</b>	<b>-142.4</b>	-11.5	-18.4	<b>-64.7</b>	-6.4	<b>-702.0</b>
S19 Manufacture of textiles, and wearing apparel	-3.5	-1.3	-0.4	-0.5	-2.0	-0.1	0.0	-0.1	-0.1	-0.9	-0.9	-0.7	-1.1	-0.4	<b>-12.2</b>
S22 Manufacture of paper and paper products	-5.2	-5.0	-0.7	-0.9	-0.4	-0.1	0.0	-0.1	-0.1	-1.3	-1.0	-0.3	-3.8	-0.7	<b>-19.8</b>
S23 Manufacture of coke and refined petroleum products	-1.0	-0.8	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-0.7	-0.2	-0.6	-1.5	<b>-4.9</b>
S24 Manufacture of chemicals and chemical products	<b>-43.7</b>	<b>-48.8</b>	-3.8	-6.2	-2.9	-1.9	-0.2	-0.7	-1.5	-4.5	-9.4	-7.8	<b>-37.3</b>	-6.6	<b>-175.3</b>
S25 Manufacture of rubber and plastics products	-3.0	-1.9	-0.6	-0.3	0.0	0.0	0.0	0.0	0.0	-0.4	-0.3	-0.1	-1.3	-0.4	<b>-8.4</b>
S38 Wholesale and retail trade	<b>-92.7</b>	<b>-108.4</b>	<b>-25.9</b>	-9.9	-11.8	<b>-14.5</b>	-5.2	-10.1	-10.5	<b>-27.4</b>	-12.6	-22.4	-45.9	-24.7	<b>-422.0</b>
S39 Repair of motor vehicles and motorcycles	-2.4	-2.6	-1.6	-0.9	-1.0	-0.6	-0.1	-0.3	-0.6	-1.5	-0.4	-1.4	-1.9	-0.7	<b>-16.0</b>
S40 Land transport and transport via pipelines	<b>-25.6</b>	-5.5	<b>-15.2</b>	-6.4	-3.8	<b>-22.8</b>	-2.8	-3.3	-3.4	-12.7	-10.5	-13.4	-16.5	-12.8	<b>-154.7</b>
S46 Information and communication	-5.1	-3.5	-3.1	-0.4	-0.4	-0.6	-0.3	-0.2	-0.4	-3.0	-0.6	-0.7	-2.0	-0.6	<b>-20.9</b>
S47 Financial and insurance activities	<b>-28.2</b>	<b>-38.6</b>	-9.3	-4.3	-1.2	-6.5	-1.3	-2.0	-2.1	-9.0	-3.6	-5.4	-11.8	-4.8	<b>-128.1</b>
S49 Administrative and support service activities	-7.5	-2.1	-4.2	-1.4	-0.4	-0.7	-0.2	-0.2	-0.5	-4.3	-0.6	-0.8	-3.4	-0.7	<b>-27.1</b>
- Other sectors	-21.4	-8.5	-11.7	-4.9	-3.4	-2.3	-1.1	-1.0	-1.8	-9.0	-4.1	-3.5	-12.3	-9.8	<b>-94.8</b>
<b>Total</b>	<b>-1,214.7</b>	<b>-257.6</b>	<b>-659.6</b>	<b>-723.3</b>	<b>-293.3</b>	<b>-1,036.1</b>	<b>-119.8</b>	<b>-272.1</b>	<b>-222.2</b>	<b>-490.5</b>	<b>-413.1</b>	<b>-820.7</b>	<b>-616.1</b>	<b>-484.2</b>	<b>-7,623.4</b>

# Results – employment

Hypothetical extraction: change in **employment** for Colombia,  
2015 (in full-time-job-equivalent)

	R1	R3	R6	R8	R11	R13	R15	R17	R19	R20	R21	R23	R24	-	Colombia
	Antioquia	Bogotá D.C.	Caldas	Cauca	Cundinamarca	Huila	Magda-lena	Nariño	Quindío	Risaralda	Santander	Tolima	Valle del Cauca	Others	
S1 Agriculture	-997	-168	-883	-6,177	-1,291	-3,658	-214	-6,300	-1,016	-738	-2,691	-3,235	-1,850	-9,422	<b>-38,641</b>
S2 Coffee growing	-92,347	0	-61,238	-54,104	-5,550	-82,667	-1,933	-32,589	-36,793	-58,742	-31,873	-72,474	-49,948	-40,677	<b>-620,935</b>
S3 Livestock and hunting	-289	-4	-109	-213	-130	-213	-77	-409	-73	-93	-197	-263	-234	-901	<b>-3,204</b>
S14 Processing of coffee products	-881	-230	-785	-236	-50	-88	-402	-265	-223	-1,143	-214	-149	-439	-71	<b>-5,176</b>
S19 Manufacture of textiles, and wearing apparel	-222	-128	-41	-35	-11	-32	-7	-42	-10	-92	-42	-56	-86	-89	<b>-893</b>
S22 Manufacture of paper and paper products	-103	-154	-22	-19	-11	-6	-3	-7	-8	-42	-15	-7	-96	-27	<b>-521</b>
S23 Manufacture of coke and refined petroleum products	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	<b>-2</b>
S24 Manufacture of chemicals and chemical products	-356	-615	-48	-52	-102	-58	-11	-31	-33	-58	-54	-75	-383	-75	<b>-1,950</b>
S25 Manufacture of rubber and plastics products	-65	-66	-21	-8	-8	-1	-1	-1	-1	-14	-5	-1	-35	-17	<b>-245</b>
S38 Wholesale and retail trade	-4,915	-3,725	-2,956	-2,368	-681	-2,793	-780	-1,301	-1,223	-3,315	-1,031	-2,506	-3,413	-2,574	<b>-33,582</b>
S39 Repair of motor vehicles and motorcycles	-197	-151	-133	-127	-43	-143	-29	-102	-68	-111	-48	-159	-165	-144	<b>-1,621</b>
S40 Land transport and transport via pipelines	-843	-218	-631	-637	-142	-392	-269	-419	-204	-525	-222	-475	-602	-713	<b>-6,292</b>
S46 Information and communication	-76	-33	-33	-4	-5	-16	-9	-3	-8	-46	-12	-11	-39	-14	<b>-310</b>
S47 Financial and insurance activities	-225	-253	-97	-49	-15	-95	-15	-35	-34	-111	-38	-54	-131	-65	<b>-1,218</b>
S49 Administrative and support service activities	-125	-48	-116	-28	-7	-26	-11	-10	-32	-108	-14	-25	-58	-19	<b>-627</b>
- Other sectors	-327	-177	-211	-102	-46	-76	-40	-53	-67	-219	-69	-87	-220	-229	<b>-1,922</b>
Total	<b>-101,968</b>	<b>-5,973</b>	<b>-67,325</b>	<b>-64,159</b>	<b>-8,092</b>	<b>-90,263</b>	<b>-3,803</b>	<b>-41,567</b>	<b>-39,793</b>	<b>-65,356</b>	<b>-36,525</b>	<b>-79,578</b>	<b>-57,699</b>	<b>-55,038</b>	<b>-717,141</b>

# Regional and sectorial results

Hypothetical extraction: change in **gross output, value added** and **employment** for Colombia, 2015 (in % change)

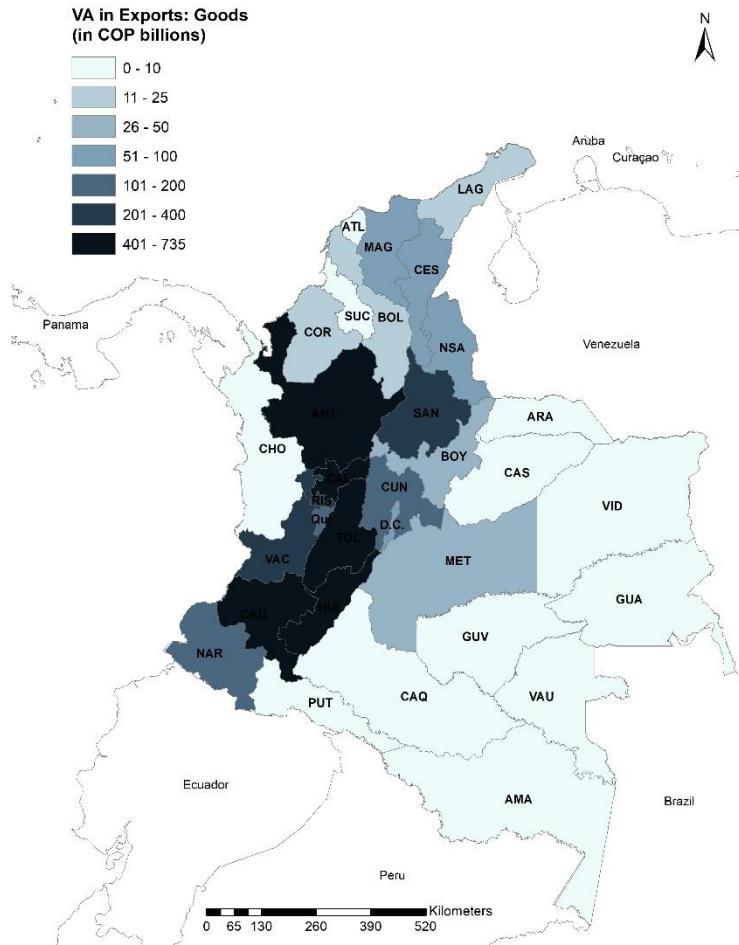
	R1	R3	R6	R8	R11	R13	R15	R17	R19	R20	R21	R23	R24	-	Colombia
	Antioquia	Bogotá D.C.	Caldas	Cauca	Cundinamarca	Huila	Magda-leña	Nariño	Quindío	Risaralda	Santander	Tolima	Valle del Cauca	Others	
S1 Agriculture	-0.69	-1.08	-4.26	-4.49	-0.75	-6.69	-0.43	-2.88	-3.28	-3.37	-1.98	-3.43	-1.95	-1.46	<b>-1.81</b>
S2 Coffee growing	-100.00	0.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	<b>-100.00</b>
S3 Livestock and hunting	-0.36	-0.03	-0.76	-1.03	-0.13	-1.41	-0.24	-0.62	-0.65	-0.82	-0.37	-0.77	-0.43	-0.22	<b>-0.35</b>
S14 Processing of coffee products	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	-100.00	<b>-100.00</b>
S19 Manufacture of textiles, and wearing apparel	-0.15	-0.09	-0.62	-0.49	-0.10	-0.67	-0.17	-0.22	-0.34	-0.44	-0.13	-0.34	-0.15	-0.06	<b>-0.14</b>
S22 Manufacture of paper and paper products	-0.48	-0.32	-2.39	-0.59	-0.19	-0.77	-0.57	-0.39	-1.01	-1.99	-0.34	-0.62	-0.38	-0.18	<b>-0.40</b>
S23 Manufacture of coke and refined petroleum products	-0.09	-0.07	0.00	0.00	0.00	-0.31	-0.08	0.00	0.00	0.00	-0.04	-0.21	-0.10	-0.05	<b>-0.06</b>
S24 Manufacture of chemicals and chemical products	-1.59	-1.35	-2.96	-2.82	-1.03	-9.58	-1.20	-3.36	-4.04	-3.71	-1.69	-5.16	-1.64	-0.40	<b>-1.48</b>
S25 Manufacture of rubber and plastics products	-0.35	-0.22	-1.62	-0.59	-0.13	-0.52	-0.43	-0.35	-0.79	-1.49	-0.24	-0.52	-0.31	-0.12	<b>-0.30</b>
S38 Wholesale and retail trade	-1.00	-0.48	-4.22	-2.66	-0.42	-3.04	-0.79	-0.99	-1.97	-3.60	-0.53	-2.07	-0.82	-0.22	<b>-0.71</b>
S39 Repair of motor vehicles and motorcycles	-0.32	-0.14	-1.29	-1.41	-0.21	-1.23	-0.31	-0.55	-0.73	-0.86	-0.20	-1.18	-0.32	-0.08	<b>-0.29</b>
S40 Land transport and transport via pipelines	-0.67	-0.10	-3.25	-2.79	-0.30	-2.00	-0.72	-1.09	-1.77	-2.59	-0.40	-2.11	-0.58	-0.16	<b>-0.55</b>
S46 Information and communication	-0.15	-0.04	-0.78	-0.25	-0.03	-0.18	-0.11	-0.08	-0.26	-0.72	-0.05	-0.15	-0.09	-0.02	<b>-0.09</b>
S47 Financial and insurance activities	-0.51	-0.23	-2.41	-1.67	-0.21	-1.83	-0.47	-0.58	-1.10	-2.02	-0.30	-1.20	-0.41	-0.10	<b>-0.37</b>
S49 Administrative and support service activities	-0.07	-0.01	-0.42	-0.12	-0.02	-0.12	-0.06	-0.05	-0.16	-0.38	-0.02	-0.09	-0.05	-0.01	<b>-0.05</b>
- Other sectors	-0.04	-0.01	-0.18	-0.06	-0.02	-0.03	-0.02	-0.01	-0.05	-0.14	-0.02	-0.04	-0.04	-0.01	<b>-0.02</b>
Gross Output	-1.95	-0.25	-10.48	-5.33	-0.62	-6.71	-1.84	-2.38	-5.11	-9.52	-0.86	-4.73	-1.24	-0.22	<b>-1.38</b>
Value Added	-1.16	-0.14	-5.73	-5.42	-0.68	-7.93	-1.20	-2.34	-3.69	-4.25	-0.97	-5.08	-0.88	-0.25	<b>-1.04</b>
Employment	-3.69	-0.14	-15.18	-10.57	-0.70	-18.07	-0.77	-4.69	-11.49	-13.01	-3.16	-11.64	-2.71	-0.87	<b>-3.23</b>
Employment: Formal	-0.43	-0.13	-4.04	-1.02	-0.25	-1.12	-0.45	-0.36	-3.80	-3.19	-0.39	-1.32	-0.49	-0.08	<b>-0.50</b>
Employment: Informal	-6.71	-0.15	-22.19	-13.30	-0.97	-23.12	-0.86	-5.54	-14.84	-18.70	-4.47	-15.15	-4.04	-1.12	<b>-4.71</b>
Employment: Low Skills	-10.49	-0.14	-38.05	-15.20	-2.10	-35.95	-0.80	-6.65	-30.71	-33.55	-7.83	-24.88	-14.71	-2.08	<b>-7.84</b>
Employment: Medium Skills	-4.87	-0.15	-18.20	-12.57	-0.78	-21.79	-0.85	-5.43	-13.22	-15.43	-3.93	-13.87	-2.84	-0.98	<b>-4.02</b>
Employment: High Skills	-0.51	-0.12	-2.34	-1.29	-0.25	-1.36	-0.39	-0.88	-2.56	-2.22	-0.74	-0.96	-0.69	-0.17	<b>-0.48</b>

## How much value-added is in coffee exports and how does it compare to direct coffee exports?

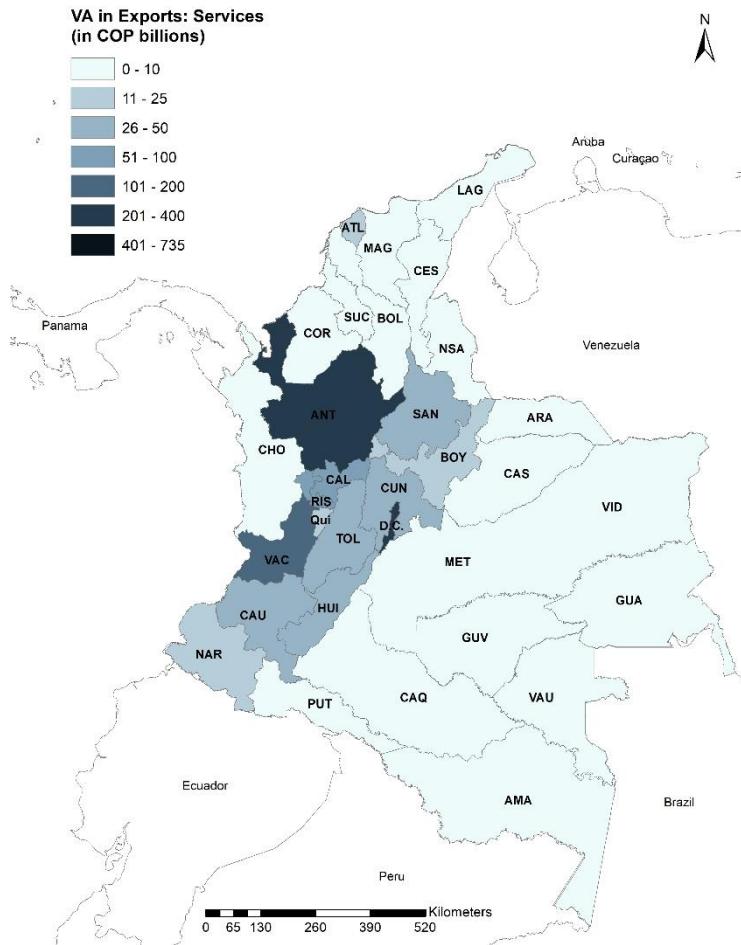
	COP billions	% of gross exports
Value-added in coffee exports	5,772	85.8%
VA in goods	4,713	70.1%
VA in services	1,059	15.7%
<b>Gross exports of coffee</b>	<b>6,725</b>	<b>100.0%</b>

# What are the main regions contributing to value-added in the coffee exports local value chains?

## VA in goods



## VA in services



## Next steps (room for collaboration)

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Effects of China demand on the Colombian coffee industry

Is there a change in the pattern of coffee consumption in China (e.g. youth replacing tea for coffee) that affects Colombian coffee industry?

How does enhancing the value-added-content in the Colombian coffee domestic value chain affect the income earned by coffee producers?

- Juan Valdez type of effect on Colombian coffee exports
- Quality effect

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